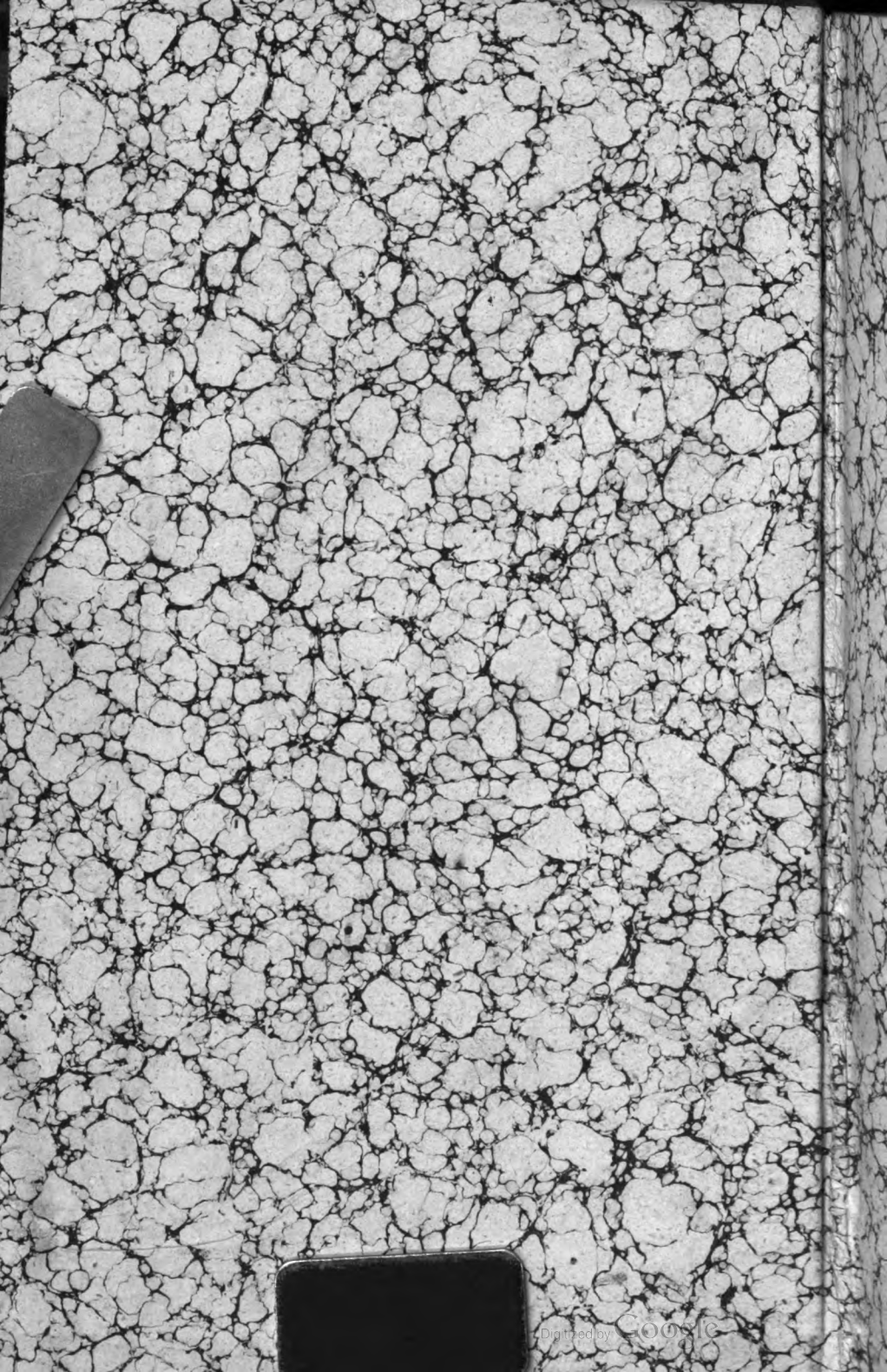

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THE

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THE

NAUTICAL MAGAZINE

AND

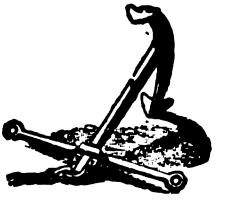
Naval Chronicle.

FOR 1854.

A JOURNAL OF PAPERS

ON SUBJECTS CONNECTED WITH

MARITIME AFFAIRS.



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THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

JANUARY, 1854.

The Bilge-Water of Ships. *Sulphuretted Hydrogen. Case of the Sybille.*

To the late Sir John Barrow the *Nautical Magazine* is first indebted for some highly interesting papers on the important subject of Sulphuretted Hydrogen* in the waters of the African coast. The intention of Sir John in thus making public the sources of this deleterious gas among the class of persons, who from their duties are most exposed to it, was to suggest the avoidance of those places where it is found as far as is consistent with duty; or, in other words, the propriety of not remaining in them longer than duty requires. It is gratifying to associate with the memory of the man deeds which have for their object the benefit of society at large, and in this instance the safety of those who are immediately connected with that department of the state to which Sir John Barrow devoted so many years of his life.

From the water in which ships float we now turn to that which they carry in their holds, called bilge-water, an analization of which from the same authentic source from whence the former papers came, and with the same excellent principles, have been communicated to us. They will highly interest the readers of the *Nautical.*

Among our seamen experience has long since shown the advantage of the system of purifying this water repeatedly, by letting salt water into the hold and pumping it out; and a consideration of the reports now before us will confirm the necessity of the strictest attention in

* The volume for 1841 contains the report of Professor Daniell of King's College, London. The same volume contains also the substance of a lecture delivered by the professor. The subject is also followed by Dr. Madden in the volume for 1845.

repeating this process until the water in the hold is as pure as that alongside. It is known that water pent up anywhere becomes stagnant in time, even when uncovered; but when confined from the air in the hold of a ship, and acted on by the deleterious juices of wood, besides containing in itself the germs of poisonous matter, it may be expected indeed to become putrid sooner, and to send forth those noxious vapours which it is well known to do.

A bottle containing water of this kind being obtained from the hold of H.M.S. *Sybille*, when commissioned at Devonport, has drawn official attention to the subject; and when analysing this it has also been a subject of consideration whether different kinds of wood did not produce different effects. In the *Alarm*, in the West Indies, the salt water acting on cedar was supposed to be the principal cause of the nauseous smell of the bilge-water. How far this was true will be seen by the following reports.

Report of the analysis of the contents of a bottle marked Bilge-water, from *Sybille*, received from Sir William Burnett, K.C.B., &c. on the 12th inst.

The contents of the bottle when allowed to remain at rest for some time, separated into two portions, viz., a black matter, which subsided to the bottom of the bottle, leaving the fluid portion above it quite clear and nearly colourless. The clear fluid was separated from the sediment by filtration, and each analysed separately.

On withdrawing the cork from the bottle, a strong odour of *sulphuretted hydrogen* was manifest; and by the application of the proper tests, the substance was found to exist in the fluid portion in very large quantity, partly as *sulphuretted hydrogen* and partly as *hydrosulphate of ammonia*. But beside this the clear fluid did not contain any other ingredients than is to be found in ordinary sea water.

The black matter which had been separated by the filter was then submitted to analysis by itself, and was found to consist of *decaying vegetable matter*, some *oxid and sulphuret of iron*, *sulphuret of lead*, and *sulphuret of zinc;* it is probable that a preparation of zinc had been employed for the purpose of taking away the offensive odour from this fluid; but if this has been the case, a sufficient quantity of it had not been used, for the clear liquor (having the strong offensive odour before spoken of), on the addition of a small quantity of chloride of zinc, immediately formed a copious precipitate of white *sulphuret of zinc*, and was instantly rendered perfectly inodorous.

The results of my analysis give in the liquid portion as consisting of sea water: sulphuretted hydrogen; hydrosulphate of ammonia.

And the solid portion as consisting of—oxid of iron; sulphuret of iron; sulphuret of lead; sulphuret of zinc.

I have had occasion repeatedly to examine the bilge-water from the holds of ships, &c., but in no instance do I remember to have met with it so strongly impregnated with sulphuretted hydrogen and its compound with ammonia as in this.

JOHN THOMAS COOPER,
Analytical and Consulting Chemist, 82, Blackfriars Road.

Chemical Department H.M. Dockyard,
Portsmouth, July 21, 1853.

Sir,—In accordance with your memorandum of the 4th of July, directing "experiments to be made to trace what description of wood is the cause of the strong smell of bilge-water so very seriously complained of in some ships, which was attributed to the use of cedar in the filling in between the timbers," a selection was made of twenty-seven different varieties of wood, that might either by chance or intention be used for fillings, including as many as could be obtained ready burnettized, and placed under experiment on the 6th of July in three different conditions.

First, in order to ascertain the combined influence of air and sea water as early as possible, equal weight of shavings were taken and placed in separate glass vessels, with an equal measure of sea water, to thoroughly keep them moist, being turned over daily.

Secondly, portions of each of the above specimens of wood, about three inches long by one inch, having two iron wires driven through them, to bring them in the condition in which they are sometimes found, more particularly in steam-vessels, viz., sea water, iron, and wood acting simultaneously on each other; were placed in separate glass vessels of sea water and daily agitated.

Thirdly, other portions of the same wood of various sizes were placed in a large tub of sea water, to remain for a lengthened period, to ascertain by comparison with the other results as to whether decomposition takes place more rapidly when varieties of wood are simultaneously brought together in contact with sea water.

It appears by examination of these experiments after fourteen days, that cedar is not the cause of the evil complained of in the *Sybille*, &c., as, with the exception of the elm and firs, cedar is the only wood which has not been acted upon, or produced some effect with the iron and sea water. The two specimens of cedar alone and in contact with the iron, have retained their fragrant odour; the colouring matter is not even disturbed: while others give signs of change in both conditions. In twenty-four hours the different oaks, in contact with the iron, blackened the water, and gave off in a few days more or less offensive odours.

I beg respectfully to submit, that as a longer period might produce a somewhat different result, it would be desirable to let the present series of experiments proceed, with any addition to them that may be suggested.

I have the honour to remain, Sir,
Your most obedient servant,
WILLIAM JOHN HAY,
Chemical Assistant, &c.

To the Admiral Superintendant, &c.

From the above it is clear that bilge-water is impregnated with offensive matter, imparted to it from the timber of the hold; but that cedar is not to be considered as contributing to it: that the more nauseous the odour from it, the more injurious it is, and the greater is the necessity for purifying it as before-mentioned.—ED. *N. M.*

On the Form of Construction of Light-Vessels and Buoys.

In these go-a-head days, when steam and even sailing vessels are rivalling the speed of railways, observations on the construction of light-vessels may appear to carry us back to the dark ages, or to any other period of "no progress." Certainly, the task of devising the best means for preserving a fixed station in the midst of this turmoil of locomotion is not a very attractive one and by no means in accordance with the restless spirit of the age. But it is a subject, nevertheless, of great importance;—the safe arrival and departure from this country of our almost innumerable marine being dependant on an efficient stationary *light* flotilla.

The great public advantages arising from an improvement in the form and moorings of light-vessels and buoys has escaped the attention of our naval architects, who have been occupied by the more attractive consideration of that construction by which ships may pass through the water with the greatest possible velocity; and as the ship has thus become the sole mistress of the waves she has been and is still in use for the purpose of stationary floating beacons.

A moment's reflection will, however, raise doubts whether the two opposite requirements, of speed through the water and of a stationary position upon it, can be best attained by the same form of floating body; and further consideration will show that it is wholly incompatible with the nature of these requirements that such can be the case. It may, at first, appear that the form which is best adapted to pass through the water with the least resistance is also the form best adapted to permit the water to pass by it, but this condition is only a portion of the case and the remainder wholly deprives the argument of its force. It must not be forgotten that the stationary floating body is fastened to the ground beneath it in the midst of the moving waters. A consideration of this part of the subject will show that the above condition is only apparent, other circumstances not being the same.

The present form of a light-vessel being that of a ship, we will first notice in what respects this mode of construction may be considered disadvantageous. It is taken for granted that the present form of ship is the best possible for the purpose for which it is used and presents the least objectionable features; but notwithstanding this is the case and though she is moored with 1½ inch chain cable, estimated to be strong enough for a sailing vessel of 700 tons, (a light-vessel being not more than 170 tons,) yet the power of the sea over the vessel is such as to occasionally snap these heavy chains. Now when we consider that the sea when not opposed is harmless,—as witness, the bottles which have floated unharmed upon its surface over half the world,—it is clear that the immense power brought into operation to snap these strong cables must proceed *from the vessel herself*, and the power of the waves to break a vessel's moorings may be considered to arise principally from the leverage upon the chain, which her form necessarily brings into

action. This action in ordinary weather may be harmless, but when the sea becomes rough it is then felt, and with a power which, under certain circumstances, is irresistible. Suppose, a heavy strain upon the cable from the weight of many tons at the end of a lever, as above mentioned, and the bow of the vessel struck by a sea at the same moment,—the chain breaks; for nothing can withstand the combination of these forces.

With respect to buoys the leverage is very evident, and it is this alone which causes them to break their cables. A buoy, having a displacement of about one ton, is moored by a ⅞ inch chain, calculated to hold a sailing vessel of 130 tons burthen; yet this small body will break such a cable. Buoys are generally moored from their lowest part. The lowest part is, in different sized buoys, at different depths below the surface of the water; but at whatever depth it may be below the surface, (the axis upon which the buoy moves being upon the line of flotation,) that depth is the length of the lever acting upon the chain, which, in its turn, reacts upon the buoy by the same length of lever. It is this lever which gives the sea power over the buoy to force it out of the perpendicular, the angle of inclination varying with the strength of the tide, and presenting an inclined surface to the sea, *to run up it* and act upon the upper part of the buoy;—thus bringing into play another lever. In very violent weather these joint powers will cause a small body of one ton to break a ⅞ inch chain cable.

It results from these considerations that leverage action may be regarded as the chief cause of insecurity in our buoys and light-vessels, and that before improvement can be effected in the construction of these bodies this radical evil must be remedied. Nature generally points out the road by which the accomplishment of any object may be best attained, and naval architects have availed themselves of the beautiful lines which fishes afford them to construct their swiftest sailing ships. In like manner, let us notice the method by which nature moors her own stationary floating bodies. We shall find on referring to the floating leaves of aquatic plants, especially to the magnificent leaves of the Victoria Regia and to those of the Lotus and others, that the mooring is in the centre of a circular body, and that in these leaves the centre of the floating body and the centre of gravity are coincident upon the line of flotation. Now here appears the principle to guide us in the construction of light-vessels, buoys, and other *stationary* floating bodies. In a circular floating body of weight the bottom of it will be below the surface of the water; if, therefore, the bottom of the body be hollowed out and raised up, and the mooring attached to the upper part of the hollow cone thus formed, we shall be able to accomplish the result which nature points out as necessary to be attained, viz., the mooring from the line of flotation, from the centre of the floating body, and from the centre of gravity; which, with a due attention to the distribution of material, may be made nearly coincident, and a light-vessel or buoy thus constructed will ride upon the waves in the most violent storms without any leverage action whatever being brought into play.

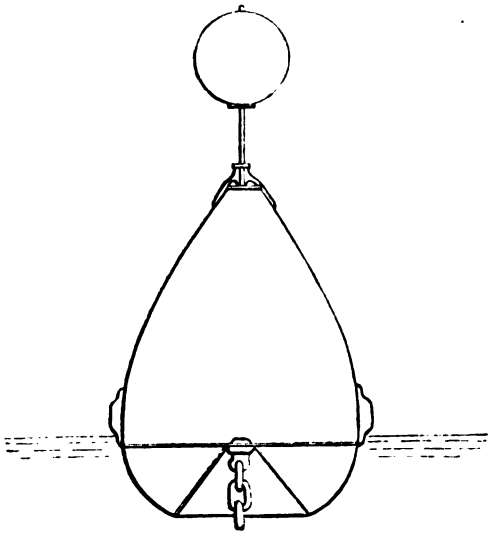
The action of the waves upon a circular floating body moored from its centre of gravity will be very different, almost wholly so, to that which takes place upon light-vessels and buoys of the present construction, although it requires some little trouble to divest the mind of the habit it may have acquired of contemplating the action of the waves upon floating bodies having a head, stern, and keel.

A light-vessel of the proposed construction must be from 30 to 40 feet in diameter. A circular vessel of this size will appear at first sight to present a larger surface to the action of the wind and waves than a vessel having only 20 feet beam and 80 feet length, but this is apparent only, not real. It rarely happens that the wind blows from stem to stern of a ship; it usually blows upon the bow and slantwise upon the whole length of the vessel, the stern being borne up by the tide or the cross sea. The sea bears the ship up against the wind while the wind is forcing her back again upon the sea, and thus an antagonism takes place between these two forces, each exerting more power as it is more opposed by the other, the ship being to them the handle to wrench and tear her from her chain. In a circular light-vessel, moored as proposed, this cannot occur; the wind may blow upon it and the sea may heave it up, but there can be no combination of opposing powers. If the wind be very strong a certain known power will act upon the chain, and no more from that source; if the sea run very high the vessel will rise with it, and the only strain arising from the action of the sea (apart from the tide) which the cable will be subject to will be that which will result from the "scend" of the wave, which will be found inconsiderable. It is not supposed that the cable will be subject to no strain, but it is assumed that it will be liable to no sudden jerks and also to no strain that has not been previously considered and compensated.

Among the many advantages which will result from this mode of construction will be that arising from the absence of all pitching and rolling,—by which is meant any movement a vessel may make in excess of the angle of inclination of the surface upon which it floats. It may, possibly, be thought that because the mooring is attached to the centre of the vessel that it will oscillate upon its mooring point as upon a fulcrum, but this cannot take place; the weight of the chain bearing down from the centre of gravity, together with the body of water in the hollow bottom, will impart very great stability to the whole of the structure, and to whatever angle the vessel may incline it will be dependent upon the angle made by the body in which it floats and will not relate to the point by which it is moored. From these considerations it will necessarily result that a vessel of the proposed construction can never be struck by a sea. This is evident: the body will be simply borne upon the waves, it will offer no resistance to them, and there will be consequently nothing for them to strike, —in fact, the vessel will ride over the waves instead of the waves over it.

These advantages, claimed for a vessel of 30 feet diameter, have been found to result practically in the use of buoys of six feet diameter.

The Trinity House has adopted buoys constructed upon this principle, and which are found to be superior to any yet tried. The accompanying figure is a vertical section of one of these buoys constructed of iron for them by Messrs. Brown, Lenox, and Co. On inspection it will be evident that the tide can have no power over the buoy to force it from the perpendicular by any haulage of the mooring upon it, or otherwise; indeed, the strongest tide has no effect in causing it to deviate from its perpendicular position, for whatever tendency there may be to produce a lean over by the tide pressing upon any side of it, it is directly counterbalanced by the pressure of the same tide upon the further or opposite side of the hollow cone of the bottom.



There can, we think, be no question as to the correctness of the principle of mooring any stationary floating body from its centre of gravity, and there can be but little doubt that the more distant the mooring is from the centre of gravity, the less steady and the less secure is the floating body. A glance at the construction of bodies ordinarily used for stationary floating purposes will immediately convey an idea of their unsteadiness and insecurity; the centre of gravity is in one part and the mooring is attached to another far distant.

We purpose returning to a further consideration of this matter in another number, and entering into the detail of the practical advantages resulting from this new principle of construction, and shall be ready in the meantime for any observations our correspondents may have to offer upon this very important subject.

Lifeboats and the Goodwin Sands. *By K. B. Martin, Harbour Master, Ramsgate.*

The enclosed particulars relative to an attempt made by the Northumberland Prize Lifeboat to save the crew of the French schooner *Eleanore*, wrecked on the Goodwin North Sand Head, with the appalling circumstances attending it, may, it is hoped, (if made public,) dispel the apathy which pervades the country generally upon the momentous subject, and induce the wealthy and the poor alike to contribute the means for providing a lifeboat at every populous maritime town along our sea-girt island. If a warlike foe struck down annually more than a thousand of our brave seamen at the very threshold of their homes, we should arm *en masse* to the rescue. Surely so righteous a cause as this cannot be much longer neglected. The press is all powerful, and as a subscriber to the *Nautical* I feel assured that its pages are opened by that class who ought and who will take the lead.

The following are depositions of the master, mate, and crew of the (Northumberland prize) lifeboat stationed at Ramsgate, November 8th, 1853.

"At sunset an increasing and heavy gale, veering in sudden squalls from north to N.N.E. Lifeboat prepared and moored afloat in the harbour.

"At 10.5 p.m. the North Sand Head Light-vessel fired alarm guns and threw up rockets. At 10.20 p.m. we cleared the harbour. The harbour-master sent the steamer *Samson* out with us, and she took us in tow. Set the fore lug and ran away before wind and sea very fast; about 11.10 p.m. spoke the light-vessel, who informed us that a vessel was seen on shore in the S.S.W. direction, upon the face of the sand; being very dark and a heavy sea and spray, she was not then visible. Proceeded as thus directed, and found three luggers at anchor, near a schooner, with a terrific sea breaking over her, which made it too fearful for them to approach her. The steamer, at great risk, towed us up to windward to a position for veering down on the wreck, and we let go our anchor, and slacked away down to the wreck, but the anchor came home. The sea nearly threw us on her, but a sweeping tide rushing past her, carried us astern of her and to leeward. The *Samson* took us again in tow; sheered close alongside the lugger *Ondine* for more help; and three of her crew, at great risk, jumped into the lifeboat. Steamer again towed us up into a position through a heavy sea, which washed away a part of her paddle-boxes, and at times nearly brought her up. Anchored again, and veered away to 100 fathoms of cable. Sheered close alongside. Spoke to the crew; threw lines on board the wreck, but they could not make them fast; the lifeboat striking in the hollow of the sea, and the tide again brought the anchor home. Two successive seas filled her, swept her away from the wreck and on shore among the breakers upon the face of the sand. She must have gone to pieces but for her great strength

of build. Fortunately the anchor held now sufficiently to check her bow to sea, as the tide flowed and she came off under the canvas; oars were useless till she was again afloat.

"The steamer came round to us and towed us up to windward a third time, when we anchored; and having veered away 130 fathoms of cable, again tried to sheer alongside, the tide now flowing rapidly with a terrific sea. The schooner heeled over and was fast breaking up; the lifeboat striking heavily and every sea filling her, took away all power, and sheered us off in the tide, with the anchor coming home, we drove to leeward, passed the three luggers, and losing sight of the schooner as she went to pieces. The steamer again took us in tow, and at 6.30 a.m. on the 9th, arrived in the harbour, having been eight hours on this service without an atom of refreshment."

Signed by the Master, Mate, and ten of the lifeboat's crew. Attested K. B. MARTIN, Harbour-Master.

As the schooner broke up the captain of her stript naked and swam to the nearest lugger (the *Ondine*) and was saved and brought on shore at Ramsgate. In conversation with me, he assured me that he did not think any thing could have held on alongside the schooner, the sea was so heavy, the tide so strong, and the vessel rolling and plunging upon the ground. They (the crew) were all lashed fast to the wreck, and he believed all hands (himself excepted) had perished.

The master of the lugger *Ondine* and his mate deposed before me, that it was impossible to approach nearer in the luggers. The *Ondine* was within hail; but when the lifeboat was on shore among the breakers, no assistance could be rendered them, and the lugger's crew feared that they too in the lifeboat would be lost: and as regarded the steamer, had anything stopped her engines, nothing could have saved them. This man added, "I wished myself at home, I never saw anything so frightful all the times I have been near wrecks. The dark night with such a terrible sea! the cries for help of the poor men! the roaring and smoke of the steamer! and the lifeboat ashore with every sea breaking sheer over and over her, tried our heart-strings, I do assure you! and at daylight we could see nothing but the raffle of the wreck, and we came away."

Ten hours, however, after this, the weather having moderated, the lugger *Charlotte Ann* was cruizing along the outskirt of the sand, and they saw the cabin-hatch with, about nine feet square, a fragment of the deck upon the shoal, attached to a part of the prostrate rigging and spars; and taking their glass they saw what they fancied had some resemblance to a human being, but without motion. To land on the sand in their small boat was practicable with great risk, but to get off again on that side impossible. They looked again,—it slowly lifted a hand!—it was then a man!—and their minds were soon made up. To launch through the surf, rescue him, and carry their small boat across the dry sand to the lee, where it would enable them to launch. This was done. It was the only passenger the ill-fated vessel had. He was insensible; but when they got him to the lugger he swallowed

greedily a quantity of hot coffee and was gradually restored. When brought on shore at Ramsgate his meeting with the captain may be conceived, description is impossible. They have both been cared for as befits a Christian country, and the captain has indeed verified the beautiful language of redeeming love, "I was naked and ye clothed me, and took me in!" for clothes had to be sent on board the lugger on arrival, where he laid in the fore peak covered with such spare garments as they could divest themselves of.

Now, my dear sir, I crave a page or two of your valuable periodical to make an appeal to our common country. Oh that I had the power of an Incledon to charm them into generous efforts for the common weal! His

> "Cease, rude Boreas, blustering railer,
> List, ye landsmen, unto me;
> Messmates, hear a brother sailor
> Sing the dangers of the sea."

But I presume there are few naval officers, who really feel an interest in British mariners, who are not readers of the *Nautical*, and if we determine to make "a long pull, a strong pull, and a pull altogether," we always have had great influence with our countrymen, aye, and countrywomen too. The prestige of the blue jacket is not quite extinct. Well then, there are two societies which especially call for our aid and assistance, "The Royal National Institution for the Preservation of Life from Shipwreck," and "The Shipwrecked Fishermen and Mariners' Benevolent Society." They are both doing much, but much more remains to be done.

Let us consider the principal features of this case. Here was one lifeboat, and but one; and suppose for a moment that her cable had broke when she was on the sand beating in among the breakers; the crews of the luggers declare that in such event they must have perished. They, who had gone to rescue others! Again, the steamer might have shared her fate. Was it not a fearful risk they took? Let them answer who know what a trivial accident will at times stop the steam-engine; and here upon the weather side of the fearful Goodwin, in storm and darkness, was a small tug, of only fifty-horse power, manœuvring with a lifeboat in the very jaws of death, and where a few minutes' stoppage would have decided the fate of her and her crew. I am not endeavouring to excite sympathy or reward in their behalf; they require none! They have the proud consciousness of having done their best, and their regrets were extreme when they returned unsuccessful.

There are peculiar features as regards the Goodwin Sands. Their immense extent, their whirlpools of tide, and their distance from the land. Men launching to a wreck at a small distance from the shore, within hearing of the plaudits and stimulus of their fellow men, who line the strand to their assistance as they return before wind and sea, is sufficiently perilous to daunt many a firm heart; but to rush to the summons of the minute-gun and rocket, and to bear away to sea with

an *off-shore gale* to *outlaying shoals* seven or eight miles from the land, from whence they must labour against wind, tide, and sea, in a dark night, and with the conviction that the powers of the tempest may baffle all their attempts either at rowing or sailing, may well bid us pause, as to *how* and *when* they are to return?

And is the Northumberland boat to be *solus* on such a coast as ours? in a district studded with populous towns and roasteads overlooking the great maritime thoroughfare of the fleets of Europe. Surely public spirit will enable one or both of these Societies to place an efficient lifeboat at Her Majesty's Dock-yard at Deal. The Goodwin Sands are eleven miles in extent, and one boat* is not sufficient, or one station, to command such a line of dangers; and a most effectual aid might be afforded to the luggers on this line of coast if one of H.M. small class steamers† was stationed in the Downs anchorage with a slip buoy on her cable and lifeboat to her davits, ready to proceed to any part of the shoal when called by signal from the light-vessels. Much valuable property might also at times be rescued from destruction by such a valuable auxiliary, whose officers and men should be liberally rewarded by salvage money for such extra risk and peril. Such a vessel would be a check to imposition, mutiny, and desertion in an anchorage so constantly crowded as the Downs, and might also be auxiliary to Coast Guard or Coast Volunteer Service. Hoping that this appeal may elicit the aid of the wealthy and the patronage of men in power to furnish the means to so desirable an end, I now close my subject.

[We shall be glad to receive communications from any of our readers on this subject.—ED.]

VOYAGE OF H.M.S. "RATTLESNAKE," *Commander Trollope, through Magellan Strait to the Sandwich Islands.*

[The *Rattlesnake*, under the command of Captain H. Trollope, sailed from Plymouth for Behring Strait on the 24th of February, 1853. Left Valparaiso 31st May and the Sandwich Islands 25th July. The following is an account of her voyage.—ED.]

May 10th, 1853.—We had a beautiful day to approach the Strait of Magellan. A fine royal breeze from N.W.b.N. carried us into the land, and about 9 a.m. Cape Virgins was descried, west, fifteen miles.

* There are two beautiful boats of their class at Broadstairs, munificently presented to his native town by Mr. White, shipbuilder at Cowes; but with a heavy northerly gale it is apprehended they could not row back against wind, sea, and tide from the North Sand Head; and they did not launch on this occasion.

† Captain Fred. Bullock, R.N., when surveying officer on this coast, continually assisted ships when in danger of going on shore; and in one instance, with H.M. steam vessel *Porcupine*, towed a valuable ship from out the Swatch between the forks of the sand against a strong wind and sea.

At this bearing it is not very easy to say which is the Cape from its being seen in line with the land to the northward, but when south of the Cape it is as remarkable as the South Foreland; the land to the northward is shut in and it stands out a steep bluff headland. Mount Dinen, however, is easily distinguished, and with Captain King's sketch and chart the whole will be recognised.

It was the new moon on the 8th May and high water to-day at 9.47 a.m., but the stream of the flood made until 1 p.m., setting W.N.W., true, (west. magnetic,) but, as I expected the stream of the ebb would make about the time we cleared the Sarmiento Bank, I kept her well up for Dungeness so as not to be set to the southward and eastward by it. The least water we had in passing the Sarmiento Bank was 10 fathoms, and the Straits opened out to us in one of the most beautiful days I ever remember. About 11 a.m. we observed a vessel coming out of the Straits; conjectures were busy as to what she was; at first she was only a sealing vessel, but after many long and anxious looks we had the pleasure of descrying her number, and I believe they (on board the *Vixen*) had equal pleasure in making out ours. Captain Barnard had been waiting our arrival since the 17th April, and, not knowing our detention at Portsmouth, had thought we must have passed on round the Horn. Cape Virgins is a bad place to give as a rendezvous; it is difficult and dangerous to keep off it, and could, probably, only be done at great sacrifice of wear and tear; but the anchorage under Mount Aymond, in Possession Bay, with the "ears" just dipped behind the Mount, is a safe and secure anchorage; easy to approach and also to leave, and where a vessel may also lie out of the strength of the tide in moderate depth of water, with the further advantage of being in a good position for passing the first Narrows.

The *Vixen* took us in tow inside Dungeness, which only wanted the lighthouse to make us believe we were not off our own point of that name. We went through Possession Bay with all sail set, going, by the log, eight, nine, and ten knots, but the tide was against us and, although the distance she towed us was thirty-five miles only, we did not come to an anchor until 4 p.m. The American ship *James Shepherd*, of New York, entered in company with us and reached the same anchorage, unaided, about four hours later. The marks of the anchorage are

Mount Aymond, W.b.N.¼N.
Mount Dinen bluff, E.b.N.¼N.
Highest part of bluff abreast, N.W.¼W.
About seven miles from the shore. Sixteen fathoms, coarse sand.

This American ship was going round the Horn but sprung a leak and bore up for the Straits; he had neither chart nor directions. Captain Barnard gave him the former and he went on. I could not but admire his enterprise.

On the following day, May 11th, the *Vixen* took us in tow again at daylight, little before 7, and towed us through the Narrows with the first of the flood. The weather was fine and warm but perfectly calm,

so that the American remained behind. We accomplished eighty miles on this day, and off Elizabeth Island caught a sight of Mount Sarmiento or Roldan's Bell of Magellan, it must then have been eighty-five or ninety miles distant and is a rare sight at any time. Mount Tarn, Mount Graves, and the hills at the back of Port Famine, were all covered with snow, in strange contrast to the mildness of the day. I could not but think of Captain King's quotation from Duclos Guyot,—"At length, on Saturday, 23rd March, we sailed out of that famous Strait, so much dreaded, after having experienced that there as well as in other places it was very fine and very warm and that for three-fourths of the time the sea was perfectly calm." A line of Wordsworth also came into my mind:—"For all things are less dreadful than they seem." How often this is experienced in life.

After passing Leredo Bay, about sunset, the steamer cast us off, and we stood on under topsails, jib, and driver, with a light breeze from north, to pick up a berth for the night under Point Arena, where the Chilians have placed their settlement. The night was pitchy dark and we stood in expecting to find about 12 or 14 fathoms, but, although the lead was going and we also tried casts with the deep sea, we could not get bottom with thirty fathoms. I was deceived by the height of the land and the darkness of the night, not getting soundings also made me feel sure we were farther off shore than we proved to be. Our first sounding was 28 fathoms, then 10, and then 5. I have now reason to believe a mistake was made by the quartermaster in the chains; however, before we could round to we had 3 fathoms, and before her way was checked she took the ground under the port bilge, in 2¾ fathoms, but so gently that it was only by sounding I could persuade myself that she hung there. We hoisted the cutter out, laid the stream out, and made the signal to the *Vixen*, but she had already come to an anchor in 14 fathoms. We struck topmasts, got hawsers ready, and when the *Vixen* came near us laid one out to her and hove it taut; then, as the tide was falling, we did not attempt to move. It was an hour before low water that we touched, and when the tide began to rise again the strain we had previously brought on the hawser took her off without effort and we shifted further out, into 14 fathoms. Getting a ship ashore is a mortifying thing at any time. Although no injury resulted from it, it gave us a great deal of work, and the hands were on deck for six or seven hours after dark. The height of the land and the darkness of the night, together with not getting bottom, deceived me, or I should not have stood so close in.

On the following morning, May 12th, we were underway at daylight and left the scene of our mishap almost without having seen it, for the morning was dark and gloomy. The Chilian Commandante had communicated with Captain Barnard and we brought a letter from him to Valparaiso, but I did not ascertain any particulars with regard to the settlement except that it is of little profit and too large for what I should think would be its only real use, a refuge for shipwrecked people.

The scenery of the Straits now begins to improve and is not devoid

of a species of sullen grandeur, but I felt the force of a description of winter by Gawain Douglas in looking at these gloomy shores more than ever I did before.—"The fern withered on the miry fallows; the brown moors assumed a barren mossy hue; banks, sides of hills and bottoms, grew white and bare; the cattle looked hoary from the dank weather; the wind made the red reed waver on the dyke. From the crags and the foreheads of the yellow rocks hung great icicles, in length like a spear. The soil was dusky and grey, bereft of flowers, herbs, and grass." This is a fair description of winter anywhere, perhaps, but I seemed to feel its truth more here with a westerly gale and showers of sleet and rain.

On the 12th we anchored in the Bay of St. Nicholas; a very picturesque bay and good anchorage. We hauled the seine here and got a few mullet and hake, but not in any plenty, hardly enough, in fact, for the fishing party, but it was a little change after our voyage to touch terra firma. Wood may be obtained but the water is indifferent, although Captain Barnard got some for the *Viren*. We met some natives here who were as harmless and miserable as Captain Fitz-Roy describes them. Bearings of anchorage:—

Islet in centre of Bay, N. 7° E.
Right extreme of Nassau Island, N. 47° E.

Seventeen fathoms, sand, but on veering to fifty fathoms we had twenty-nine fathoms alongside.

The bottom is uneven and the bay is much less extensive than it seems, from the deepness of the water outside and the shoal which lines the shore nearly a quarter of a mile off. The distance to-day was only forty-two miles; but the glass was lowering and the weather looked so threatening that it would not have been prudent to have gone on.

13th May.—We were towed round the frowning gloomy promontory Cape Froward, the most southern land of the American continent. The scenery here is very fine; the opening to the Magdalen Channel, which here resembles the strait or main passage more than the actual one through Crooked Reach, realizes all that one can imagine of an Alpine lake; the distant peaks covered with snow, the noble expanse of water, bounded and yet opened out by the numerous channels and indentations, made a fine panorama. All was grand except mankind and here certainly that is very low in the scale.*

We reached Fortescue Bay, Port Gallant, about sunset, and anchored in 7 fathoms.

Centre of Wigwam Islet, S. 59° W.
Summit of La Cruz, S. 85° W.
Milagro Point, S. 64° E.
About two cables' length off shore.

This is a capital well sheltered anchorage, perhaps the best in the

* Captain King we believe it is who considers them the lowest in the scale of the human race.—Ed.

Straits, easy to quit and to approach. Port Gallant is a perfectly landlocked basin where a ship might be hove down with the most perfect safety; but unless needing very serious repairs the outer bay is far more generally useful. The weather was looking gloomy and threatening. We had hard squalls during the night from W.N.W., but, although in the extreme outer part of the bay, we did not feel them in the least.

Saturday, 14th May.—The breeze was very fresh to-day from W.N.W., and the narrowness of English Reach caused a bubble in the water, which increased the *Vixen's* work very much. I thought more than once that we should have been obliged to put back; however, we succeeded in reaching Borja Bay, which, although only twenty-five miles from Port Gallant, was more than I, many times during the day, had thought we should accomplish. We anchored in 23 fathoms, sand, shell, and mud.

Cross on Borja Island, S. 11° E.
Extremes of Bay, N. 79° E. and S. 41° W.
El Morion, S. 17° W.

Borja Bay is a snug little cove and a very secure anchorage, but very small, and, except in the inner part, the water is very deep. It cost us a good deal of time and manœuvring before we could get into position for the *Vixen* to take us in tow on the following day, more particularly as we found the *Otter* (Hudson Bay Company) steam-vessel wooding; she, being the first comer, had the centre of the best part of the bay and made it a matter of difficulty for us to pick up a convenient berth for the morning. The remarkable promontory El Morion or "the helmet," aptly named, is described by Captain Stokes and Captain King, and I thought of the Castle of Otranto and the gigantic helmet and waving plumes in that child's tale with a semblance of reality that it had not had before.

15th.—Although the weather was threatening and the glass low, the wind was moderate. We sailed at 7 a.m., and proceeded, the *Vixen* towing us eight knots, through Crooked Reach into Long Reach. Of course we did not look for the rock reported by Capt. Paynter of the *Gorgon*, S.S.W. of S.E. Morion, and also mentioned by Commodore Byron in his voyage as a league east of Cape Quod. We stood over to the south shore, and were soon out of its neighbourhood. The weather grew thick and dirty; the wind did not rise, but it threatened, and Capt. Barnard determined to anchor for the night in Half-port Bay, a very poor place indeed. We anchored in 20 fathoms, and on sounding round the ship found 2 fathoms, 2½ and 5 fathoms within two ships' length.

Captain Fitz Roy speaks very well of it, and it may be for one vessel; but there is certainly not much choice of berths, particularly when a long steamer is in one. Captain Barnard was obliged to lay a warp out to the shore to ensure his turning: and we took the precaution of keeping the towing hawser on board during the night, for we were in 20 fathoms, rocky bottom, and had only 36 fathoms of cable

out. Altogether I was very glad when the morning came, and we left this poor place. A very deep opening points out this anchorage, which might be very well for a single vessel in this part of the world, but we certainly did not get a good berth, nor, as far as I could judge by partial soundings, was there much choice in other parts of the bay. We only advanced thirty-six miles to day. Bearings in Halfport Bay, which are only given that the berth may be avoided, 20, 23, fathoms.

Small island off mouth of bay, N N.W. ½ W.
West point of bay, N.b.W. ¾ W.
Outer of two islets, E ¼ S.

Monday, 16th May.—The weather was threatening; the wind from west and W.b.N., but we were glad to leave Halfport Bay while we could. Misty rain and squalls prevailed throughout the day, so that oftentimes the shores were quite hidden. We thought of going into Darby Cove, but there was nothing to point out the anchorage, and we rather looked upon it as a second Halfport Bay. The *Vixen* therefore veered a buoy to us, by which we hauled her stream cable to us, and secured it, prepared to pass the night underway. A rolling swell came in now, we opened sea reach, and the steamer hardly seemed to move us. We observed the little *Otter* bear up for Tamar Harbour again; and we found we were not able to make head against the wind, and were evidently settling down on Point Felix. We therefore wore in tow of the *Vixen*, and stood N.W.b.N., laying up between Cape Philip and Cape Parker. The wind was not steady, veering from W.S.W. to W.N.W., and blowing at times in furious puffs; but the *Vixen* did much better than I anticipated, and I was surprised at daylight to find that we had advanced as far as Tuesday Cove. We had during the night wore four times, managing very well with the yards and fore, and fore-topmast staysail; but the breeze increased very much, and the sea rose with it. As we had the sea now open to us, the *Vixen* could not have done much against it, we therefore decided on going into the Harbour of Mercy, now only seven miles from us. The weather was very thick; heavy snow showers from time to time shut the coast in on either side, and then broke out again to let us see where we were going.

The island named Westminster Hall, which in shape does not bear a bad resemblance to the high pitched roof of that fine building, is a capital mark in this part of the strait; but the Harbour of Mercy or Separation Bay of Wallis and Carteret can hardly be mistaken. First, as it is only three miles within Cape Pillar; the observation islands N.N.W. of the anchorage. A remarkable conical peak (certainly the most remarkable of the many peaks of the neighbourhood) further points it out, bearing S.E. (magnetic) from the centre of the bay, and outside the remarkable cliff of Tuesday Cove, making like the wall of a house, and prominently standing out before the land to the eastward of it, distinguishes this port with great ease; but the chart is the best guide.

We had an anxious night, and were glad to get into what we felt

with truth to be the Harbour of Mercy. At 10 a.m. we anchored in 14 fathoms dark clay. We passed through patches of kelp in entering, but had not less than 12 and 10 fathoms. The bearings of the anchorage.

Mercy Head, S. 85° E.
Misericordia Point, N. 75° W.
Conical Peak, S. 40° E.
Peak on Westminster Hall Island, N. 46° E.
Twelve miles distant.

The gusts were furious during the day, but we did not seem to feel them; they whistled over our heads, and seemed to strike the water outside of us. The glass, which had indicated this breeze, (one was down to 29·35, another to 29·49,) now began to rise, and the night was fine.

In the morning it was quite calm. At daylight on Wednesday, 18th May, the *Vixen* took us in tow for the eighth and last time, and towed us past Cape Pillar, against a very heavy rolling swell, the result of the gale.

Cape Pillar is a most remarkable point; it is aptly named, for it appears a sort of Stonehenge,—a mass of huge misshapen pillars. We stood out W.S.W., (due west true,) the *Vixen* towing us five knots. The glass continued to rise till 10 a.m., and then began to fall slowly. The day of our leaving the straits, like that of our arrival, was beautiful. About noon a nice breeze sprung up from east and E.N.E. We cast off from the *Vixen* and made all sail, standing W.S.W. The *Vixen* gave us three cheers on parting company, which we returned with great goodwill. And I cannot say good bye to Captain Barnard without returning our grateful thanks for the able and efficient assistance afforded us. We were exactly eight days in coming through, from noon on the 10th May until noon on the 18th, anchoring seven times; having had our run of fine weather and our full share of foul, although not by any means what we might have expected, and certainly what I did anticipate in passing through these far-famed straits.

The *Otter* arrived from Port Tamar the evening before we sailed, and remained there after we had sailed taking wood and water in. She sailed from England on the 4th February, crossed the line on the 3rd March; went to the Falkland Islands for water, remaining there a week, from the 14th to the 21st April, and anchored in Possession Bay on the 2nd May; or 69 days to the Falklands, while we were 73 days to the Straits of Magellan. He appears only to have steamed on leaving England, and for five or six days through the Variables. He was sixteen days in the straits when we left, having anchored in Possession Bay on the 2nd May; and from the furious N.W. gale which sprung up on the 19th May, I doubt very much his having got out even then or for some days afterwards. He had anchored six times: Possession Bay, Gregory Bay, Port Gallant, Borja Bay, Tamar Harbour, and Harbour of Mercy. He was bound to Vancouver Island, and hoped to reach it in 70 days.

The Master, Mr. Miller, gave rather a good account of the refresh-

ments to be obtained at Stanley, Port William, and spoke of it as doing all that could be expected. Beef of fair quality for twopence a pound, vegetables still poor in supply from the necessity of having the gardens protected from the fury of the S.W. gales.

The *Otter* was 286 tons, 135 feet long, 22 feet broad, and 225 h.p. She had 100 tons of coal on board, and consumed about 4¾ tons a day. He not only obtained wood but coal in the straits, having found a supply that had been left at Port Famine, from which he helped himself. I believe they had been sent there a year or two since by a merchant of Monte Video or Buenos Ayres.

Mr. Miller gave us an account of a curious interview one of his Mates had with the natives between the First and Second Narrows. He saw the mounted horsemen, and sent a boat on shore to see if they wanted anything. The natives, four in number, came down, very civilly putting their arms down previously; but when the Mate wished to embark, the chief detained him, and expressed a wish to go on board. On which it appears the Mate, who wished to get off the proffered visit, gave him to understand that he would come for him the next day. But the Patagonian saw through the evasion, and with great indignation said, "You damn lie. You bad heart, you." And seemed at first as if they were inclined to detain him. However, when the rest of the boat's crew came up, they did not attempt any violence. But it seems to have been an opportunity lost of seeing something of these people.

Thursday, 18th May.—The easterly breeze continued carrying us seven and eight knots all night; but the glass was going down rapidly. We saw the Evangelistas, that name characteristic of the Spanish spirit of devotion, called by our old navigator, Sir John Narborough, the Direction Isles; they are direction isles, but the thought was a happy one to call four such islets so well placed as Direction Isles for a difficult and intricate navigation by the name of Evangelistas. Although all that nomenclature which the Spaniards and Portuguese were so fond of had but little of true religion, but was in fact little better with most than a debasing heathenish superstition, sanctioning every outrage, still I could not bring myself to call the islets by any other name than Evangelistas, notwithstanding the respect I have for the quaint Sir John Narborough and his ingenious Lieutenant Nathaniel Peckett. I could not imagine where such names as Sweepstakes Foreland, Bachelors Bay, and Cape Quod came from, until I got hold of Sir John's Voyage, when I found his ships were named *Sweepstakes* and *Bachelor*, curiously indicative of the manners of Charles II.'s time. The peaks of Cape Victory of Sir John Narborough's islands are the most broken, fantastic, and iron-bound that can be imagined; a coast for a vessel to avoid by all means. I was thankful to get the easterly wind, it was a Godsend to take us away from such a coast, particularly as we had no business there, and Captain Fitz Roy particularly recommends standing into 80° before attempting to make northing. The result in our case proved the excellence of the advice. The glass continued to go down rapidly; and the weather was thick

and gloomy, with rain; but still I did not anticipate wind, except from the barometer. We made all preparations, and about 1 p.m., after a lull, almost a calm, for a quarter of an hour, the wind changed suddenly with a furious squall from N.E. and E.N.E. to N.W., and blew as hard as I ever remember to have had it. We were, however, pretty well prepared, and had only the foretop sail to furl, under the main topsail and fore staysail she laid to very well with her head to the S.W.

The glass began to rise soon afterwards, and the fury seemed to be over in the first burst, although it still blew very hard, and continued to do so for ten or twelve hours. I feel sure this may be adduced as an instance of the benefit to be derived from watching the barometer.

A succession of gales came on, with a turbulent cross sea, chiefly W.N.W. and west. These, had we been closer in shore, would have been against us, whereas we now made a fair wind, and stood to the northward, indifferent as to easting. Until we arrived in 36° S. and 75° W., we had hardly anything but gales, and squalls, and heavy turbulent seas; those who had not been in the Pacific before thought it strangely misnamed.

In approaching Valparaiso we very nearly overran the port, although we hove to when we were, as we thought, ten or twelve miles south of Coromilla Point. At daylight on the 31st May a beautiful meridian altitude of the moon gave us a latitude two miles north of Valparaiso Point; and two hours afterwards we made the lighthouse E.b.S. ½ S. seven or eight miles. We stood over towards Con Con, and, contrary to my expectations, got becalmed there; for, from the freshness of the southerly breeze outside which had obliged us to reef during the night, I did not anticipate want of wind, but the reverse. However, we were becalmed, and fortunately half a dozen shore boats came out, who, with our own and a light air from the northward, carried us into the bay at 2 p.m. These boats are in the habit of towing vessels in and out, for it is a peculiarity in this bay that outside a line between Con Con and Valparaiso a fresh breeze may be blowing, while inside it is provokingly calm. We experienced this both in coming into the bay and also in leaving it. We anchored in 31 fathoms mud.

Bell of Quillota, N. 62° E.
Point San Antonio, S. 49° W.
Valparaiso Lighthouse, N. 71° W.
Church of San Matriz, S. 42° W.

Valparaiso is crowded with shipping, among which little order seems to be observed; I mean as to their berthing. It is in fact a bad and indifferent anchorage, particularly at this season when the northerly winds prevail, tumbling in such a swell that nothing can be done. We had engaged caulkers, and on two days they would not come off on account of the swell, which they said would make them sick. It was also difficult for us to get our provisions off on two or three days. The depth of water is also a serious drawback; there is little less than

20 fathoms anywhere, and from the vast increase of trade it is rare now to come to in less than 30; but in spite of all disadvantages it is wonderfully on the increase, and is certainly without comparison the first trading town on this coast. It is unmistakeably dirty. Winifred Jenkins' account of Edinburgh would barely do justice to it. There is no fear of hysterics I should say to the people here. Nevertheless it thrives and grows rich: among other proofs an immense building is erecting (on entirely new ground where Fort St. Antonio formerly stood, only that the cliff has been blown up and the soil thrown into the water, so that the coast line has been considerably altered) as a custom-house or bonded store-house, in which all goods are to be placed. I believe the government are paying £20,000 sterling per annum for this building, for which of course the custom dues reimburse them. It is plain but regular, and from its massiveness and extent not by any means devoid of a certain air of grandeur. Certainly there is not much to compete with it, and therefore it is saying little, that it is the finest building in Valparaiso; in fact it is the only feature in an architectural point of view that at all strikes the eye.

We found H.M.S. *Dædalus*, Captain G. G. Wellesley, here, just arrived from San Blas, with nearly a million of dollars freight for England. She sailed on the 3rd June for the Falkland Islands, Rio, and England, getting the *Nueva Grenada* steam vessel, going for the first time to Valdivia and Concepcion, to give her a tow out. It was rather delicate work, as packets are not fitted for it; but the Captain was very civil and obliging, and did it very well. By getting out on this day, Captain Wellesley took advantage of a northerly wind, which continued for the next three or four days, had he delayed I do not think he could have got out at all. It is surprising they do not get a tug vessel here, it would I imagine soon repay the outlay.

The Chilian squadron was lying here, making a very respectable show, taking apparently considerable pride in their appearance.

I hoped to leave Valparaiso on Monday 6th June, but, instead of sailing, was obliged to let go another anchor and veer to 160 fathoms on account of a northerly gale; in much anxiety also of being fouled by merchant ships, which, after the breeze was done, were shifting in in trying to get out. On Tuesday and Wednesday we were equally unfortunate, and on Thursday, 9th June, started in a calm and got our shoreboats to tow us out. The line of breeze was distinctly defined. It sprung up about one o'clock and the vessels outside a line between Con Con and the Lighthouse Point, St. Angeles or Valparaiso Point, were heeling over to the breeze while we were becalmed, or the little air there was from the northward. The boats towed us out steadily but slowly and we should not have done it, I think, without their assistance. They are five-oared American whaleboats and pull very tolerably, making a great row with it. When we crossed the above line we got the breeze fresh from S.W. and we stood N.W.b.W., going eight knots

The caulkers at Valparaiso appear to do their work efficiently but

are very slow, and if there is any swell in the bay will not come off, on account of sea sickness.

We stood to the northward with a steady breeze from S.W. and S.S.W., and on Monday, 13th June, sighted the Island of St. Ambrose. By a curious omission it is not put down in Captain Fitz-Roy's chart of South America, neither is Malpelo or Cocos, perhaps they were forgotten because not visited by the *Beagle*. We sighted St Ambrose before daylight, almost, bearing W.b.N.½N., thirty miles distant. It has been described by Colnett and by March, an American Captain, who gives rather flowery descriptions of the places he visits; he says there is good water upon it, and so placed as to be useful for supplying a ship. Captain Bruce, in the *Imogene*, passed by it in 1837, and, from the resemblance to the rock off Haddingtonshire, called one of the rocky islets off the east extreme the Bass Rock, which it certainly resembles. We made the longitude of the west extreme rock 79° 59′ W. of Greenwich or, by five chronometers, 33° 8′ 5″ W. of Valparaiso, 71° 41′ 5″ W. (Raper). Its height, i.e. the highest summit of the isle itself, is 1512 feet, by three observations. I took some angles in passing and protracted the position of the islets, which will show better than any description can how they lie from each other. The latitude of the west extreme rock we made to be 26° 21′ S. We did not approach within eight or nine miles and can, therefore, give but little information about them.

St. Felix Isles at first sight make like two, which, in fact, they are; only divided or joined by a low reef, which is, I believe, at times passable; at all times the sea breaks upon it. They are curiously formed with two hills or rugged peaks at each extremity. Somebody compares it to a double headed shot, which, in fact, it does in some measure resemble, only one of the shot ought to be severed from the bar. To the westward again lies a very remarkable steep rock, sometimes called a Sail Rock; to me, the resemblance seemed perfect to the west point of Peterborough cathedral. I was reminded of it directly, but this is all fancy. It is most desolate and barren in appearance, and it is so described by Colnett. We had swarms of flies off it, which was also remarked by Colnett as the only living thing on the island.

The channel between St. Ambrose and St. Felix we made 9·5 miles broad, W.b.N. and E.b.S., true; variation 14° 20′ E.; height of S.E. St. Felix 400 feet; height of west St. Felix 472 feet.

I consider we got the trade-wind on the following day, 14th June, and I never saw more uninterrupted fine weather, the studding sails were set on both sides for ten or twelve days. We painted ship inside, although we had fifty casks of beef and pork on the upper deck, besides a deck load of planks and spars for the *Plover*. There was more rolling than was pleasant, but still it was remarkably fine, and the new comers ceased to wonder at Magellan's name for the vast ocean he first traversed.

June 30th.—Crossed the line of no dip in 2° 11′ S., and 111° 57′ W. This, of course, is only approximate, for, never having had the

ship swung, we do not know the deviation, and, in fact, I have great reason to believe it is further south, as in trying it on another point of the compass soon afterwards I found considerable difference.

July 2nd.—We crossed the equator in 115° W.

6th—Lost the trade in 7° 30′ N., 118° 30′ W. Westerly, S.W., and variable winds; heavy rain in showers and calm for four or five hours.

10th.—Got the N.E. trade in 13° 50′ N., having been in the Doldrums for four or five days and about 380 miles. The trade was very different to the S.E., strong and fiery, fresh squalls, extraordinary dampness in the atmosphere, everything was fairly growing with mildew. On the 15th we had heavy drizzling mist and rain, strong breeze from the northward and considerable swell, which, in fact, we have had all along. This was in lat. 18° 20′ N., long. 136° W.

Birds came and went. We saw nothing of the five islands said to exist under the names of New Isle, Boccaperda, &c., and, as we passed three times over that region in the *Herald*, and Captain Belcher, in the *Sulphur*, also searched for them, and we have now again tracked nearly the same route, I should think they do not exist.

16th.—The wind, which had been from the northward, hauled round east and E.N.E.; the weather became finer and drier, but was still cloudy, so much so that we had difficulty in getting latitudes. The sun was now in the zenith. On the 19th July we crossed the path of the sun for the second time during the voyage, the meridian altitude being 89° 26′ zenith north. On the 21st, at sunset, we sighted Mowee Mount Haleakala, according to Captain Wilkes, 10,200 feet high; it must have been at least sixty miles distant. During the night we ran along Mowee and Morotoi with a fresh easterly breeze.

Sighted Oahu about 8 a.m. on the 22nd, about ten or eleven leagues distant, and, with a fiery breeze from N.E., ran between it and Morotoi and anchored in the outer road of Honululu in 26 fathoms, sand and coral, veered to 80f.

Fairway buoy, N. 28° W.
Square Tower of native church, N. 44° E.
Flagstaff, Punchbowl Hill, N. 24° E.
Highest part of Diamond Point, right hand summit, S. 78° E.

We found the small pox had been and, indeed, still prevalent. Many deaths had occurred, chiefly among the natives who had not been vaccinated. There was an outcry among the foreign residents against the government for not having, some months previously, introduced vaccination, which might have been done throughout the island for ten cents a head. Whether it was practicable or not I have not heard; party spirit runs as high here as in other quarters, perhaps higher, from the community being smaller. There was not a ship in the roads or in the harbour. When I was here in the *Herald* in May and November the harbour was a forest of masts, there were then eighty or ninety sail in the harbour.

Sunday, 24th July.—A Danish vessel, the *Cecrops*, arrived in thirteen days from San Francisco, but bringing us no particular intelligence. He was bound to Hong Kong and had 114 Chinese passengers on board returning from California, not having found the speculation profitable. It is a sign of the times, showing at all events that labourers are not required in that part of the world so much as heretofore.

HENRY TROLLOPE,
Commander H.M.S. *Rattlesnake*.

LOSS OF THE BRIG "MARY" AT NATAL, WITH EARLY RECOLLECTIONS OF THAT SETTLEMENT.

(Continued from vol. xxii, page 576.)

The class of traders with which the Missionaries came incidentally in contact with were, I have no doubt, not a bit better than they ought to be, though not so bad as they are represented; but the conduct of a gentleman, as represented by Mr. Kay, of Mr. Farwell's standing in society is monstrous. Had I not been personally well acquainted with Lieutenant Farwell, the narrative of his humane assistance to the maimed and abandoned Zoola would be sufficient alone to rescue him from this obloquy. Such reports, emanating from religious fanatics, should be received with caution, as this class of men very often assume a licence, in the name of the Great Master whom they profess (and, I dare say, believe they serve), to traduce and villify even, at pleasure, and anathematize the rest of the world who differ from them. It is possible that, in the inscrutable counsels of Infinite Wisdom, religious enthusiasm, fanaticism, or even insanity, may enter into the scheme for the advancement of His kingdom; but the tyranny exercised on mankind through such delusions are now, happily, becoming extinct. The days of the inquisition have passed away and the denouncements and maledictions of priestcraft, by whatever name it may be called, have been consigned to the same tomb,—sad mementoes, indeed, of the abject slavery to which the human mind is capable of being reduced by trickery and the terrors of a religion, the first Great Teacher of which was the embodiment and perfection of humility and love. Nor is the sacred and saving truth of Christianity impaired by the phrensy, vice, or delusions of enthusiasts. The reflecting and sober Christian does not whine or howl over the darkness by which he sees large portions of the human family surrounded, when he knows that the Great Architect of the stupendous work of creation has not left them to perish from caprice, ignorance, or oversight; that their condition is comprehended in the necessary economy and arrangement of His mighty scheme; that their minds are accommodated to the circumstances in which it has pleased Him to place them, and are thereby endowed with instincts and gratifications unknown to us, and

that a revolution in their habits and condition is not to be effected by the work of a day, a month, a year, or an age, as he sees in the dark cloud, though charged with the desolating tempest, but a mark of infinite wisdom and care in the government of the world; and, knowing the effects and consequence of this elemental strife, he does not desert his post to raise a clamour about his neighbours' peril until assured his own possessions and his own flock are secured and sheltered from the storm.

I have steered thus far out of the course of my story to vindicate Mr. Farwell and his party from what I conceived a gratuitous though indirect calumny. That familiarity reconciles us to many things and in the end begets indifference, is a principle of human nature too well known to admit of contradiction; and that barbarous scenes of cruelty when often presented tend to deprave and harden the heart; but, it is obvious, that the gentleman, the man of education, rank, and its accompaniments, is, at least, as likely ro resist the force of these influences as the man who has little else to sustain him but a religious phrenzy, kindled perhaps on a sudden by a spark fallen from a piece of impassioned eloquence in behalf of the perishing heathen, that might just be as evanescent. Lieut. Farwell fell a victim to his confidence in the respect that he imagined he had secured to himself from the native, as he was assassinated on his return to Natal, after visiting Cape Colony, by a revolted band of Zoola warriors, into which the nation it appears soon split up after the murder of Shaka. My own impression had always been that the white men at Natal were entirely indebted to Shaka for the forbearance and respect evinced towards them by his subjects; and the fate of Lieut. Farwell, who fell by their hands so soon after this event, tends in a measure to confirm the correctness of this conjecture.

To finish with Mr. Kay's notice of Natal, leads me to make another short digression. It is an ungrateful office, though no doubt a very useful one, to rake up the errors into which the writer of a history has fallen, either from ignorance of the facts or prejudice; and it is painful for one, who, being on the spot, and a witness of the passing events, to read the monstrous absurdities supplied either by the fertility of the writer's brain, or from exaggerated and evil report. It is hard to say whether regret or indignation should predominate, when such agency is employed to degrade the character and darken the follies or crimes of our fellow-creatures; and when it falls on those of whom our own experience makes us feel it to be unmerited, and on whom we have reason to look back as benefactors. My intentions are far from vindicating cruelties, with many of which Shaka can be justly charged; but presuming the notice of his life and death in "Caffrarian Researches" rests on the same authority as the account given of the first settlers at Natal, and there being a statement in this notice illustrative of Shaka's cruelty which, the author says, "is from well attested facts," that I know to be a monstrous injustice, (savage although he was,) I cannot be silent. The part in question says, "the awful degree of barbarity of which this wicked chief was capable, will appear fully

evident from the following appalling and well-attested facts; 'Being one day annoyed by the playful gambols of a child, which happened to peep into his hut, he instantly vowed vengeance on it, and declared he would kill it. On perceiving his anger kindle, the little innocent fled with all speed, and took refuge amongst the crowd of its companions, whither the monster pursued; but being unable immediately to identify the object of his rage, issued orders for the whole company (amounting to seventy or eighty children) to be massacreèd. On another, hearing that one of his captains, commanding between four and five hundred men, had been routed by the enemy, and had lost some of their spears; he immediately ordered him and his soldiers to appear at his residence, where every man was, without ceremony, put to death, and the wives added to his seraglio. This is said to have contained an extraordinary number of females; but, in order that it might not be known that he had converse with any save his own acknowledged concubines, the moment any of the other poor creatures were pronounced with child, their death warrants were generally sealed.'" Now the atrocity of Shaka's barbarity in the above statement is only equalled by the falsehood of the whole tale! My knowledge of Shaka's history is contemporary with European intercourse with Natal, at least with regard to any knowledge we have of the Zoolas as a nation and of Shaka as their chief; and his slaughter of the children is a portion of that history which was never heard of at Natal up to the death of him who is represented to have perpetrated that atrocity. Shaka's huts were considered too sacred and well guarded from intrusion to admit the chance of a child's peeping into them; and I am safe in affirming that I was the only child, or youth, who ever gained admittance within the sacred precincts of the inclosure within which Shaka's huts were placed. It was the outer court alone that was accessible even to his captains and those in high authority; but as the course of our journey where I left it was bringing us near the scene of this reputed slaughter of innocents, I shall give a description of the "palace" in its proper place. The massacre of the discomfited captain and his band of warriors has no place in the recollection of any one with whom I had any acquaintance, nor did I ever hear of such an occurrence. If the report of these barbarities was propagated by any of the party at Natal of which I was a member, or from that of Mr. Farwell, I emphatically declare that no atrocity of the savage chief could surpass the crime of raising the falsehood of these cruelties having been committed. Thoroughly conversant as I was with the native language, in which I was surpassed by no European at that, or I may even venture to say the present day, I must certainly have attained some knowledge of such an appalling circumstance.

In a biographical memoir which I have noted of this extraordinary Caffre chieftain, his origin and rise to power will show a very different career to that which is stated in Mr. Kay's "Caffrarian Researches." Shaka raised himself from being a persecuted wanderer in the bush, where he and his mother had to fly from his father's vengeance, (when he was but an infant,) to rule the Zoola nation; and it was from a

thunderstorm bursting over him, at the moment of victory over the forces of his unnatural parent, that this name was derived, Zoola signifying thunder. I have indeed witnessed many bloody executions of innocent victims prompted by degrading superstitions, and I know too that many victims were immolated at the instance of a cringing and cowardly scoundrel named Boper, a confidential servant; so much so, that he was the only individual in the Zoola nation that was permitted to carry a spear in the presence of and within a limited distance of the king. Availing himself of this privilege, he subsequently stole behind and assassinated his master, an arragement having been previously entered into with the murdered Shaka's brother, Dingan, whose ambition it appears became weary of waiting for the removal of his brother, Shaka, in the ordinary course of nature. I have noted in my biographical memoir of this unfortunate chief that an arrangement was entered into with this brother Dingan that at his death he was to succeed to the head of the Zoolas, and it was on account of this understanding that no doubt (indeed I know it was so) the latter's life was spared. But as the account of Shaka's life may never meet the public eye, it may be interesting to the present and future settlers at Natal to know that such an arrangement was in actual existence, and that it was in consequence of this arrangement the story no doubt has originated that the moment any other than his acknowledged concubines were pronounced enceinte, their death warrants were signed. In fact, Shaka, though he was surrounded by women, who were the only inmates of his palace, admitted no intercourse with them; but of course every one knew better, and when any of these women who were called "untwane," "incosse," showed symptoms of pregnancy, they were sent away from the court, and afterwards lived in great retirement and obscurity. This was carrying out a part of the compact with his brother Dingan, to have no heirs to interfere with his succession. The writer was in a position to know that these women were not put to death on account of being enceinte, having had the opportunity of meeting two of them after their banishment, as well as the children; but it was never hinted the latter were of the royal blood. The reader will not be disposed to doubt the correctness of this statement when I tell him that I enjoyed the extraordinary privilege of associating with these women in the very interior of the palace, where the foot of a male subject never pressed the floor, and that their habits and their history was as familiar to me as to themselves; and so far from their dreading such a contingency, it was rather looked forward to with pleasure, as a relief from the dull monotony of their secluded life. But to say that their number was recruited from the seraglios of murdered chiefs, only shows how little the author knew, or how ill-informed he was of the habits and customs of the Zoolas. The meanest subject in Shaka's dominions would have looked on such an acquisition as a degradation. The unfortunate wives of a doomed chief had no such hope before them, nor such mercy to expect. The fate of their lord involved their own. The barbarous practice prevailed of exterminating the whole of the family and dependents of a chief at his execution, so

that nothing was left to survive him. His very kraal with the dwellings were consumed to ashes; his cattle alone being saved from the general wreck. This barbarous custom had long obtained in the part of Africa of which we are speaking, and would appear to have originated in a necessity for the security of the community, when the country then composing the Zoola nation was ruled by numerous petty chiefs. In fact every headsman of a tribe was an independent ruler acknowledging no superior; hence, when a quarrel arose, and one of them was overpowered by his neighbour's superiority, the whole of his adherents suffered with him to prevent their augmenting the force of another rival, whom they might join and prevail on to take up their cause. So that in a measure it was the policy by which a balance of power was maintained by these petty tyrants; and though this necessity appeared no longer to exist, the inhuman practice was still kept up; the only reason advanced to justify it being their superstitious belief that the surviving relatives of the malefactor would be continuously plotting mischief against the rest of the community by means of witchcraft.

I have just remarked, that I had extraordinary privileges; I may add more, that I had extraordinary power and influence with the savage chief. Mine, indeed, was a strange destiny; and that facts are often stranger than fiction many incidents of my early adventures given in these recollections afford very striking proof. The recollections of these rise before me now, and I almost doubt their reality. That I had the influence to stay the mandate of death issued by this savage despot, and that I had the courage to plead the cause and defend the doomed victim from the rage of him before whom armies of warriors trembled and bowed to the dust, and I but a youth of fourteen years of age, seems to belong to those incidents which are classed in the catalogue of fiction. But that I possessed that power and influence over Shaka is nevertheless true, strange as it may appear; and I believe that with the exception of his mother, Umnante, I was the only living soul that dared to breathe a contradiction to his will. Ah! it is a pleasing reflection too, that I can recall to mind the day when my feeble voice, raised in the distant wilderness of Africa, stayed the bloody hand of a relentless executioner from destroying many innocent victims. Tears of gratitude stain the page of these recollections to that Almighty and Blessed Benefactor, in whose hands are the hearts of men in the uttermost ends of the earth, where indeed could I be lost where his mercy could not reach, or where his arm could not save me; and what signal manifestations have I not had of his providence when all around seemed but the darkness of despair. But it would be wandering from our journal, and anticipating my recollections, were I to mention in this place the many strange adventures and providential escapes from a variety of dangers, with many singular conversations and confidential communications made to me by the man who was the terror of that portion of Eastern Africa from the frontier of the Cape Colony to the Portuguese settlement of Delagoa Bay. One great end of the commandments is charity and now having endeavoured to rescue the

memory of two important characters in the early history of Natal from the infamous imputations abovementioned, I will now resume my journey at that point of time and place on the summit of the Umballaloo mountains where I left it, with our band of Zoola warriors, who, having finished their dance, had now commenced their toilet, and were vigorously anointing their bodies with grease, an operation which certainly gave them a fine polish, and very much improved their appearance. They now commenced ornamenting and decorating their persons with beads and brass ornaments, which, on the journey, had been carefully wrapped up in leaves. and carried round the waist. The most curious part of these decorations consisted of several rows of small pieces of wood, about the size and shape of those used in playing drafts, strung together and made into necklaces and bracelets. Some of these warriors had their necks and arms ornamented with several rows of this description, and those particularly about the neck seemed to be very inconvenient to the wearer, and certainly were not very ornamental. But on inquiry we found that the Zoola warriors set great value on these apparently useless trifles, and that they were orders of merit conferred by Shaka on those who had distinguished themselves by daring deeds of bravery on the field of battle. Each row, whether round the neck or arm, was the distinguishing mark of some heroic deed, and which the wearer had received from Shaka's own hand. These were principally gained in the last Amapanda war, from which Shaka had returned with a large booty. These of course were all of the first class of warriors, high in favour with the Zoola monarch, and were now displaying their finery and decorations preparatory to presenting themselves before him. And as our next halting place would end our journey, which our guides told us would be concluded by sunset, our little party also began to set themselves in order for this grand occasion. On the strength of which I bent a clean frock and pair of ducks, which had been carefully wrapped up in paper and several folds of old canvas, and which constituted, with what I had on, my entire wardrobe.

We had not been much encumbered with luggage. A roll of mat to sleep on, and a bundle containing a change of apparel, was all that any of us could afford. These arrangements being completed we again proceeded, our Zoola friends being in front, and our party bringing up the rear, we commenced our descent of the Umballaloo, through a continuous dense forest of timber, that the sun's rays hardly anywhere penetrated. On emerging from this sylvan obscurity, a vast plain, but slightly undulated, like old Ocean's bosom after a breeze, and tinged by the golden rays of a setting sun with numerous herds of cattle lowing in the distance, and moving on to their fold, while within a mile of this point of observation, Toogosa, the great capital of the Zoola kingdom was seen, around which in all directions bands of warriors were in motion or encamped, the blue smoke curling high up in the still air from the numerous camp fires of this dark host, altogether combined to present a spectacle of wild grandeur, magnificent beyond my power of description, one to which the pen of the poet or the pencil

of the painter alone could do justice, could he have stood there, and "with my brave companions of the sea," fearless to view the wondrous scene with me.

Onward we moved, the throng increasing as we neared the capital, until the din of the multitude and lowing of hundreds of cattle, became almost deafening. What contrast was this to the deathlike stillness that had hitherto pervaded our journey. Just as the shades of evening began to close on us, we entered the gates of Toogosa, when our guide conducted us to a commodious hut, from which he very unceremoniously expelled the occupants, to make room, as he termed us, for the king's wild beasts.

(To be continued.)

The Late Captain Flinders.

In an account of the proceedings of the Legislative Council at Sydney in Australia on the 7th of September last, as reported in the *Sydney Morning Herald*, we find the following interesting particulars relating to the surveys of the late Captain Flinders and which we are satisfied will be gratifying to our readers. The acknowledgment thus made comes late in the day it is true, but it is pleasing to see the important services of the maritime surveyor appreciated even after half a century has passed between them and their recognition, and has carried off both him and his widow, as in this case, leaving only a daughter to reap the benefit of this well-earned acknowledgment. The Sydney House of Assembly has reflected honour on itself by this generous act.

We annex to the extract we have made a memoir of the services of Captain Flinders which has been kindly placed in our hands.

The Auditor-General then moved the following item:

"Mrs. Flinders, widow of the late Captain Flinders, R.N., £100"

In moving the latter item the hon. member said that it afforded him much gratification to have an opportunity to advert to the high services of Captain Flinders. (Loud cheers from all sides.) This distinguished officer had laid the colonists of Australasia under great obligations, by having executed a series of skilful surveys with less equipment than any navigator who had been engaged in similar duty during the last half century. It was proposed that this appropriation should be reversionary; and that the daughter of Captain Flinders, whose filial devotion had been the staff of her mother's declining years, should be entitled to receive the benefit of the vote now asked for. (Loud cheers.)

Captain King, in seconding this motion, said that he could not allow it to be put without offering a few words tributary of respect to the

memory of Captain Flinders. (Hear, hear, hear.) That gallant and accomplished officer had by his careful and correct surveys afforded all the great commercial cities of Europe and America the means of safe communication with the shores of Australasia. (Cheers.) And yet, how poor were the means placed at his disposal! In a mere dingy he had examined Botany Bay, Broken Bay, the Illawarra coast; and his charts remained to this day not only the sure guides to the mariner, but mementoes of his courage, skill, and perseverance. (Cheers.) It had been his darling project to complete the survey of the Australasian coast, and Sir Joseph Banks, the patron of the great Cook, did all in his power to assist him. A very inadequate vessel was hastily and imperfectly equipped; the haste being in consequence of the well known intention of the French Government to make a survey of these coasts with a view of founding settlements here. That being wartime, scientific expeditions were furnished with passports, and, under such protection, the French commander received every requisite assistance when he arrived here. What, however, was the return? Why, Flinders, after the most arduous services,—after perils and sufferings which had found a graphic record in the naval history of England, was taken prisoner by the French authorities at the Mauritius, and kept confined at that island for six years, being most inhumanly treated the while. (Loud cries of hear.) The good sense of the French nation, the concurrent indignation of French writers, strongly denounced this treatment of the distinguished officer. Sir Joseph Banks made earnest application to the Government for compensation for him; but Flinders died, and with him all hopes of the widow died also. That lady was left with the mere pittance of a captain's widow; she was now residing in one of the suburbs of London, in a state of great poverty. Sir Everard Home, in a letter to the editors of the *Sydney Morning Herald*, which did justice to his heart, had drawn attention to the circumstances of this lady. Another gentleman, writing anonymously, had followed up the subject; and very gratified was he (Captain King) to perceive the kind feeling in which this matter had been taken up by the Government, and responded to by the Council. (Loud cries of hear.) Independently of his eminent services as a nautical surveyor, Captain Flinders had the high merit of having introduced many distinguished men into the service. Sir John Franklin and many other eminent names: navigators, botanists, artists, would always be included when tribute was paid to the memory of Flinders; and most sincerely did he (Captain King) thank the Council for the kind sympathy evinced by honourable members, and for the cordial manner in which the item had been received. (Warm cheers.)

Mr. Nichols said that it was almost needless to state with what pleasure he supported a motion which, however, did very tardy justice to the memory of the dead. He would propose that the wording of the item should be so altered as to secure, without the shadow of a doubt, the reversion of this annual grant to the excellent daughter of Captain Flinders. (Hear, hear.) He would also express his earnest

hope that the sister colony of Victoria would follow the example set by New South Wales, and that a similar sum to that now proposed to be voted here would be placed on the estimates of the legislature of that province. The honourable member, in illustration of the dangers and difficulties which beset Captain Flinders, read a letter from the gallant officer, written in 1803.

Mr. Cowper expressed his entire concurrence with the motion.

Mr. Martyn said that it was a matter of congratulation to find that, at last, all classes here, engaged as they were in the pursuit of wealth, did not refuse to pay some tribute, small though it may be, to science and literature. He (Mr. Martin) looked at the vote as only a preliminary step, and sincerely hoped that not only Victoria (as suggested by the honourable member for the Northumberland boroughs) but South Australia and Tasmania, would join in the tribute to the memory of Flinders. It was to be regretted that what was now proposed had not been submitted at an earlier period; but it was to be hoped that this recognition of her distinguished husband's merits at the distance of half a century, would soothe the declining years of his widow, and be of service to his excellent daughter. (Loud cheers.)

The item was carried with cordial applause.

Statement of the Services of the late Captain Mathew Flinders, R.N.

[The following statement was drawn up at the request of Captain (now Admiral Sir Francis) Beaufort to be submitted to the Admiralty, by whom it was expected that a representation of Captain Flinders' important services might have been made to Lord John Russell, then First Lord of the Treasury, with a view of obtaining a pension for his widow, since deceased. But the writer of this statement, in an interview which he obtained, and was received with much courtesy by Lord Auckland, then First Lord, had reason to believe that no such representation was likely to be made by the Admiralty.]

Captain Flinders entered the service in 1791, and embarked as a Midshipman in H.M.S. *Providence*, commanded by Captain (afterwards Admiral) Bligh. In that voyage, the object of which was transporting the breadfruit tree from the Society Islands to the West Indies, he no doubt acquired a predilection for that branch of his profession in which he lived so greatly to distinguish himself.

On his return he joined the *Bellorophon*; on board of which he acted as Aid-de-camp to Admiral Sir Thomas Pasley in Lord Howe's victory of the First of June, 1794.

He then served as Lieutenant on board the *Reliance* for several years on the Port Jackson station, where he devoted himself to geographical research in examining the harbours and rivers of the adjoining portion of New South Wales, and particularly in circumnavigating Van Diemen's Land and examining its northern extremity, along with his friend Mr. Bass, the Surgeon of the *Reliance*: thus completing the important discovery made by that enterprising officer of the Strait which bears his name.

On Captain Flinders' return to England he published an account of his researches in New South Wales, which led to his being appointed to the command of an expedition then (in 1800) determined on; the object of which was the complete survey of the coasts of New Holland, a country at that time so imperfectly known that it was uncertain whether it formed one great land or consisted of two or more islands.

In this expedition, which left England in 1801, Captain Flinders experienced unlooked for difficulties and misfortunes; of which the first that occurred was that of the Astronomer, from loss of health, being obliged to leave the expedition at the Cape of Good Hope, his duties devolving almost entirely on the Commander. But a much greater misfortune was the decay of his ship, (the *Investigator.)* whose upper works gave way to such an extent that it became absolutely necessary to return without delay from the North Coast, of which the survey was unfinished, to Port Jackson, where the ship was condemned as unfit for the prosecution of the voyage.

Before this occurred, however, many of the more important objects of the expedition had been accomplished. The examination of the South Coast had been nearly completed, great part of which was actual discovery, including that portion on which the Colony of South Australia is established. Extensive tracks of the intratropical part of the East Coast were examined, and the great inlets, imperfectly seen by Captain Cook, completely surveyed. Great part of the immense barrier coral reef of the North-East Coast was run along with a view to discover passages of sufficient width for safe navigation, but only one such was found in an extent of 350 miles. A new passage through Torres Straits had been made; and the Gulf of Carpentaria, especially its western side, with the adjoining portion of the North Coast, called Arnheim Land, carefully surveyed.

In the whole voyage the examination of harbours, ports, and inlets was, necessarily, performed in boats or in a tender with sliding keels, and entirely by Captain Flinders himself, the writer of the present statement generally accompanying him.

In addition to the account now given of what was accomplished of the survey, it may be permitted to advert to Captain Flinders's misfortunes subsequent to the *Investigator's* voyage;—to his shipwreck on a coral reef at so great a distance to the eastward of the barrier reef that its existence could not have been suspected; and to his unjust imprisonment and detention for upwards of six years in Mauritius, by the French Governor DeCaen; by which his promotion was retarded and his health so much impaired that, after his release and return to England, he only lived to complete his charts and publish his narrative, —a work which, for the amount of discovery and remarkable accuracy of survey, has placed him next to Cook among modern navigators.

But Captain Flinders's merits do not rest merely on his pre-eminence as a navigator and marine surveyor. He is also distinguished for his valuable contributions to physical science. Of these, the most important was the discovery made during the *Investigator's* voyage of the cause of those errors in the variation of the magnetic needle connected

with differences in the direction of the ship's head, and which he proved to depend on the iron or attractive bodies within the ship. A careful investigation of the various circumstances affecting these errors led to such deductions as enabled him to point out the precautions to be taken to obviate their effects on marine surveying.

An account of this discovery, so highly important to navigation, was transmitted by him, while a prisoner, to the Royal Society, and appeared in the "Philosophical Transactions" for 1805. But he subsequently followed up the investigation and after his return to England confirmed and extended his original views by numerous experiments made under his direction at Sheerness, Portsmouth, and Plymouth, which gave him such confidence in their justness that he corrected his charts accordingly; and as those charts are generally admitted to be among the most perfect that have been published the importance of the discovery, especially in marine surveying, was practically demonstrated.

ROBERT BROWN.

[We hope to see this method of acknowledging the valuable services of our maritime surveyors adopted in other parts of the world besides Australia.—ED.]

SAXBY'S PATENT STOPPER BITS AND DECK STOPPER.

Every professed improvement in the method of securing a ship at anchor may claim at least a passing glance; but when a patentee undertakes, with some appearance of truth, to save to ship-owners some 50 per cent. in cost, 75 per cent. in space, and 75 per cent. in weight, besides a very considerable amount of labour and time, and this too at a period of great difficulty in manning ships, it falls within the objects of the *Nautical Magazine* to supply information thereupon for its readers, especially as several highly competent naval officers have expressed their approval of the invention. We therefore give a drawing and description of Saxby's Stoppers.

The bitts of a line of battle ship are subject to an enormous strain, and they, from their consequent magnitude, encmmber not only a single deck, but occupy much valuable space below it. In Mr Saxby's, plan, however, instead of using timber of huge scantling, with sundry projections of metal work, (to be avoided by those who prize a whole skin,) two metal discs lie on, and are firmly attached to, the deck, forming a mere smooth circular step of about a foot high; (and which men and shot can freely work and pass over;) the one disc being immoveably fixed solid with the deck, the other having an eccentric mo-

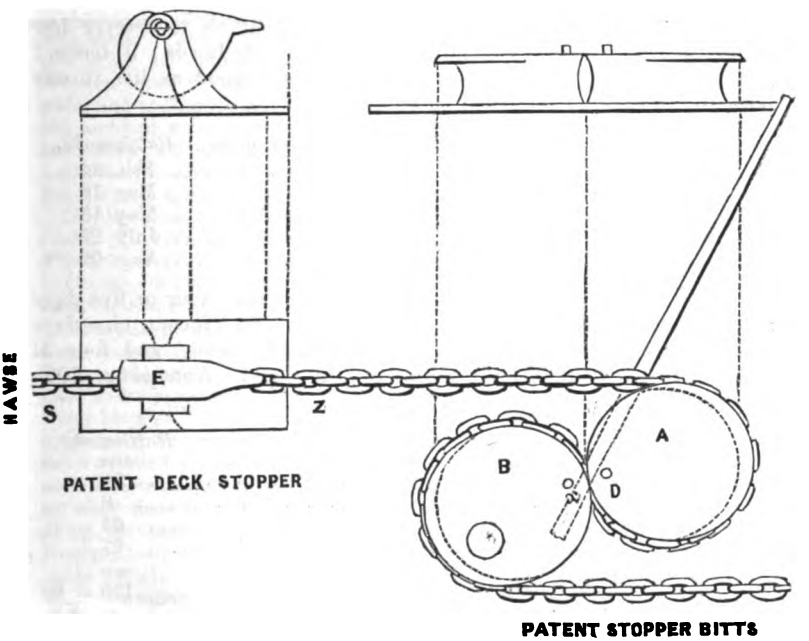
tion, which nips the cable; and the great and desirable peculiarities of the invention are, that with a handspike or crowbar one or two men in the largest ship may hold open the bitts, (certainly if aided with a gun tackle purchase,) while the riding of the ship itself takes the cable out of the locker as required; for on removing the handspike, the bitt closes itself upon the chain; and this not suddenly with a jerk, as several links will pass before it is finally nipped by the increasing radii of the curve. Thus the great labour and delay of ranging heavy cable, and lighting it round bitts, to the frequent danger of life or limbs, is avoided. The immense strength of these bitts, which in case a ship rides very heavily, admits of a second turn of the cable round all, and the extreme simplicity of the principle involved, raises the question whether these bitts may not even be secured so solid with the deck itself, especially if resting on and through a wrought iron bed, as to require nothing to encumber the deck below. Shipwrights of considerable repute seem to have no doubt of it.

Serious accidents have occurred in using deck stoppers as at present constructed, which Mr. Saxby's patent deck stopper would apparently obviate; for his is entirely self-acting when in use; holding, like the bitts, (by the eccentric principle,) either chain, rope, or even greased rope, without any manual help, and with a firmness increasing with the strain, yet merely nipping, not jambing; allowing the cable to pass freely inboard by its self-action, when the cable or messenger is taken to the capstan, while not a link can possibly pass outward; forming of course great security to life when the capstan is manned.

Thus an invention, which is so simple in principle, and likely to save much that is valuable on board ship, especially in labour, space, and time, to say nothing of weight and expense, is worthy of scrutiny, from which the patentee does not seem to shrink. Several shipowners and ship-builders, whose names have been handed to us by Mr. Saxby, not only approve greatly of the deck stopper and stopper bitts, but orders have been given to fit ships immediately.

For steamers, yachts, and clippers, being sharp forward, and therefore confined for space, the invention, we are informed, bids fair to be extensively used. The patentee proposes to apply the eccentric principle very generally on ship board. As an instantaneous substtute for a belaying cleat, or pin, its value at the taffrail or gunwale may be an important saving.

Note.—Since the above was written, Captain Vincent, Superintendant of the Royal West India Mail Steam Company, to whom the above plans were referred, has reported very favourably of them. Captain Hall of the *Crœsus* (2,500) and Captain Hunter of the General Screw Company recommend the patents to the notice of their Superintendant also.



SAXBY'S PATENTS

A The solid riding bitt.
B The stopper bitt, having an eccentric motion.
x A handspike, placed in the position for holding open the stopper bitt, while the ship takes the cable.
E Deck stopper; allowing the chain to pass freely from *s* towards *z*, but not from *z* towards *s*.

EXTRACT OF A LETTER FROM COMMANDER TROLLOPE, *H.M.S. Rattlesnake.*

I hope we shall leave this about the middle of July, and I have said in my letter to the Admiralty that I proposed to skirt the ice between Asia and America, and be on the look out for the *Plover* between

Point Franklin and the Sea Horse Islands; this course has been agreed upon with Capt. Maguire, as the *Plover's* condition is not particularly good, and it may be found necessary for us to receive her crew. I trust that this will be approved of by my Lords; it tends I I think, to gain information, and to do as much good as lies in our power.

	Enterprise.	*Investigator.*	*Rattlesnake.*
Sailed from England	Jan. 20	Jan. 20	Feb. 24
In Magellan Strait	April 10	April 16	May 10
Passage through	April 21	April 23	May 18
To Sandwich Islands	June 25	July 1	July 22
To Behring Strait	Aug. 12	July 27	Aug. 22

Out of this the *Enterprise* and *Investigator* were four or five days at Oahu. We were two days and a night at St. Vincent, nine days at Valparaiso, (three of which we were wind bound,) and four at Oahu. Which makes the number of sea days:—*Enterprise*, 200; *Investigator*, 184; *Rattlesnake*, 166.

	Enterprise.	*Investigator.*	*Rattlesnake.*
	days.	days.	days.
England to the Straits.....	80	86	75
Passage through	11	7	8
To Oahu	65	70	65
To Behring Strait	43	22	27
Whole Passage	199	185	175
			9
			166

I have deducted nine days from the passage we made because we were that time at Valparaiso. The distance in round numbers is 18,000 miles.

ARCTIC DESPATCHES.

The following despatches were received at the Admiralty, on December 16th, from the Behring Strait division of ships in search of Sir John Franklin.

It will be observed from the following reports that the *Enterprise* was seen by the natives in the summer of 1851, upon the track pursued by the *Investigator* the preceding year, Captain Collinson's description being recognized by his wearing spectacles and the *Enterprise* by her diagonal seams in the deck.

H.M.S. *Amphitrite*, San Francisco, Oct. 31st.

Sir,—I have the honour to acquaint you that I sailed from Honolulu in her Majesty's ship under my command on the 16th of June.

It was my intention to have passed through the Aleutian Chain by the

Amoughta Channel, but the wind headed us off, and on the 28th we made the Islands of the Four Mountains. These islands are very remarkable, having conical peaks from 3,000 to 4,000 feet in height—they were covered with snow fully three-fourths of their height, and partially to the water's edge. The weather being moderate and tolerably clear, I determined on trying the channel between these islands and the island of Younaska; it is ten or eleven miles wide, and apparently free from dangers. We stood through about mid-channel, and had no soundings at 15 fathoms; there was a rippling of the water, but not any strength of current.

On the 6th July we made King's Island, and the same evening anchored off Point Spencer, Port Clarence.

On the following day examination was made of the caches of provisions and coals. Everything was found as we left it last year, with the exception of the *Plover's* storehouse, which was partly knocked down by the snow.

On the 16th we sailed; beat through the straits the following day, and arrived off Cape Lisburne on the morning of the 19th.

To my surprise, the shore both to the southward and north-eastward of the Cape was blocked with ice. The southern pack extended from the Cape as far as could be seen, and about fifteen miles deep from the land. The other pack as far as could be seen to the northward and eastward, with a lane of water between it and the land, the wind being southerly. There was a large open space between the two packs, into which we stood to within four or five miles of the Cape and close to the edge of the ice; but there was no appearance of any people or boats. A gun was fired, and we remained until quite satisfied there was no one at the rendezvous. We then stood out and worked along the edge of the southern pack until the weather became thick. This continued the whole of the next day, with a fresh southerly wind.

On the 21st we stood in and made Point Hope, close to the northward of which we again observed the ice, but much broken.

On the 22nd we stood for Cape Lisburne. The ice was still off it but moving fast to the northward; and on the 23rd the shore to the southward of the Cape was free from ice. Two baidars with natives came off; they had seen nothing of the *Plover's* boats. A boat was sent to bury a notice at the rendezvous.

The ice still continued to hang about the land to the N.E. of Cape Lisburne until the 28th, when a strong southerly wind came on, which lasted till the 31st, and cleared it away.

We cruised off Cape Lisburne till the 1st August, on which day, the weather being settled, we anchored on a bank to the northward of the Cape. This bank has either grown up since Captain Beechey's survey, or was not noticed by him. We had 5¼ fathoms, the Cape bearing S.S.E. (mag.), five miles.

We remained at anchor till the 4th, when I began to fear that some accident had happened either to the *Plover* or her boats, and therefore determined to proceed to Icy Cape, and thence to send a boat to Point Barrow, for which purpose I prepared the pinnace of this ship. A cache of provisions was buried at the western part of the little bay of rendezvous previous to our leaving.

On the 5th we made the land about Point Lay, and observed a stream of ice to the N.E. The next day we stood through large quantities of sailing ice, and as it became much less open as we advanced to the northward, and there being some streams of considerable extent, heavy enough to have rubbed away our channels had we come in contact in a breeze (which in thick weather would have been probable), I bore up again for Cape Lisburne, resolving not to send a boat at that time; the ice being so far to the southward at this advanced period of the season appeared to me quite sufficient to account for the

non-arrival of the *Plover's* boats. We had stood through the loose ice about ten miles.

On the 7th we were again off Cape Lisburne, but the boats had not arrived. For two days, the wind having blown fresh from the southward, I hoped the ice might be cleared away, and, therefore, on the 8th, again made sail to the northward.

On the 9th it blew strong from the N.E., and we stood off and on Point Lay, in the track of any vessel coming from Point Barrow. At 9 a.m. of the 10th, a sail was reported to the northward, which was soon made out to be the *Plover*, and shortly after I had the satisfaction of hearing that they were all well on board.

The boats had been wrecked on the 13th July in attempting to come down, but the whole party regained their ship in safety. Commander Maguire's dispatch gives the details of this accident. We arrived, in company with the *Plover*, at Port Clarence on the 15th.

The *Plover* was recompleted, according to the accompanying report, and sailed on the morning of the 22nd. Very fortunately she met the *Rattlesnake* at the entrance of the port. Both vessels were anchored under Point Spencer, and the additional supplies (a list of which I have appended to the *Plover's* report of state and condition) were put on board her. Some of the provisions also supplied from this ship were exchanged for newer from the *Rattlesnake*. The *Plover* finally sailed on the morning of the 24th.

On the 25th the *Rattlesnake* came to the upper anchorage, and, having been lightened, two attempts were made to take her into Grantley Harbour without success. Commander Trollope then decided upon keeping her in Port Clarence. I quite agreed with him as to the propriety of this decision.

During our absence from Port Clarence the British schooner *Koh-i-Noor*, G. E. Levien, Master, had arrived on a trading voyage, and had made a notation, dated August 2nd, on one of the buried papers in Grantley Harbour.

On the 4th September, we dropped down to Point Spencer to take in wood. The *Kodiak*, barque, belonging to the Russian-American Fur Company, arrived at Port Clarence on the 5th. We sailed on the afternoon of the 6th.

On the 16th, we passed through the Amoughta Channel without seeing the land, and on the 18th arrived at lat. 40° 10′ N., long. 150° 30′ W., where an island was reported to have been seen last year by a Swedish vessel, and for which I had orders to search from the Commander in-Chief. We traversed between the parallels of 40° and 40° 20′ from 151° 30′ to 149°, the weather being generally clear enough to see land from twelve to fourteen miles, and always from seven to eight, but none was seen, nor any indication of it, and I feel satisfied that there is no land within the above limits.

On the 1st of October we arrived at Honolulu; having procured refreshments, which were much required by the people, we sailed on the 9th for San Francisco, in prosecution of orders from the Commander-in-Chief. We arrived at this port on the 28th, and it is my intention to sail in a few days for the Coast of Mexico, in pursuance of my orders.

I have the honour to be, Sir, your most obedient servant,

CHARLES FREDERICK, Captain.

To the Secretary of the Admiralty, London.

H.M.S. *Plover*, Port Clarence, August 21, 1853.

Sir,—I have the honour to report to you, for the information of the Lords Commissioners of the Admiralty, my proceedings since my last communication

of the 21st of August, 1852, in as brief a form as I can, omitting the details of the necessary ship's duties and arrangements, and beg to refer to the accompanying abridged journal for some account of our intercourse with the Esquimaux, and other incidental occurrences.

Proceeding to sea from Port Clarence, early on the morning of the 21st of August, we passed through Behring Strait by the eastern passage the following day at noon, with a favourable breeze. A succession of contrary winds delayed our progress to the N.E., so that we only arrived at Point Barrow by the 3rd of September and were frozen in on the 24th of the same month.

The approach of the anchorage was, contrary to my expectations, shoal and intricate, but when gained it was secure, though difficult of access or egress.

The commencement of our intercourse with the natives was attended with many unpleasant circumstances. No single boat's crew could be at any distance from the ship without being pilfered from, and on the most trivial occasions knives were frequently drawn on our men, who, though armed with muskets, had strict orders in no case to make even a show of them, unless obliged by necessity. The ship's decks were at times crowded, and, in one instance, their manner was so suspicious as to induce me to have the crew armed; those on deck going below one at a time for pistols, and returning with them secreted in their breasts. There was, however, no occasion for their use. Soon afterwards, a house built on the Spit for the stowage of our stores was broken into and robbed. The next morning, on the chief coming on board, I got possession of his gun, and threatened to attack the village if the stolen articles were not returned; which had the effect of bringing them in force towards the ship, armed with bows and arrows; but some shots fired over their heads caused them to retreat without loss of life. The following morning the things were brought back. From this time we appeared to get on better with them, and at length so good an understanding appeared to exist between us that I hoped we had succeeded in gaining their confidence. This desirable state of things was unfortunately put an end to by a calamity which occurred on the morning of the 8th of June, a gun having gone off by accident in the hands of the quartermaster of the watch, and killed a native man alongside the ship; but I am happy in the belief that the nature of the accident was subsequently understood by them, and that any feelings of ill-will on their part towards us in consequence has subsided.

The 20th of September had arrived before the behaviour of the natives would allow me to turn my attention to the object of the ships being here, when, in order to erect conspicuous marks of our position, and to examine the capabilities of Dease Inlet as a winter station, should it be desirable to move the *Plover* eastward. I made a boat excursion, accompanied by Mr. S. A. Hull, second master, and found the depth of water at that place insufficient. To examine the coast still further, and to distribute notices of a ship being at Point Barrow, with a view of their falling into the hands of parties retreating in this direction from the missing ships, or those engaged in the search for them, I made a journey on the ice, accompanied by Mr. T. D. Wright, midshipman, as far as Point Drew, a distance of sixty miles to the eastward, and there deposited a small cache of preserved meats, in the month of November. This excursion occupied only thirteen days; but the temperature was very low, and some frostbites were the consequence; but valuable experience in ice-travelling was gained as a set off against these evils. Occupying a position which on looking at the chart seems so available as a point of departure for exploring parties advancing towards the N.E., I had hoped to attain some considerable distance in that direction; but the existence of a water sky visible from the ship throughout the winter, and the unexpected break up of the ice to within a few yards of us, at the solstice, showed that travelling on the sea ice in this region

is too hazardous to be contemplated at any season. I was therefore compelled, reluctantly, to limit myself to a journey along the coast to the eastward. The vicinity of a populous native settlement, together with a debilitated state of the crew and the absence of travelling equipment, were serious impediments to distant travelling; yet, it seems necessary that the Colvile River should be visited, not merely with the vague hope that intelligence of our ships might be obtained, and to visit the shores of a bay the boats in 1849 could not examine; but, also, in-order rightly to understand the information given us by the people at Point Barrow, by being able to identify the rivers and points of land mentioned by them with those delineated on our charts. An attempt was first made to construct a sledge on the plan recommended by Captain M'Clintock, which failed only for want of proper wood for the runners: but the object was ultimately attained with native sledges and dogs. This journey, a detail of which would be necessary to give on this occasion, but may be described in the concluding remarks of my journal, was performed between the 4th and 29th of April; and, although the result has been unsatisfactory from the lowness of the land preventing the coast line from being traced, and the want of success in gaining information relative to either of the expeditions for whose benefit the *Plover* is stationed at Point Barrow; yet, it has had the advantage of enabling us to interpret the native accounts of the coast, and to establish the fact of these people being acquainted with the Mackenzie River under the name of Ko-puk, which I hitherto supposed to apply to the Colvile. This, if necessary, would determine the position alluded to in the report received by Captain Moore at this place in 1850 of boats' crews having arrived at the Ko-puk and being murdered. (Vide Parliamentary Papers, sessions 97, 7th March, 1851. page 33.) It has also shown us that the coast from Point Barrow to Sir John Franklin's Extreme (Return Reef) contains no winter huts, and, by unquestionable native report, there are none o some distance beyond Barker Island, so that parties travelling in spring or autumn could receive neither assistance nor hindrance from the natives for an extent of at least 250 miles from Point Barrow. From the native accounts here it seems certain that both the *Investigator* and *Enterprise* were boarded at the time of their passing along this part of the coast at the distance of 50 and 150 miles east of this place, some of them accurately describing peculiarities about the ships by which they could be known, such as the large ice chocks and diagonal decks, &c.; but the only actual trace of either of them we may be said to have discovered, is a portion of a paper from the *Investigator*, dated "Off Point Drew, 8th August, 1850," together with the canvas bag that had enclosed it. With reference to the progress these ships may have made to the eastward, it might be expected that the movements in the ice at Point Barrow would give some idea of the set of the current in that part of the polar sea; but our observations can go no further than confirm the belief in the existence of a current to the N.E. to a distance of only a few miles off the land; beyond that a line of hummocky ice, from ten to twenty feet in height, has existed all the winter, apparently aground in six fathoms. Beyond this line scarcely a day passed through the winter without a water sky being visible between the W.S.W. and N.E. (true).

When easterly winds prevailed a large space of open water was indicated by the extent of water sky, and, when visited, the vapour rising from its surface obscured the view beyond a few hundred yards; but within that distance heavy ice was seen drifting in the direction of the wind. The natives informed us that the ice was set off the coast by the easterly, and packed upon it by westerly winds, and that the greatest clearance is effected by the south and S.W. (true) gales. They point to the north (true) as the direction in which the ice goes; but we have not been able to understand whether they consider this the effect of a prevailing current. While treating on this subject, it seems

worthy of being remarked, that the natives state the whales to make their appearance off Point Hope in April and May, when the ice breaks up into fields, and that most of them have disappeared by the time the ships arrive. These animals appear about the same time at Point Barrow, and are pursued by the natives in their "o-mi-aks," which they carry to the open water for that purpose. In June few are seen, and in July none, and the people believe they retire northward, to return again in August and September. The masters of whaling vessels have informed me that whales are less abundant in the open water in July and August than in June.

The tides have been registered hourly for nine months, and the result is that the flood makes from the west, and the mean rise and fall in Elson Bay is seven inches. The time of high water at full and change is 1 p.m., but great irregularities occur from the wind, the rise being scarcely perceptible with fresh east and N.E. breezes, when, with S.W. gales it amounts to three and a half feet. Of the latter case a remarkable instance occurred on the 18th of December, when the water rose from the usual depth of 14½ feet to 17 feet 10 inches, with a gale at S.W. (true), the force of which was registered for fourteen hours at 8, 9, and 10. The hummocks which had been grounded along the horizon and in shore by northerly and north-westerly winds in September, were floated by this rise and blown off the land, taking with them all the ice that had formed outside the spit and islands, together with a large portion of the floe within the anchorage, which brought the open water within forty yards of the ship.

On the following day, December 19th, at noon, instead of the usual unbroken field of ice to the northward, we had none in sight from the mast-head, and the view of an open sea was as little agreeable as it was unseasonable. In a few days it was again frozen, and after a time the line of hummocks was again formed, and remained fast when we passed in the ship on the evening of the 7th of August.

The lateness of the present season, compared with every one since 1848, seems to me to be accounted for by the winter gales having been heavier than usual this last year, and by raising higher tides, the heavy masses have grounded more firmly along shore, where they impede the current in clearing the shore of the last winter's formation. The months of June and July were remarkable for the absence of strong winds, which alone assist in driving the ice off shore. The mean temperature for the eleven months at Point Barrow was about six degrees higher than that given as the result of Sir E. Parry's twelve-months at Melville Island; but the highest and lowest temperatures have had a more limited range, being —50°, and —43°, or 18° above the freezing point, on the warmest day of July, and 75° below it on the coldest day of January. The prevailing winds have been E.N.E., N E., and northerly (true) during the winter and spring, interrupted occasionally by those from the opposite points, and after May they were moderate and more variable.

The fall of snow was not great, and did not exceed one foot in depth; but the air throughout was loaded a good deal with clouds and vapours, and during the summer the dew point was high. The climate may, therefore, be considered humid, as might be anticipated from its maritime situation.

During the winter the officers took much interest in making astronomical observations, and by a mean of 390 lunar distances the longitude of Point Barrow was found to agree with that given to it by Mr. Elson, the discoverer. A series of magnetical observations were also made under the superintendance of Mr. Hull, the second master, who also registered the tides, and whose zeal in these occupations was highly praiseworthy.

The departure of a large portion of inhabitants of Point Barrow and Cape Smyth to the eastward in the early part of July, relieved me of all anxiety

about receiving any hindrance to the transport of the boats to the open water; and on the 9th I accompaniad Lieutenant Vernon and Mr. Gordon, mate, with an auxiliary party, to assist in dragging the boats on sledges, over the ice, twelve or thirteen miles to the southward of Cape Smyth, where I left him with a favourable breeze, confidently trusting in his success. I enclose Lieutenant Vernon's account of the loss of the boats in his charge, and merely remark that I am perfectly satisfied with the manner in which that officer acquitted himself, and to express my feeling of pleasnre that he was able to save the lives of all his party, whose conduct on this occasion was most praiseworthy.

From the 1st of August I had kept up a daily communication with Cape Smyth by sending an officer across Elson Bay to report any opening or movement in the ice, and on the 7th, seeing open water round Point Barrow, and a favourable easterly wind blowing, I went in a boat to examine the state of the ice. I found the lane of water alongshore to terminate a mile north of Cape Smyth; but since the day previous another had been formed by the easterly wind outside the land floe and first line of hummocks to the S.W., as far as could be seen on a clear day. Returning on board at 8 p.m., and finding the wind steady at E.S.E., with no change indicated by the barometer, I proceeded to sea, hoping to keep the breeze until clear of the ice, and to make my way to Cape Lisburne, to receive orders, or make arrangements for returning to Point Barrow in the event of being ordered. The wind shifted to S.W. in the night, with heavy rain and dense fogs. Towards the morning of the 9th a N.E. wind gave us every prospect of soon reaching open water; but the land floe in the depth of Pearl Bay was found to extend nine miles off shore, which, as the weather was still thick, seemed to offer an impediment to the ship's further progress; but by 10 a.m. the open water was gained through close ice, in which some shocks were sustained, but not more severe than the ship was well able to sustain without injury.

On the following day, at 11 a.m., I communicated with H.M.S. *Amphitrite*, and repaired in company with her to Port Clarence, to prepare for another winter at Point Barrow. Having been completed to sixteen months' provisions and fuel by that ship, and there being a probability of the arrival of H.M.S. *Rattlesnake*, being now ready for sea, I purpose sailing hence at 4 a.m. tomorrow, the 22nd inst., to take up my winter quarters again at Point Barrow, where I shall remain until released from ice in 1854. I shall then return to this place to meet H.M.S. *Rattlesnake*, in pursuance of their lordships' instructions.

I have the honour to be, Sir,
Your most obedient servant,
ROCHFORT MAGUIRE, Commander.

To the Secretary of the Admiralty.

H.M. discovery ship *Plover*, Port Clarence, August 23rd, 1853.

Sir,—I have the honour to acquaint you, for the information of my Lords Commissioners of the Admiralty, that I sailed from the upper anchorage at Port Clarence at 4 a.m. of the 22nd of August, and, previous to clearing the heads, I had the good fortune to meet H.M.S. *Rattlesnake*, whose number I was enabled to repeat to H.M.S. *Amphitrite*.

With Captain Frederick's permission I have returned to the *Rattlesnake* the provisions and stores he had provided us with, much to his own inconvenience, and taken in an adequate proportion of the liberal supplies sent from England.

Having received every assistance from Commander Henry Trollope that could be given, I am now on the point of again taking my departure for Point Barrow, where I hope to reach early in September, if not stopped by the ice.

I cannot sufficiently express my satisfaction at thus opportunely meeting the *Rattlesnake*, nor too much admire the judgment and expedition with which the passage out has been effected.

I have the honour to be, Sir,
Your most obedient servant,
ROCHFORT MAGUIRE, Commander.

The Secretary of the Admiralty, London.

H.M.S. *Rattlesnake*, Port Clarence, September 1853.

Sir,—I beg to acquaint you for the information of my Lords, that H.M. sloop *Rattlesnake*, twenty-seven days from Honolulu, has arrived. We lost the trade on August 3rd, in lat 33° 30′ N., and long. 163° 24′ W, entered the fogs on the 11th in 40° 30′ and 169°, but were, notwithstanding, fortunate in getting observations the day before we passed the Aleutians, which we did between Segonam and Amoutka (16th August), without seeing the land. Although the ship's course was not particularly influenced by it, and there is said to be no race in this channel, I never saw such a confused tumbling sea, with overfalls, &c. It washed one of the gangways away, and broke on board us several times. The fogs still continued, with strong westerly breezes. We found we could not weather the Prihyloff Isles, and, therefore, passed between St George and St. Pauls. The channel is broad and free from danger, but reefs extend off the S.E. end of St. Paul, and a boiling surf breaks on the long low level island called Morjovi or Morse Isle. From the appearance of the water I should say no ship ought to approach unnecessarily within five miles. We sighted Cape Rodney at sunset on the 21st, and on the following morning had the satisfaction of seeing H.M.S. *Plover* coming from Grantley. She had just parted company with H.M.S. *Amphitrite*, and was on her way to Point Barrow. Captain Maguire pulled out to us, and arranged that we should both anchor under Point Spencer, and transfer the provisions and stores (of which I enclose the lists). We had two bullocks and sixteen pigs for him. The former were killed, and would give fresh meat for her crew for eleven or twelve days; but of the pigs they would only take four, in addition to four others received from the *Amphitrite*. She was, in fact, terribly crowded. Five of our men volunteered for her, and five from her were transferred to the *Amphitrite*, so that she has left with her crew in good health; and I believe our arrival, besides the good things we brought them, cheered them up in a manner and to a degree that is better felt than described.

The *Plover* sailed at 3 a.m. on Wednesday, 24th August, with a nice breeze from S.E., which continued for full thirty-six hours afterwards, so that I have no doubt she got through the Straits, and as she is only three days later in starting than she was last year, I anticipate that her arrival at Point Barrow will be equally favourable.

After staying another day at Point Spencer to collect driftwood for building the house we went up to Grantley Harbour and commenced lightening to enable her to enter the narrow and somewhat intricate channel, in doing which we have great reason to thank Captain Frederick of the *Amphitrite* for the most cheerful and valuable assistance.

I propose to leave Grantley Harbour about the middle of July, and then to skirt the ice between Asia and America as far as we can go with safety; and

to lie off Icy Cape, Wainwright Inlet, or Point Franklin, as the case may be and the ice determine, about the first week in August, there to look out for the *Plover*, and return with her to Port Clarence. This course has been agreed upon with Captain Maguire, and will, I trust, meet their lordships' approval, as the most likely to be of service to the cause. No benefit would be derived from our being off the coast of America until August, it not being possible that the *Plover* could leave Point Barrow before that time, and the sooner we have some change after being released from winter quarters the better it will be for the health and spirits of the men; and we may, perhaps, do some good or obtain some information by skirting the pack. Besides, the *Plover's* condition not being particularly good, if anything happened to her we should be able to find our way to Point Barrow and receive her crew.

On our falling in with the *Plover*, or receiving her crew, I purpose returning to Port Clarence, to meet the vessel their lordships' orders give me to understand will be despatched from Admiral Moresby's squadron; or, in the event of our not receiving further orders, to deposit our spare provisions in the house, and proceed to Honolulu.

Since writing the above, I have twice, without success, attempted to take the ship into Grantley Harbour. After sounding and buoying the channel, and finding, as we thought, 17 feet and 16 feet 6 inches throughout, we weighed with the wind at E.N.E., but took the ground in the narrowest part. The tide ebbing an hour afterwards left us with only 14 feet, although we had 17 and 19 feet within a ship's length. We laid two anchors out astern, but could not start her an inch, therefore commenced lightening her. After taking about eighty tons out, being favoured with remarkably fine and calm weather, on the following day, after having been twenty hours on shore we hove her off without difficulty; in fact, from the tacit strain there was upon the hawsers, she went off almost of her own accord. The bottom is soft clay, therefore she sustained no damage; but I do not think it advisable to take a ship of this class into Grantley Harbour. We might, indeed, lighten her much more, but with great risk of damaging the stores and dry provisions, which must necessarily be much exposed; in fact, aided as we were by the *Amphitrite's* boats, and during unusually fine weather, I was most anxious about it. The channel is extremely narrow and intricate and the bottom evidently goes in ridges, so that it might be possible to carry a line of soundings of 17 feet in, and then go over the same ground and have 15 and even 13 feet; and if a ship gets on shore in the passage, and a S.W. wind comes on, the sea gets up so rapidly that the consequence might be serious. There is a certain risk of having the ship in Port Clarence when the ice breaks up, but, as far as I can judge, not so great but that it may be encountered.

On Thursday, 1st September, we made a fresh attempt, using greater caution than before, warping in with hawsers both ahead and astern; but, although under peculiarly favourable circumstances, from a southerly wind having raised the water considerably, we again stuck fast, and were obliged to haul her off. I have now determined not to attempt it again, and I can only hope that the result will prove that I have not judged improperly.

In the event of their lordships requiring the *Rattlesnake* to return to the northward from Honolulu, or to remain here during the winter of 1854-55, I beg leave to enclose demands for provisions and stores for another twelve months, dating from November, 1854.

I enclose a state and condition of this ship.

I have the honour to be, Sir,
Your most obedient servant,
HENRY TROLLOPE, Commander.

The Secretary of the Admiralty, London.

Letter from Captain M'Clure to Sir George Back.

The following letter is from Captain M'Clure to Sir George Back, with whom he served as Admiralty Mate, in H.M.S. *Terror*, during her severe trials in Frozen Strait:—

H.M.S. *Investigator*, Bay of Mercy, Baring Island, Polar Sea, April, 1853.

My dear Sir George,—A short account of our proceedings will, I think, be interesting to "you gentlemen of England, who live at home at ease," from one who has crossed these terrible Polar Seas; and I shall commence by telling you that, in searching for poor Sir John Franklin, we have accidentally tumbled through this long sought for "North-West Paasage"—indeed, two of them: one between Melville Island and Banks Land, the other by the Prince of Wales Strait, which communicates with that of Barrow at the eastern extreme of the last named land. This was effected on the 26th October, 1850, by a travelling party over the ice, the vessel being frozen in the pack, where she wintered, about seventy miles to the southward. As you are in town you will see at the Admiralty the tracing of our discoveries, showing a considerable addition of new territory. So much for the grand event.

Having commenced in the middle, I shall now go back to the beginning. You are doubtless aware of our movements to the time of parting with the *Herald* in Behring Straits. Steering to the N.E., we made the ice on August 2nd, 1850, and, standing into it for a short distance, found it very close, so that it was impossible to get on. We, therefore, ran out and coasted along its edge until the 6th, when, finding an opening eastward of Wainwright Inlet, we pushed through it, and succeeded in rounding Point Barrow at midnight. A dense fog, however, obscured this, nor was it until the next morning, when the weather became clear, that we perceived we had run into the pack. The whole of the next day was occupied in remedying the mistake, and from this time, with one exception, I never left the land, but groped and grappled my way close along the shore.

Having been here yourself, you are aware of the many difficulties and dangers which were likely to oppose the passage of a ship of this size, along a coast so shallow, so beset with sand-banks and reefs, not discernible above the surface of the water, that it is unnecessary to enlarge upon them; sufficient to say, that we were on shore four times, and so firmly fixed upon a shoal, off Yarborough Inlet, that it was necessary to lighten the ship by placing provisions, anchors, chains, &c., in the boats alongside, to enable us to heave her off. Scarcely was this done, and a press of sail set to secure our position, when a whale-boat containing a twelvemonth's provisions, chiefly salt beef was upset, and the whole lost; a most deplorable calamity, which I commemorated by naming the place Bull Reef.

Between Point Drew and Cape Bathurst we had several interviews with the natives, who appear to be a well-disposed, kind race, but most notorious rogues —that is those who have dealings with the trading posts of the Russians on the Colvile River. Removed from civilised man we found them a more simple and moral people. So much for our boasted superiority; we just go far enough to excite their worst passions, and then leave them. A few intelligent Missionaries, from either Greenland or Labrador, of their own countrymen, might effect an immensity; at present all is heathen darkness.

At Point Warren there is a tribe wild as the deer, and at war with the neighbouring tribes on the Hudson Bay Company's territories, who, on our landing, received us with barbarous yells and the brandishing of knives, instead of the

usual friendly salutations. However, after a few preliminaries, our excellent interpreter, who is thoroughly acquainted with the habits of the Esquimaux, and speaks their language fluently, soon tranquillized them, and we then learned that they have no traffic with the white men on the big river (Mackenzie), against whom they expressed much averson for giving, as they said, the Esquimaux and Indians very bad water, that killed some and made others sick. Consequently, they held no communion with them, but, on the freezing of the water, crossed over to Jones Islands to barter their peltries, which eventually reached the Russian station on the Colvile. After the distribution of presents, we parted excellent friends, with a promise on their part to succour and feed with deer's meat any white men that might appear on the coast.

At Cape Bathurst, some three hundred natives were assembled fishing—a fine, well-clad, and friendly set. They remembered Sir John Richardson and his party having passed the previous year, and presented more than one substantial memento of their visit. Being becalmed an entire day to the eastward of the Cape, many Esquimaux came on board, and amused us with their singing and dancing, which was kept up with great glee till near sunset, when a breeze springing up reluctantly compelled them to depart. I sent some despatches by a most venerable old chief, to whom a gun was given, and he promised faithfully to see them forwarded to Fort Good Hope. I hope some confidence may be placed in a skin-clad great man, although receiving payment in advance.

On the 6th of September we discovered our first land, which has been since ascertained to be an island whose north side forms Banks Land. The numerous remains of old encampments proved beyond doubt that at some period it had been the resort of Esquimaux; but not one was seen.

On the 9th, while standing to the N.E., we made another discovery, which I have called Albert Land, after his Royal Highness the Prince. It is continuous with Wollaston and Victoria Land, and from all I could gather from natives residing here, I am of opinion the whole may be included in one large island. Nothing could exceed the astonishment of the inhabitants of these desolate shores at seeing us, since their only intercourse was with the Esquimaux to the south of them, whom they described as being very numerous, and trading with other tribes bordering on the mainland. They did not possess a single article of European manufacture, but were amply supplied with instruments, such as knives, spears, arrow-heads, &c., of the purest copper. Little value seems to be attached to it, as large lumps were strewed in and about the tent; and no little amusement was excited on their beholding one of our sailors collecting a few specimens, and carefully putting them into his pocket. They laughed loudly and inquired, "Why the man wanted to carry away stones?" During our conversation a hunter of their party returned from the chase, and a more active, sinewy, well-formed Esquimaux could not be imagined; his costume was perfect. The musk-oxen and reindeer were said to be abundant, but so wild as to be unapproachable. We parted from these simple people with real feelings of regret; heightened, perhaps, by the conviction that nature had more than half prepared them to change their heathen state of darkness for the blessed light of the Gospel.

On the 14th July, 1851, the ice broke up, though without causing any of those horrors or sufferings that we experienced in the poor old *Terror*; and for near a month we drifted helplessly about the Strait (Prince of Wales).

On the 14th August we had got within twenty-five miles of Barrow Strait (*i.e.* Melville Strait), and anticipated being set into it, when, in all probability, we should have fallen in with Captain Austin's ships, and so got home that year. A strong north-easter, however, set such quantities of ice upon us, and drove us so rapidly to the southward, that, being unwilling to lose so much

valuable time, without furthering our chief object, on the 16th I determined to retrace our course down the Strait, and endeavour to worm our way through the Polar ice to the west of Baring Island, so as to come down, if possible, between Melville Island and Banks Land; feeling convinced, from the report of a travelling party we had dispatched to the westward in the spring, that a channel would be found in that direction. In carrying out this, my dear Sir George, we experienced many narrow escapes from destruction, which nothing but the all-directing finger of a benificent and merciful Providence could have warded off. No idea can be formed, unless witnessed, of the stupendous masses of ice with which this terrible Polar sea is entirely filled. We were actually squeezed through it, and frequently so close to the cliffs that the vessel had to be listed (weighed down on one side) over, to prevent the boats being carried away at the davits by projecting rocks. Seldom, indeed, were we more than half a mile from the shore.

On the 24th September, while running in a snow storm, we grounded on a reef; and this, which, under other circumstances, would have been considered a great misfortune, turned out now just the reverse, for it formed the protecting part of a snug harbour, whose shelter we gladly availed ourselves of on the following morning. Wonderful has been our preservation; for, with the exception of the loss of some of the copper, in every other respect the little ship is as sound as on the day she left Plymouth. Since that date we have remained immovable.

In April, 1852. I went with sledges to Melville Island, fully expecting to find one of Austin's vessels at Winter Harbour, or at all events a depot of provisions, What my mortification was at finding neither, I leave you to imagine. A short search, however, brought us to a block of sandstone, on which a notice had been written by Lieutenant M'Clintock, indicating where provisions were deposited; so that my trip, on the whole, was fortunate. It is very desirable that one of Austin's vessels should have been directed to have remained out in some part of this region an equal time with the *Plover* at Behring Strait, and then the arrangements for our succour would have been perfect.

As regards Sir John Franklin, I have arrived at the conclusion that all hopes expired in 1850; when it was far from expected that we could have penetrated so far to the east.

Last summer was only a mitigated winter; the mean temperature of our warmest month, viz., July, having been 31½°, while so early as the middle of August the open water close along shore became all frozen. At present our prospects look more favourable though the winter has been excessively cold, the thermometer showing 65° — zero; but about the middle of last month (May) it suddenly rose, and has continued steadily above zero, a most uncommon occurrence. It is possible, therefore, we may get released this year, and, should we not clear the Strait, we may reach Port Leopold; but to enable our attempting this, and with the prospect of risking the detention of another winter, I shall be compelled to send home half my crew, a small part by way of the Mackenzie River, and the rest by Baffin Bay. Then, should we be detained until next year (1854), I must of necessity desert the ship, for our provisions will all be expended, and my object will be to conduct my people to Port Leopold.

Up to the present, I have much to be grateful for, in the freedom from serious sickness of the crew, and though some few cases of scurvy and dropsy have been prevalent, on the whole they are tolerably well, and those intended to leave us are already in high spirits for their journey.

I believe I have given you an epitome of past events, except I have not told you that the N.E. point of this bay I have done myself the pleasure of naming after yourself, in remembrance of your many kindnesses.

As all my actions are on my own responsibility, I must beg of my friends at home to give me a little support at the Admiralty if they are not approved; and if they are, should their lordships think my services worthy of promotion, an influential word might get it dated back to the 26th October,* 1850, to commemorate the discovery of the "Passage," provided the *Enterprise* is not before us, which I do not think.

Believe me to be, my dear Sir George,
Your affectionate friend,
ROBERT M'CLURE.

N.B.—It is evident that this letter was written previous to Lieutenant Pim's arrival at the *Investigator* with the joyful information of Captain Kellett's being at Dealy Island with two vessels.—G. BACK.

OCEAN STEAMERS.

At the Institution of Civil Engineers, on Nov. 14th and 22nd, James Meadows Rendel, Esq., President, in the Chair, the discussion on the paper on "Ocean Steamers," by Mr. Andrew Henderson, Assoc. Inst. C.E., was commenced, by quoting from an article in the *Edinburgh Journal*, by Professor Tenant, of St. Andrews, the dimensions of some of the large ships built by the ancients; whence it appeared, that a ship constructed by Ptolomœus Philopater, was 420 feet long 56 feet broad, and 72 feet high from the keel to the prow; and was manned by four thousand rowers, four hundred servants, and two thousand eight hundred and twenty mariners.

Hiero, King of Syracuse, caused to be built, by Archias, the Corinthian shipwright, under the supervision of Archimedes, a vessel which appeared to have been armed for war, and sumptuously fitted for a pleasure yacht, and yet was ultimately used to carry corn; the dimensions were not recorded, but as there were twenty banks of oars, and three masts, the timber for the mainmast, after being in vain sought for in Italy, being brought from England, and the cargo was sixty thousand measures of corn, besides vast quantities of provisions, &c., for the crew, the dimensions must have exceeded those of any ships of the present day; indeed Hiero, finding that none of the surrounding harbours sufficed to receive his leviathan, loaded it with corn, and presented the vessel with its cargo to Ptolemy, King of Egypt: and on arriving at Alexandria, it was hauled ashore, and nothing more was recorded respecting it.

Taking these dimensions as the basis for calculating the tonnage, by the old law, or builders' measurement, and, in accordance with the report of the late Tonnage Committee, taking the average tonnage of ships as amounting to twenty-seven hundredths of the external bulk, measured to the medium height of the upper deck; the burthen and cubic content of these vessels would be:

	Tonnage.		External Bulk.	
Ptolomœus Philopater's ship =	6,445	tons,	830,700	cubic feet.
Noah's ark	11,905	„	1,580,000	„

and contrasting with these a few modern ships:

Great Western	1,242	„	161,100	„
Great Britain	3,445	„	446,570	„
Arctic (American packet)	2,745	„	356.333	„
Hymalaya	3,528	„	457,332	„

* M'Clure required fifty-three days to complete his time at this date.

and, calculating by the same rules, taking the dimensions given in the prospectus of the Eastern Steam Navigation Company, their

Proposed iron ship ..... 22,942 „ 2,973,593 „

It was, however, stated that this vessel was intended to be 10,000 tons register, which might be correct, if it was built on the cellular system, and was measured internally by the present law. This latter example was only given to demonstrate the advantage of adopting the proposed system, of using the mean of external and internal measurement as the basis of the calculation of the tonnage, and of recording all the dimensions, and the scale of burthen on the certificate of survey.

It was admitted, that there was much ingenuity in the proposed system of descriptive measurement, but it was argued, that the present law rather favoured the construction of well formed vessels, as the fiscal tax fell lighter upon them, than upon bad ships. The utility, in a scientific point of view, as well as commercially, was strongly urged, of adopting a system of measurement, which should record the dimensions, capacity, and scantling, and form a classification of the comparative merits of all ships.

It was suggested, that the discussion would be more useful if it was, for the present, confined to the consideration of the advantages and disadvantages of the proposed large classes of sailing ships and steamers with respect to their scientific construction, their capabilities for navigation, and their commercial economy, as the law of measurement could scarcely be combined with these questions.

The first point then considered, was the effect of heavy seas upon vessels of 400 to 600 feet long. The waves of the Atlantic were stated, by some Captains of American "Liners," to attain an elevation of about 20 feet, with a length of 160 feet, and a velocity of 25 to 30 miles per hour.

Dr. Scoresby, in his paper on Atlantic Waves, gave about the same mean elevation, for the waves, in rather a hard gale ahead; on one occasion, with a hard gale and heavy squalls, some few waves attained a height of 43 feet, with a length of nearly 600 feet, and a velocity exceeding 30 miles an hour. Other authorities assumed even more than those heights and distances.

The amount of strength, to resist the impact of such waves, must vary with the length and size of a ship, and the materials of which it was constructed; and as the experience of the Britannia Bridge showed, that a weight of 460 tons, at a velocity of 30 miles per hour, could be borne by a cellular tube of 460 feet span, it was demonstrated, that by the use of iron, almost any amount of strength could be given to a vessel, and as stability could be imparted by proper proportions, efficient vessels could be built of any dimensions, as had been exemplified by the *Great Britain*, which after remaining ashore on rocks for several months, had been got off without serious injury. There were, however objections to the use of iron alone for vessels, therefore many other systems had been essayed, such as English oak, pine of large scantling, three thicknesses of diagonal planking, and iron framing with stout planking, this last combination with the addition of fore and aft ties and watertight bulkheads, was advocated for efficiency and economy.

The proportions of about six breadths for the length, were insisted upon, and it was noticed, that these were given as the dimensions of Noah's ark, as recorded in Holy Writ.

The effect of heavy waves upon vessels of great length was discussed, particularly when in the trough of the sea, and without sufficient "way on" to enable the rudder to act; under such circumstances it was suggested, that there might be a bow rudder, and a propeller so placed as to assist the action of the helm in bringing the vessel round.

The necessity for the formation of capacious docks and harbours expressly for such large vessels, was pointed out, as until that was done they must load and discharge in the river or roadstead.

It was admitted, that the proposed record of construction would be of scientific value, but the advantage of making it a part of the ordinary register was questioned.

The full consideration of the best forms of fishing and life boats, which had been incidentally mentioned, was strongly urged, on scientific grounds and in the interests of humanity.

The questions of what were, scientifically, the limits of bulk of vessels, and power of engines, and commercially, the most profitable dimensions for carrying cargoes and passengers, bearing in mind the period of inactivity, whilst loading in port, were shown to be the main points for useful consideration, as it was as much the province of the engineer to consider the commercial result, as the details of execution of any proposed construction, or plan of operations.

The innovations proposed by Mr. Roberts, and illustrated by his models, were examined.

An examination was made of the project for transmitting letters between Holyhead and Dublin, at a speed of 22½ statute miles per hour;—of that for communicating between New York and Liverpool in six days, at an average speed of 22 nautical miles per hour;—and for steaming to Calcutta and back, without re-coaling, traversing a distance of about 25,000 nautical miles, at an average speed of 15 nautical miles per hour; using elaborate calculations and tabulated results, based on the duty performed by H.M.S. *Rattler*, with a given power, and under known conditions.

Objections were raised to accepting 7½ knots per hour as the data for the present average rate of speed of ocean steamers; it was urged, that such an average must not be derived from the voyages of steamers of old date, and without regard to the later results deduced from the performances of the Cunard and Collins' lines of steamships.

The propriety of taking the *Rattler* as a model steamer was questioned, especially as the data were not given for selecting that vessel, it being argued, that the *Rattler* had not performed a series of long voyages, under every variable line of immersion, or under such changes of weather and states of the sea, as to furnish data for such important deductions.

The advantage of increasing the proportion of length to breadth was apparent, if it was admitted, that the cargo-bearing capacity of a vessel was thus augmented, without materially affecting her direct resistance through the water; supposing her midship section to remain unaltered. The proper proportion of length to breadth for an efficient ocean steamer was, however, an intricate question. Taking the *Wave Queen* as an example: the length of that vessel had been stated to be thirteen times her beam; now such proportions might answer well for the River Thames, and a great speed might be attained, but such a vessel would, under certain circumstances, be unfit to navigate the British Channel. The same might be said of the American river steamers, which were reported to have attained almost fabulous rates of velocity; but such proportions as theirs, if attempted in ocean steamers, would only induce failure and loss of the vessels in heavy gales in the open ocean.

Magnetic Variation.

Table showing the mean monthly westerly declination, or westerly variation of the magnet, and the mean monthly dip, at the Royal Observatory, Greenwich, in the year 1852.

1852.

	Variation, W.			Dip.	
January	22°	22′	13″	68°	39·45′
February	22	21	15	68	42·90
March	22	20	35	68	41·63
April.....	22	21	49	68	45·56
May	22	20	24	68	41·72
June.....	22	18	3	68	39·92
July	22	19	5	68	39·50
August.....	22	17	36	68	36·24
September	22	14	5	68	43·69
October	22	13	5	68	47·42
November	22	11	24	68	43·24
December.....	22	11	9	68	50·59

The mean variation has been found by the application of corrections (deduced by Mr. Glaisher from two-hourly observations taken during the seven years 1841–7) to the mean of readings taken at 9h. A.M., 1h., 3h., and 9h., P.M. daily. The mean dip by taking the mean of observation at 9h. A.M., 3h., and 9h. P.M. on one day in each week.

G. B. Airy,
Astronomer Royal.

The Screw Propeller.

Army and Navy Club, London, November 22nd, 1853.

Sir,—In July last you kindly published a communication from me on Screw Propelling, and I now perceive that the late experiments in the *Conflict* have still more conclusively proved the advantages of a long pitch. Thus it appears that:—

1st. With a common screw of 15 feet 2 inches pitch the greatest velocity obtained was 9·42 knots with 75·75 revolutions.

2nd. With an increased pitch of 19 feet 10½ inches, a speed of 9·77 knots was obtained with only 61·50 revolutions, and this most favourable result was obtained *before* the surface was reduced.

3rd. The Boomerang propeller was then tried with a pitch of 20 feet, when 67 revolutions gave a velocity of 9·74 knots.

Thus the *common* screw of a *long* pitch, without any cooking of the blades or bo·s, is incontestibly the best, and the good performance of the Boomerang is simply due to its great *pitch*.

It is now, therefore, certain that a long pitch is the best for speed and economy, and is the only form which admits of sufficient area being given to the blades.

I am, &c.,
W. E. A. Gordon, Lieutenant, R.N.

NAUTICAL NOTICES.

NOTICE TO MARINERS.

MEDITERRANEAN. REVOLVING LIGHT ON CAPE GIORDAN, ISLE GOZO, MALTESE ISLANDS. [147.] Notice is hereby given, that on the 15th of October a Revolving Light was placed on the N.W. part of the Island of Gozo, near Cape Giordan in 36° 4′ N., and 14° 10′ E. from Greenwich. The period of revolution is one minute; the light is elevated 400 feet above the sea, and is visible at the distance of 24 miles when bearing from N.E.¼E. round by the northward to N.W.b.W.¼W. until about three miles from the Island; and within that distance it will be visible as far to the northward as N.¾E.

Mr. Mainprise, Master of the *Britannia*, has drawn up the following directions concerning the Light:—

Vessels bound to Malta from the westward often sight the Island of Gozo on a port bearing when they have been expecting to see it to starboard, especially if the wind be from the N.W.; this arises from two causes, first a south-easterly set of the current; and secondly, from the assumption that the variation of the compass is 1½ points, whereas it is only 14½° or 1¼ points. The Light kept to the southward of E.S.E. will lead to the northward of the pitch of Cape St. Demetri. If bound to Valetta run along the north side of Gozo, which is perfectly bold, at a convenient distance according to the wind and sea till St. Elmo Light comes in sight, (which will first be seen on a S.S.E. ¾ E. bearing,) then gradually haul to the southward. Bill's Bank has 6 fathoms on it, and is reported to break in bad weather; at other times any vessel may pass over it; Cape Giordan Light kept in sight will give it a wide berth. The same Light kept in sight N.W.b.W. will lead well clear of the Island of Malta at from 4 to 6 miles, according to your distance from the Light.

St. Elmo Light south clears the St. George Shoal, and with it on this bearing you may run for the Harbour of Valetta. A day mark will be Zabbar Gate (the Highest building on the Cottonera lines) in line with the Eastern angle of Fort St. Elmo S. ¼° E. If hove to off Valetta, waiting for daylight, there will be no danger of the Monsciar Shoal to any class of vessel as long as St. Elmo Light be kept in sight.

KATTEGAT. LIGHT ON THE KOBBER GROUND. [148.] Her Majesty's Government has been officially informed that a Light vessel has been placed on the Kobber Ground South of Læso Island.

In the notice dated August 20th, it was stated "she will ride 3 or 4 cables' lengths S.E.b.E. [by compass) from the Nyvager, [New Beacon] in lat. 57° 8′ 30″ N. and long 11° 20′ 30″ E. from Greenwich. She will be schooner rigged, and each side painted with a White Cross."

The following further particulars have now been received:—The Vessel will carry three lights, viz. two on her foremast, one above the other; the upper one at an elevation of 50 feet, the lower one 25 feet; and the third on her mainmast 40 feet above the sea, and they will be visible at the distance of 9 miles. The Vessel was moored at her station in 4 fathoms water on the 20th of October.

DISCONTINUANCE OF THE REVOLVING LIGHT ON CAPE MACHICHACO (North Coast of Spain). [149.] Her Majesty's Government has been informed that the Revolving Light on Cape Machichaco, about four leagues to the Eastward

of Bilbao, in 43° 28′ N., and 2° 49′ 10″ W. of Greenwich, was discontinued on the 14th of November, for certain repairs required to be made.

New Lights on the Coast of France. [150.] At Baleines Point (West Coast).—The French Government have given notice that:—The present Light which revolves in 3 quarters of a minute on Baleines Point, (the north-western extremity of Ré Island,) in 46° 14′ 41″ N. and 1° 33′ 27″ W. of Greenwich, will be discontinued on the 15th of January next; and instead thereof these two following Lights will be established.

1. A Revolving Light on the same Point, at a little distance to the eastward of the present tower, but with intervals of only half a minute between the eclipses. The Light will stand 164 feet above the sea, and will be visible 20 miles. The eclipses will not be total within the distance of 10 miles.

And 2, a Fixed Light on the Reef which projects a mile and a half to the N.W. of Baleines Point. It stands on the Rock called the Haut-Banc du Nord, in 46° 15′ 51″ N., and 1° 34′ 59″ W. from Greenwich. It is 29 feet above the sea, and is visible 13 miles.

Navigators are reminded that the dangers off Baleines Point, extend more than a mile to seaward from this Light.

(2.) At Portrieux (North Coast).—Since the 24th of June last, a small Fixed Red Light has been exhibited on the pier of Portrieux, 49 feet within its extremity. It stands in 48° 38′ 50″ N., and 2° 49′ 10″ W. from Greenwich, and being 29 feet above the sea, is visible 13 miles.

(3.) Lights on the Cherbourg Breakwater.—On the 12th of October a temporary Red Fixed Light was placed on the Western head of the Breakwater of Cherbourg, in 49° 40′ 29″ N., and 1° 38′ 40″ W. from Greenwich. Its height is 39 feet above the sea, and it may be seen 10 miles.

A similar temporary Fixed, but Green, Light will be established in the course of December, on the Eastern head of this Breakwater, but its height will not be so much as of that on the Western head.

Beacon and Light in Kiel Fiord. [151.] Her Majesty's Government has been officially informed, that a Beacon has recently been placed on the extremity of the covered part of the reef off Friedrichs Ort, in Kiel Fiord. It consists of an iron rod fixed in the ground, and carrying, by day, three balls, placed in the form of an equilateral triangle, on the following marks:—The old beacon on the point bearing W.$\frac{1}{2}$N. (mag.) and the small light shown on the rampart W.N.W. At night, when the weather will permit, a lantern is suspended from the above new beacon, 16 feet above sea; and when prevented by storms, drift ice, or other causes, a lantern will be hung on a pole in the immediate neighbourhood of the beacon, but a little above it.

Lights on the River Elbe. [152.] New Light at Kugelbaak, and changes in the other Lights.—Captain E. Abendroth, Chief Pilot of Cuxhaven, has announced that the following changes in the Lights on the Elbe, will take place about the end of December.

(1.) Neuwerk Fixed Light.—The Low Light on the Island of Neuwerk, at the Entrance of the River Elbe, is intended to be screened so as not to be seen by a vessel when it is between the bearings of S.b.W. and S.W.b.S., or when she is between the buoy No. 5. (V.) and the buoy F. which carries a vane, off Neuwerk Island.

The intention of this arrangement is to apprize vessels coming up the river that they are entering the narrow and dangerous part of the channel, and that it would be prudent therefore to anchor. If, however, they persist in standing

on, as soon as the Light reappears they should alter the course from S.E.b.E. to E.b.S., and even East, in order to allow for the indraft of the Eitzen Loch, which is strong from first to half flood.

(2.) Kugelbaak Fixed Light.—At Kugelbaak, or the Ball Beacon, a Fixed Light is to be established which will be visible between the bearings of S.E.b.S. and S.W., or from the buoy J. to the buoy L., or No. 10. (X.)

A vessel coming up the river, on opening this Light, being thus apprized that she is to the Eastward of the buoy J. should immediately alter her course to S.E. or S.E.$\frac{1}{2}$S. until the Kugelbaak and Cuxhaven Lights are in one, about S.b.E.$\frac{1}{2}$E. and steer directly for them till she shoals the water to 6 or 4 fathoms according as it is high or low water. She may then take up a S.E. or S.E.b.S. course, so as to bring Cuxhaven Light on her Starboard bow. When she has passed the buoy L. she will lose sight of the Kugelbaak Light, and be in 8 or 10 fathoms, from whence a S.b.E. course will clear all the shoals up to the anchorage of Cuxhaven, but she should recollect that this Reach is frequently so much crowded by vessels as to require the utmost caution to avoid them.

(3.) Cuxhaven Light,—when seen from the lower part of the River, will appear as a *Flashing* Light, and will thus be distinguished from the Fixed light of Kugelbaak.

Establishment of an Additional Time Ball at the Cape of Good Hope. [153.] Mr. Thomas Maclear, the Royal Astronomer at the Cape of Good Hope, has given notice, that the Time Ball attached to the Cape Observatory, not being generally visible by the Shipping on the eastern side of Table Bay, owing to the intervention of buildings, another has been established by the liberality of the Colonial Government, at the opposite side of the Bay. It stands on the Lions Rump, and commenced work on the 14th of last October.

The Observer should note the time by his chronometer when this Ball *begins* to fall; and by subtracting one second from that time, he will have the moment of One o'clock p.m. by mean time at the Cape Observatory.

The Cape Observatory stands in latitude 33° 56′ 3″ S., and longitude 18° 28′ 45″ or 1h 13m 55s E. of Greenwich.

Light on the Robbebol, or West Point or Horst of Flieland.—The Netherlands Government has given notice that a Light has been established on the western point of Flieland. The light appears at an elevation of eighteen Netherlands ells above the level of the sea, and the base of the Lighthouse remains dry at high water. The Light is screened in a N.E. and S.W. direction, and also in a N.W. and S.E. direction by two detached oval screens standing on the downs. The notice cautions vessels from approaching the coast so near as customary, for which purpose and for keeping them off the Eyerland shoals this Light has been erected. In working up in shoal this caution is especially necessary in consequence of the strength and set of the currents, which, with bad charts and uncertain marks, would soon cause the loss of the ship.

Danish Lights, Ice.—A notice from the Danish Government directs that the Light-vessels in the channels of Drogden and Læssoe remain as long at their stations as the ice permits,—the latter certainly until the 31st December. Those of Anholt and the Kobber Ground will be removed at the usual time, the 21st December. The notice also states that when a white flag is shown at the Lighthouse on the Scau there is ice in the Cattegat and the Lightvessels in the Læssoe channel have been removed; and for further apprising seamen that

there is ice in the Cattegat a white flag will be displayed at the Lighthouse on the Island of Haustholen.

IMPROVEMENTS IN KIJKDUIN LIGHT, COAST OF HOLLAND.—Improvements in this old established Light were completed in October last, consisting in raising the Light to 161 feet above the level of high water and extending its range, which now renders it visible in all directions from seaward, the screened part being from S. 60° E. to S. 30° W, by compass, at the distance of about eighteen miles. This Light is now rendered very serviceable to ships approaching the Texel and is reported to be an excellent sea light. It stands in 52° 57′ 4″ N., and 4° 43′ 30″ E. of Greenwich.

INSURRECTION AT FORMOSA.—The Island of Formosa is the theatre of an insurrection. The *Hermes*, *en route* from the Madjicosimahs to Amoy, called at Tai-wau-fu, and found the inhabitants battling with the soldiery, who earnestly begged from Captain Fishbourne a supply of gunpowder. This request was refused; but it was only on condition of his giving them eighteen cartridges that he was allowed to take some coals which he had demanded.

NEW ACT ON PILOTAGE.—On the 1st October the new Act to amend the law relating to pilotage came into force. The object of the new law is to vest the right of piloting ships outwards from the port of London and piloting ships inwards to the same port in one body of pilots, and that such pilots should be subject to uniform authority and control. By the Act an union is effected between the Trinity House and the Cinque Port pilots, and they are to be considered competent to pilot ships outwards and inwards under the regulation of the Trinity House. The property of the Society of the Cinque Port pilots is to be transferred to the Trinity House. Licenses may be granted by the Board of Trade to masters and mates as pilotage certificates, on the authorities refusing to do so, under the 12th & 13th Vic., cap. 88. It is provided, that in order to ascertain and make public the amount of pilotage rates levied on shipping, that every person duly licensed to act as a pilot shall, before the end of January in each year, give to the pilotage authority by whom he is licensed a full account of all sums of money earned by him as a pilot in the course of the preceding year, with the names and descriptions of the vessels in respect of which the sums have been earned; and in default, after application, his license is to be withdrawn as a pilot until the account be delivered. The pilotage authorities are to make full returns to the Board of Trade. With the consent of her Majesty in full Council, the pilotage authorities are empowered to make, under this Act, extensive alterations as to the qualification of pilots, the rates to be levied, and other matters. Until the present Act, such consent was to be obtained from the Chief Justice of the Queen's Bench or Common Pleas. Considerable powers are vested by the new law in the Trinity House authorities, and pilots will soon be placed under one authority. The statute, when cited, is to be called "The Pilotage Law Amendment Act, 1853."

NEW ACT ON MERCHANT SHIPPING.—The new Act passed at the close of the session to amend various laws relating to merchant shipping came into operation on the first day of October last. It contains sixty-eight sections, with an interpretation clause of the terms used. Under this Act the light-

house tolls payable and the ballast rates, &c., are in future to form "The Mercantile Marine Fund," which account is to be kept by her Majesty's Paymaster-General. The accounts are to be approved of by the Board of Trade. For the purpose of erecting and repairing lighthouses, &c., the Treasury may make advances, and Board of Trade is empowered to borrow money. Her Majesty may, by an Order in Council, fix the tolls to be taken for new lighthouses. Unclaimed wages, and effects of deceased seamen, may be paid into the Exchequer. A gross sum is to be paid to the Seaman's Hospital in lieu of an annual payment. In order to prevent the undue assumption of the British flag and national character it is provided by the thirty-third section that when it is assumed the ship may be seized and adjudicated upon, and if the similation is proved the vessel is to be condemned. There are clauses as to volunteers into the navy, and relating to the payment of their wages. Facilities are given to obtain seamen in the Australian colonies. The subject of salvage is defined in several provisions, and other matters are set forth to amend the law relative to the merchant service.

THE NEW ACT TO ESTABLISH THE ROYAL NAVAL COAST VOLUNTEERS.—The new Act for the establishment of a body of naval coast volunteers and for the temporary transfer to the navy, in case of need, of seafaring men employed in other public services has been printed. It is declared to be expedient to establish and train a body of volunteers, who may be called forth and employed when the defence of the realm may require, with or in aid of her Majesty's naval forces, and to provide for the service in the navy, upon like emergency, of seafaring men who may be employed in any department of the public service. The Admiralty is empowered by the Act to raise a number of men, not exceeding 10,000, to be called "The Royal Naval Coast Volunteers," from among seafaring men and others who may be deemed suitable for the service in which such volunteers may be engaged. Every volunteer under this Act is to be entered for five years. They may be trained and exercised for twenty-eight days in each year on shore or on board ship. In case of imminent national danger, her Majesty may order the Volunteers to be called into actual service; they are not to be liable, when called, to be sent beyond 100 leagues from the shore of the United Kingdom. When their service is extended beyond one year, they are to have extra pay. During exercise and actual service the men are to have the pay of able seamen, and allowances when afloat. They are protected from service in the Royal Navy and the Militia. Bounty money is to be paid, and other men may be called into service for national protection.

TO CORRESPONDENTS.

"J. B.'s" communication has been received and is under consideration; he is aware the same subject has been frequently touched on in the *Nautical*, more especially in the volume for 1848.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

FEBRUARY, 1854.

NARRATIVE OF THE VOYAGE OF H.M.S. SERPENT, *L. U. Hammet, Esq., Commander, from Hong Kong to Sydney, touching at the Bashees, Port Lloyd, Pescadores, Strong Island, McAskill, Wellington, and Solomon Islands, Timor, Port Essington, and Swan River. Between November 9th, 1852, and June 20th, 1853.**

We sailed from Hong Kong on the 9th November, 1852, with four months' provisions on board. Three days afterwards met with a heavy monsoon gale, during which the jibboom snapped by the martingale and before the wreck could be got in board it severely injured the service of the bobstays and other head gear.

On the 18th we entered the Bashee Channel and met with those ripplings caused by the tide, well known to navigators, and which for about four hours made the ship labour so violently as to endanger the masts.

As we had a long cruise before us, it was determined that we should touch at one of the Bashee Islands to repair the injuries sustained from the loss of our jib-boom, and we accordingly anchored on the 18th, at 8 p.m., between Sabtang and Bashee Island. Our stay afforded us the opportunity of visiting one only of the small villages of the islands, close to our anchorage. We found the huts of a very humble description, low, and built of stakes wattled with branches of trees, the crevices being filled up with mud, and thatched with dry

* Besides the nautical information in this narrative, it derives an interest from the circumstance that one of the objects of the *Serpent's* voyage was to obtain intelligence of the late Mr. Boyd and the *Waverley*.—ED.

grass. The inhabitants, of whom there were about two hundred, were apparently of Portuguese origin, with a mixture of Malay, and of a light copper-coloured complexion; they appeared very poor and dirty, but were civil and peaceable, carrying no weapons whatever, nor did we see any in their huts. They had plenty of bullocks but were unwilling at first to part with any; we induced them, however, to let us have one for six dollars, and we also obtained from them a few yams. This was making some progress and had we remained among them longer we, perhaps, should have got more, at a cheaper rate, as they appeared to be bringing them down from the hills when we sailed. Our hopes of obtaining water were disappointed, for we could only find two small rivulets on the whole island, from both of which watering was impracticable, as the boats would have to lie outside the reef at least four hundred yards from the stream, and to roll casks would be impossible from the rocky nature of the ground. The Islands seem to be of volcanic origin, composed principally of quartz; with few trees and those not large, the valleys being filled with stunted shrubs and brushwood. A few hogs and fowls appeared and some plantations of maize and yams. Care should be taken in going far from the ship in boats, as the ripplings caused by the tide are very violent, and come on without warning.

After a stay of about twenty hours, we took our departure on the 19th, at 5 p.m., and cleared the Ballingtang Channel during the night. Standing to the S.E. until the 27th, with a strong N.E. trade, so as to secure a good offing we tacked to the northward, according to Horsburgh's advice, and had to work up against a determined N.E. gale, generally under double or treble reefed topsails and reefed courses, until the 11th December, when, on getting into lat. 28° N., we found a fresh breeze from the N.W.; and made the disagreeable discovery that a quantity of water had leaked out of the tanks from the heavy lurching of the ship during our beat up, so that it became advisable, as we were no great distance from the Bonin or Arzobispo Group, to replenish our stock, having a long voyage before us.

At daylight on the 14th the entrance to Port Lloyd was discovered, and after beating in, with the assistance of Captain Beechey's excellent plan of that harbour, we found no difficulty whatever in taking up our anchorage at 10 a.m. The Island is well described in this officer's voyage of the *Blossom*. We found it inhabited by about fifty or sixty people, perhaps one-third of whom were English and Americans, left behind by whalers at their own request;* the remainder were natives of different Pacific Islands, also voluntary settlers. All the flat ground appeared to be occupied by them, and well cultivated with sweet potatoes, yams, maize, onions, and sugar cane. Hogs, fowls, and ducks were plentiful, and tolerably cheap. The Islands abound in turtle during the season, which commences about May and ends about Sep-

* In our volume for 1852 a full account of the Island with the *names* of all the settlers is given by Captain Collinson, who touched there, in the *Enterprise*, on his way from Hong Kong to Behring Strait.—Ed.

tember; and about a month earlier and later than this they are taken by spearing, while floating on the water.

The Islands are subject to typhoons, but, happily, they are not frequent. Every valley has a stream of fresh water, and we obtained ours, which was excellent, on the eastern side of the harbour, about N.E. from Castle Rock, from 90 to 150 yards of hose being required, according to the tide. We also found as much good fire-wood as we wanted at five dollars a cord, but only one bullock remained on the Island and this would have been sold to us but was too wise to be caught. Wild hogs are among the hills but are very difficult to be taken. There were also plenty of half-wild goats, which nominally belong to the settlers, who gave us leave to shoot as many as we liked. From a Mr. James Moitley, at our watering place, we learnt that an Englishman named Lacey was living at Wellington Island, and that Captain Hussey, an American, living at Strong Island, could give more information. He had known Captain Dowsett very well, and had heard that the *Waverley*, which was sent in search of him, had been destroyed at Strong Island.

After repairing the damages about our bows and filling up wood and water, we sailed on the 16th at 9 a.m., and, with a fresh westerly wind, stood due east to avoid the N.E. trade. On the 22nd we reached long. 158° E., and bore away for the Pescadores.

After a favourable passage, during which we passed close to the supposed places of Margaret Islands, Deceirta, and Lamira without seeing them, we made the Pescadores on the 31st December, about 10 a.m.

The Pescadores consist of a number of Islands, or rather sand banks, covered with stunted trees and jungle. They appear all connected together by reefs, and were also surrounded by one of coral, through which there appeared no opening. After running along the edge of the reef for some miles, we stood close in to an island, which appeared the largest and on which there were a few cocoa nut trees. Leaving the ship to stand off and on, two boats were lowered for landing and luckily succeeded in finding a passage through the reef about twenty yards wide. The surf was breaking very high on each side as we passed through, and we were closely followed in by numerous sharks, which at times almost touched the boat.

On approaching nearer we found the passage, which was from one to two fathoms deep, continued through the reef to a lagoon, thus forming, therefore, two separate islands. Our course was directed towards that on the left hand, where a proa lay hauled up on the beach; on which, some natives, perceiving us, came, yelling at the top of their voices, rushing down to the proa. They consisted of about a dozen, men, women, and children, and, finding they could not launch her before we reached them, they fled into the jungle in a frantic manner but making gestures of contempt. We landed and followed them for some distance, but the path was soon lost in the jungle. There were several huts and other marks of the island being inhabited, but we found no names cut on the trees nor any other signs of Euro-

peans having been there. We then re-embarked and crossed to the other island and examined it all over, the jungle being intersected by paths which led into small clearings, where we found huts. No springs or pools of fresh water could be seen on either island, but the lower part of the trunks of the largest trees were hollowed out in the form of a basin and water courses cut through the bark so as to collect the rain water. None of these trees were of any importance. The only other vegetation on the Islands was thick jungle and a few cocoa nut trees, producing very small nuts, thereby showing the want of water. There were also a few trees producing the rock apple or tree-pine, which the natives are apparently fond of. We found fish bones and some fishing lines in the proa, but no other marks by which to guess how they lived, as we did not see an animal or bird and found no marks of turtle.

It appeared to me most probable that this was the Island where Captain Dowsett was attacked, as it seemed to be the only one where there was a break in the reef and it has a lagoon at the back as described, and by the gestures of the natives they would have attacked us had we not been too strong for them. As they did not do so, I left every thing as I found it, which may, possibly, induce them to be more civil to any future visitors. After a stay of four hours, we returned on board and made sail for Schantz Islands.

On the 1st January, 1853, at about 10·30 a.m., we got close to Schantz Islands; hove to, and landed on the largest. These Islands resembled the Pescadores in every particular. We observed one native, as we landed, who ran off into the bush, and, following his foot marks for about two miles, we found the Island much intersected by paths, with occasional clearings. No huts, however, were seen, and, after two hours' search, we returned to our boat that the crew might get their dinners. In the course of this, four women suddenly appeared and came down to us, and two men were seen at a distance, but they remained in the bush, evidenly not wishing to be observed. The women brought strings of dry cocoa nuts, which they gave to us and received some biscuit in return and we did all we could by signs to make them understand that we wished the men to be brought down, and they went into the jungle making signs that they would return with them. In about half an hour they did return and some men with them, who, however, still would not leave the jungle. We presented the women with more biscuit and went alone, unarmed, towards the jungle with the intention of communicating with the men; on which the whole party scampered off into the jungle and never returned. They are copper-coloured, with long black hair, and nothing on their persons but a neatly worked mat round the loins. No water was seen on this Island, but a cocoa nut shell full of what appeared by the taste and colour to be rain water collected in a tree, as at the Pescadores, was brought to us by them. On returning on board we made sail for Patterson Group.

On the following morning, at daylight, Patterson Group was before us, and we worked up to Catherine Island by three in the afternoon

and hove to off a small village, where we saw a number of natives. Here we landed, after making our way through the reef and wading about a hundred yards to get to the beach. The natives adroitly assisted us to get the boats through the surf, and then accompanied us on shore. There appeared to be about thirty men and about fifty or sixty women and children; the men being fine stout looking fellows, copper-coloured, with long black hair, secured in a bunch on the top of the head by pins made of fish bones, and in some cases by fillets of small white shells. Their only clothing consisted of an apron formed of long grass wound several times round the loins; the women wore mats, as at the former Islands, and many of them wore handsome necklaces of shells, and similar fillets to secure their hair. While we were endeavouring to explain to them the object of our visit, two large proas, which had followed the ship, ran on the beach and the crews speedily joined their friends; at the same time, perceiving that some of the natives who appeared to keep in the rear were arming themselves with spears, which they seemed to pick up from the long grass, we made a signal for another of our boats, which soon came and anchored outside the reef. This addition had good effect; for, on observing it, the natives dropped their spears and began to bring us some green cocoa nuts; on which our parleying commenced, by signs, whether any white man was on the Island, and, as far as we could make out, their reply was in the negative. Taking two of our boat's crew, and accompanied by several of the natives, we went into the bush, along the path by which Lacey might have been led, and after walking for about half a mile along a well beaten track, we came to a small pool or well of water; there was very little of it, and by its taste it appeared to be rain water. The path soon after branched off into two and they were both followed for about half a mile farther, until they ended in small clearings and clusters of huts on the other side of the Island. We could discover no signs of any European having been there, nor any remains or stores of the whale boat stated to have been taken into the bush. After minutely examining every part of the Island we returned to the village. Some empty bottles and tobacco were then given to them, in return for their cocoa nuts, with which they appeared satisfied. Two fine new proas were hauled up on the beach; the larger of which appeared capable of carrying from sixteen to twenty men, she had apparently not been afloat, and must have been built on the Island, the trees of which, though stinted, are quite large enough to supply the necessary plank; she was sewn together with twisted grass, and had no iron work about her. The natives appeared to live upon fish, cocoa nuts, and the fruit before mentioned; no cattle or poultry were seen. This would appear to be the Island on which Lacey was taken, as the description and position of it both agree with that given. On returning to the boat the natives accompanied us, carrying cocoa nuts down and assisting to launch her through the surf, but while they were doing so an attempt was made to steal small articles, on discovering which and making signs to

them to return them they always did so. On leaving this Island we steered for the one mentioned in Horsburgh as Catherine Island, and placed by him about sixty miles to the westward.

On the 3rd, about 10 a.m., saw a group of islands ahead; picking out the largest we hove to and tried to land; but found it quite impossible to get through the reef, which consisted of a solid wall of coral, with seven fathoms close to its edge, and twenty fathoms a boat's length off: a heavy surf was breaking on it, although on the lee side of the island. After running along the reef in the boat for three or four miles in search of an entrance without finding one, we gave it up and returned on board. One solitary hut was seen, and a few cocoa-nut trees; but no inhabitants. As we had just come from Catherine Islands, I consider this to be a distinct group; and as they are not named or put down in the chart, I named them "Serpent Group." The position is that mentioned in Horsburgh as Catherine Islands, viz., lat. 9° 14′ N., long. 166° 2′ E. The positions of the others we found correct as laid down in Arrowsmith's chart.

As the crew, and especially the sick, were suffering from the length of time they had been on salt provisions, it was determined to put into Strong Island to obtain a supply of fresh provisions and fill up with water there, being doubtful where a supply of the latter could be obtained at the Solomon Islands; we also expected to gain some intelligence. We then shaped our course towards Strong Island, to make sure there was no other island between that and the Pescadores to which Captain Dowsett could have been taken.

On approaching Strong Island on the 11th, David Kirkland, an American, came off and offered himself as pilot; under whose charge we entered the Eastern Harbour (Port Lelé) and anchored in the southern part of it, about two cables' length from the shore, off the watering place; and on landing went direct to the chief, who is named King George. He is a fine looking man, apparently between thirty and forty years of age, and spoke tolerable English; his clothing consisted of a slight covering round the loins and a shirt; he was seated on the ground inside a large new hut, built close to the beach, and surrounded by about thirty or forty natives who seemed to pay him the deepest respect, none speaking above a whisper or daring to stand up in his presence; when one approached or left him it was with a sort of crawling motion. He informed me that we could have as much fresh provisions, wood, and water, as we required. He appeared shy and timid, but it appeared afterwards that he was very much afraid of a man-of-war, suspecting, perhaps, that we had come to punish him for some outrages said to have been committed here. He offered to come on board the next day and bring a present of bread-fruit and cocoa nuts.

On examining the watering place, we found a small stream with good water running over a sandy beach into the sea. We could only fill at high water, and then required 120 yards of hose (with about 200 yards of it water could be procured at any time of tide). The

rise and fall of tide is about seven feet. Whalers, it appears, obtain their water by rafting, but we adopted the plan of getting it in bulk, when practicable, as being much cleaner and more expeditious.

We then called on Mr. Snow, an American Missionary, who had been on the Island, with his wife, about five months. He had heard of a man named Lacey having been on Wellington Island, who was since dead. Mr. Snow has already succeeded in gaining the confidence of the King, who has built a house for him and given him some land. His Majesty also requires all his family to be regular in their attendance on the school, the youngest of whom, a boy of five years' old, resides in the house under the care of Mrs. Snow. This is good policy, as the youth forms a protection for the Missionary, for the respect shown to the King is extended to all his family. With respect to his progress on the minds of the natives, the King, as well as his subjects, paid great attention to his lectures, but the time was too short to judge what effect had been produced. One good step, however, had been gained in the fact that the King will not allow any spirits to be made on the Island.

Next morning, the 12th, the King visited us; his boat, a fine new whale boat, being laden to the thwarts with cocoa nuts and cooked bread-fruit. It was evident in his manner at breakfast that he had made some progress in understanding European manners; his remarks were also very shrewd. The Missionary was one of the party, and while under his eye the King seemed unwilling to drink wine or beer. His sons also joined our party, but, not being allowed to sit at the table in his presence, seated themselves on the deck and were handed what they required. After making the King and his sons some presents with which they appeared more than satisfied we returned on shore.

On walking through the village, which was composed of large well built huts, with a population of about three hundred, we found the remains of a high wall built of large lumps of basalt, some of which must have weighed at least a ton. It was, apparently, the remains of some fortification and extended to the distance of nearly half a mile, at an average height of from twenty to thirty feet. The natives stated that there were similar walls in other parts of the Island but they could not tell their origin nor where the basalt came from, the present inhabitants having found them in this state when they came here from Ocean Island many years ago. The flat part of the Island is much intersected by canals, partly natural and partly artificial, by which water communication can be kept up by the canoes right through the Island. The King is the sole Governor of the Island; his power is absolute but he is assisted by ten of the superior chiefs, who alone are entitled to own land. He was elected about eight years ago, having been a simple fisherman, on the deposition and, I suppose, death of the former one for cruelty. On my telling him that some bad characters among his subjects might try and steal small articles belonging to the watering party and thereby interrupt the good understanding between us, he immediately tabooed every thing belonging to the ship and we

never missed the smallest trifle. The natives are of the same complexion as at the other Islands, but most of them speak broken English. The men go naked with a very small covering about the loins, the women also wearing the usual mat. They cultivate the land with bread-fruit, cocoa nuts, sugar cane, tara, and a few yams and plantains, paying one-tenth of the produce to the King. On the arrival of a ship they are forced to bring an extra supply, the King sends it off, receives the presents in return, and divides them amongst his friends, reserving very little for himself. The population of the Island may be about 1,200, it used to be much more, but a great many have died from a virulent kind of syphilis, said to have been introduced by the whalers, and which they have no means of curing. At present hardly a native is free from it, and we saw some disgusting objects. We procured a few hogs here, the price being six cents per pound for the carcase, plenty of tara, a species of yam, bread-fruit, and cocoa nuts; a few fowls, but they had all run wild and we had to shoot them. There were no bullocks on the Island.

On my questioning pretty closely concerning the capture of some vessels at this Island, the King, who had been previously advised by the Missionary to tell me everything, owned the knowledge of two. One took place about sixteen years ago in this harbour, when he was a youth and had nothing to do with the government. He stated that the Master of a brig, whose name was Cathcart, forced one of the Chiefs' daughters on board, with designs on her, when, in consequence of her resisting, he threw her overboard and she was drowned. The brig was then attacked by the natives while most of the people were on shore watering; they were all murdered and the vessel burnt. He did not know the brig's name, but it appears most probably to have been the *Waverley*, from the Master's name. The other vessel was the *Harriet*. This affair took place in the western harbour while he was King about five years ago, but he knew nothing of it until the vessel was destroyed. A similar reason was given for the attack, in the ill treatment of some of the native women. He assured me that directly he heard of it he killed every native that had at any time been on board, altogether eighteen men and four girls: the vessel had been burnt. These accounts of his were confirmed, to the best of their knowledge, by the Missionary and by the three other white men on the Island. On my inquiring if there were any remains or stores of the two vessels burnt, it appeared that everything belonging to them had been destroyed. On inquiring for Dowsett and Lacey, of the former nothing was known, but the latter was or had been living on Wellington Island within a very few months. We were also informed that Captain Hussey, an American, formerly a resident on this Island for many years, had been murdered off Sydenham Island, about a month previously, by a native of Woahoo, as he was on a voyage to recover some money from a wreck at the Pescadores; also that Captain Lewis, of the *Boy of Warren*, had been murdered at McAskill Island eighteen months before, either owing to his having taken

some fowls or other stock from the natives, or else for the sake of his boat.

On the 13th we quitted the harbour with difficulty, the King and the natives being of great assistance to us. We stood round to the southern part of the Island and looked at Southern Harbour. It appeared small but well sheltered and easy to enter or depart from with the prevailing wind. In the evening we made sail for McAskill Island, which is the last where there is any probability of Captain Dowsett having been taken.

On the 14th, at 1 p.m., we hove too off McAskill Island, and, there being no passage through the reef, landing on the edge of it we waded to the shore near the village; but at high water it appeared that a boat could pass over it in many places. The natives at first came down with cocoa nuts, but, seeing that we were armed, ran off into the bush and armed themselves with spears. Our men then grounded their muskets; on seeing which the natives, to the number of about 150 men and boys (but no women), came to us. We first asked for fowls, as they are said to be numerous in the Island, and also for cocoa nuts, and the natives immediately sent parties away to obtain them for us; we being agreeably surprised to find that some of them spoke broken English. On asking them if there were or had been any white men on the Island, they replied in the affirmative but added that they had left many moons ago. All this time they appeared either to intend or to be apprehensive of treachery, for, perceiving one of our men, who had been left at the water's edge, taking up his musket, they ran off into the jungle and armed themselves again. The man had merely taken it up to wipe the sand off the lock, and the circumstance was soon rectified by his replacing it and our following them without reserve, and our former confidence was restored. Soon after appeared about a dozen fowls and a large number of cocoa nuts, with which we departed, giving them, in return, three dozen empty bottles and some biscuit, with which they were quite satisfied; and, while wading off, they caught a fine young turtle and put it into our boat, making signs, at the same time, that if we would wait till the night they could give us more. We observed a number of fine canoes on the beach, from which it would not be likely that they murdered Captain Lewis merely for the sake of obtaining his boat. They are a fine race of men, rather lighter-complexioned than at the other Islands we had visited. But, like most of their race, they should not be trusted and should be dealt with very cautiously. No women appearing among them we considered a very bad sign, and they all had spears handy. No water is to be found in the Island, as far as we could learn, excepting rain water.

In the evening, we proceeded on for Wellington Island, and on the morning of the 15th we hove to off it, observing, at the same time, a whaler working up for the Island. Having landed, the first person we found was an American named Lucien Huntington who had been a resident for the last eight months, having bought one of the Islands

from the natives. On inquiring for Lacey, he informed us that a man of that name had been living on the Island, but was drowned; and he then proceeded to describe the circumstance, which had occurred a year and a half before. He had gone off in a canoe, accompanied by four natives, to communicate with a whaler, and, while on board, the vessel drifted from under shelter of the reef. It was blowing very fresh when they left her, and, as they were doing their best to return to the Island, the outrigger broke: the canoe instantly upset, and Lacey, with the four natives, was drowned. This was witnessed by the natives from the shore, but who, however, dared not launch another canoe to assist them. On inquiring if he appeared to be a prisoner, the natives, through Huntington, answered that he had been a prisoner at some other Island but had come to Wellington Island, more than two years ago, of his own free will. Our informant, Huntington, did not appear to know anything of Mr. Dowset, but had heard that an old man, who had been Captain of a merchant ship many years ago, had lately died on an Island to the northward, the name or position of which he could not tell.

The natives at Wellington Island amount to about ninety; they are unarmed, quiet, and inoffensive, being, at present, completely under the control of Huntington and an Englishman named James Walker who lives with him. We purchased some hogs, fowls, turtle, and tara from him at a reasonable price. The only wood on the Islands is the cocoa nut tree, and they have no other but rain water. Huntington has a flagstaff by his house, on which he hoists a flag to attract passing ships.

We then boarded the *North America*, whaler, of New London, Captain Mason; she had 1,500 barrels of oil, and was going to the northward. We learnt from Mr. Mason that, six weeks ago, the brig *Inda*, of New Bedford, Captain Barnes, had been attacked at Pleasant Island; that the Master and most of the crew were murdered, two made prisoners, and three sent adrift in the vessel, one of whom was wounded. The natives had tried to scuttle and burn her, but had failed, and were obliged, by the strength of the wind and tide, to abandon her. Leaving Wellington Island in the evening, as Pleasant Island lay exactly in our track for the Solomon Islands, on account of the S.E. trade, it was determined we should touch there.

On the 17th, we fell in with and boarded the American whale ship *Emily Morgan*, Prince W. Ewer, Master, last from Strong Island, (where she had been well treated,) 1,200 barrels of sperm oil on board, bound to Hong Kong. She had called at Pleasant Island and taken the two men off detained from the *Inda*. From the evidence which we collected concerning the affair between that vessel and the natives, there can be no doubt that the fault was not on the side of the natives. The brig was last seen from the Island drifting to the S.E. We were also informed that another vessel (name unknown) had been lately captured at Covil Island, with two European females on board.

Having concluded the search of these Islands, and witnessed the

conduct of the natives at each of them, not a doubt remains that if the serious outrages which are so frequently occurring among them could be thoroughly investigated and the story of the natives heard as well as that of the whalers, it would be found that most of them had arisen from the bad and disgusting conduct of the crews of the vessels themselves.

(To be continued.)

THE LADY EVELYN.

We left Shanghae on the 19th September for Ty-pin-San to take off that island the survivors of the wrecked ship *Lady Evelyn*. On our arrival at the South West Bay on the 23rd, it appeared that they were located at the opposite end of the island; so at daylight next morning an officer was dispatched with a guide and an interpreter to bring them down to the ship, which he did that night, reporting that the natives had afforded him every possible facility in doing so, even to the extent of voluntarily taking the loads off their ponies to furnish means of mounting all the party.

The Second Mate is the only surviving officer of the *Lady Evelyn*, and he states that nothing could exceed the kindness of the Mandarins and people to them, though not altogether deserved by some of the Chinese. They supplied them with food in abundance of the best they themselves had; and gave each sufficient cotton cloth to make a suit. He further states that his life was saved by a native swimming out to his assistance; and that, on being landed insensible, they took off his flannel and drawers, (the only clothes he had on,) made a fire and dried them; a Mandarin took off his own upper garment and rubbed him till animation was restored.

This liberality was out of their deep poverty, such as ought not to remain altogether unrequited; and though their Goverment might acknowledge their claim, we returned their kindness by presenting them with such a supply of articles of dress and other things out of our ship's stores as we could well spare.

As the party did not arrive at the ship till after sunset, it was not prudent to proceed amongst these islands till daylight, and the result fully justified the precaution, as the course we shaped to clear two of the islands by many miles, would have taken her on them. It is true their position is marked uncertain in Sir Edward Belcher's chart, but they are there placed six miles out of their true position.*

* The northernmost point of the northern island bears E.N.E. from Point Adams the northern point of Isle Patchung. By Sir Edward Belcher's chart

On passing the Harbour of Tan-sui, in Formosa, we endeavoured to obtain some coal, as it is only ten miles from the coal fields; but could only obtain a few tons, as the place was in a state of seige. The country people, together with people who appeared to belong to the Triad Society, as they had a similar flag to that used by men of that society at Amoy and Shanghae. The Mandarins, who held the town, said not, but that they were simply robbers; which was the term also used by their opponents in speaking of those in possession of the town to the Officer sent in to communicate, and who visited them (because they were at the entrance of the port); but both parties agreed that a third party, on the opposite side of the harbour, were pirates.

The Mandarin informed us that two thousand had been killed in the different engagements, the whole place being apparently in a state of ferment; and there were thousands on the heights over the town.

The harbour is very snug and convenient for small vessels; we carried three fathoms in the boats at low water over the bar, five and six fathoms inside.

The coal we found was of a very fair description, we obtained from them about ten miles of work per ton; nearly nine miles per ton was our average for eight months from English coal of sorts: the Formosa coal is not so well calculated for tubular boilers, as it produces a great deal of smoke.

The Imperial fleet at Amoy has lately received reinforcements, and intends making another attack on the town, which is still in possession of the rebels.

E. GARDINER FISHBOURNE, Captain.

A FEW DAYS AT ISLE ST. PAUL.—*With Observations on its Condition as found by H.M.S. "Herald," Captain Denham, in January*, 1853.

From our anchorage in 31 fathoms, fine black sand, resembling gunpowder, the south point of the island bore S.W. ¼ W., distant a mile and a quarter. This is a well-sheltered position with the wind from S.W. to N.W., (west about,) and would permit slipping in case of an easterly gale; but it is subject to the disquietude of swell which comes round the northern and southern points, and across which the prevailing westerly wind will cause the ship to ride.

Our experience in the character of the weather and the range of the swell encouraged our taking up an inner berth, in 14 fathoms, fine

it is a little to the northward of east, and the notice of "position uncertain," is sufficient warning to any ship not to trust the chart. Their true position, with the whole bank on which they stand, remains yet for investigation; a reef appears to stretch away to the N.W. from them, but of all soundings the chart is blank!—ED.

black compact sand, with the Nine Pin Rock bearing N.W. a quarter of a mile distant, at which position the two rocky islets on the northern trend of the island look on with each other; and the causeway gap bears west half a mile nearly.

We had reason to ascribe the excess of variation found on shore as compared with that resulting from Azimuths observed on board, to some magnetic disturbance in the heterogeneous structure of this volcanic island. Indeed, when a fragment of the surrounding rocky heaps, such as from the causeway between the sea and the crater, was held within six inches of the needle, an attraction was discernible.

The north winds here bring murky weather, with a saturating atmosphere. The west and S.W. winds are crisp and invigorating. The barometer during our stay ranged between 29·980 and 30·258; and the temperature between 59·6° and 64·8° of Fahrenheit. The salutary effects of this upon our sick list became happily evident in a week, to which abundance of wholesome fish, of the cod and mullet sort, contributed in no slight degree.

The latitude of our anchorage was 38° 42′ 45″ S., and longitude 77° 34′ 9″ E.; this places the island just four miles N. 75 ½ W. of the position assigned to it in Raper's Catalogue. The magnetic variation on shore 23½ W.; that afloat came out 19¼ W.

The tide guage series up to, and three tides over, the full moon phase, shows that it is high water upon full and change of the moon at 11·30, and that the tidal range is four feet.

The island is of a triangular form, with its base trending N.N.W.½W. (true), two miles and three quarters from the middle of which base the apex of the triangle is one mile and a half at right angles, and constitutes the western projection; the whole range of its seaboard extending over little more of linear measurement than six nautical miles; with a table top, and sides of steep acclivity, the summits of which are severally elevated from 740 to 860 feet above the sea.

It is very well known that a remarkable volcanic phenomenon is displayed at this island. A circular crater, which, when originally formed, must have occupied a space bordering upon the eastern margin of the island, forms an extensive basin of ocean, the ridge of it gradually declining down to the sea towards the S.E. quarter. In Vlaming's time, who visited the island in 1697, this ridge was still a few feet above the sea, as represented in a view by him preserved by Valentyn. By whatever means it may have been effected, (perhaps by the washing of the sea,) there is now a breach 600 yards across, through which a boat may pass into the basin. The deepest water in the channel is eight feet at high water.

The passage is rendered sometimes for a day or two dangerous by the breaking of the bay swell upon it: such may be looked for at the full and change of the moon. When once across this bar, (a distance of but half a cable from deep water to deep water,) a magnificent floating dock of lake-like surface is entered as deep as 29 fathoms, with steep margin all round. The diameter of this nearly circular

sheet of water is about two-thirds of a mile, and is encompassed by the steep sides of the crater, the ridge of which, in its highest part, is from 700 to 800 feet above the level of the water. A rank grass flourishes on the sides of the crater, much interspersed with rocky fragments. But the absence of any natural production at this island for the use of man, excepting fish, and the conviction that there should be no reliance on the periodical visits of a single vessel from the Isle of Bourbon, has induced the few residents on the island employed by that party to terrace up every lodgment of soil on the slopes of the crater. In the midst of rocky craigs of the island, their little terrace gardens are refreshing to the eye, and gratifying proofs of the ingenuity of man in turning to the best account he can even the most niggardly of nature's gifts. The produce more than compensates the toil, affording even a surplus to exchange with passing ships for groceries, &c. Each of these garden plots consists of about fifty square yards; they are terraced up by ponderous blocks of lava, each of which may become loose and fall, like another avalanche, when disturbed; and they require a flight of steps to be formed, perhaps winding abruptly among the rocks for hundreds of feet, to admit of communication round their almost vertical sides, or from a boat beneath them in the basin. In selecting these spots care has been taken that they may be protected from the whirling gusts of wind which sweep round this amphitheatre, and which, as they frequently have done, will tear up and disperse the crops. I found evidence of the genial soil and climate regarding our European vegetables; and this period (January) being its summer season, the peas, cabbages, carrots, turnips, potatoes, and artichokes, were in perfection; and the wheat was in full ear: but there is no indigenous vegetable except wild celery and the rank grass such as we observed at Tristan da Cunha. Nor are there any animals on the island except those imported, which run wild, and are shot or snared at pleasure. These consist of sheep, goats, pigs, cats, and mice; the latter in winter and young whale-birds in summer afford food for the cats. The oxen, together with pigs, fowls, and rabbits, are kept at the little settlement. This, with its homestead, occupies a very convenient position close to the entrance of the basin on the right hand. The shore adjacent to it is perfectly sheltered from surf or undulation, and therefore some light stone jetties for landing stand from year to year without dilapidation. It is at these jetties that the boats discharge their catch of fish into the salting sheds; and where the schooner, which belongs to the fishing party, (only drawing eight feet water, and therefore able to enter the basin,) discharges her salt, goes to fish awhile at Amsterdam Island, and loads with the cured fish for Bourbon. This schooner, however, was so long absent, at the season of our visit, beyond her appointed time, that the resident in charge had become apprehensive of her having foundered in the fierce easterly gale which visited the island last Christmas, and which three days' gale we experienced in False Bay, Cape of Good Hope.

The delay of supplies, especially of biscuits, gave us an opportu-

nity of compensating by a present of some, as well as some wine, and of adding some vegetable seeds (onions particularly) to their gardens.

The person representing the proprietary of the fishing establishment is an intelligent French mariner, Frederick Roure, of Bourbon, where his employer, Marie Heurtevent, resides, and who gave to a Polish merchant 6,000 dollars, about five years ago, for the fishing establishment. Roure was provided with three serving men, and has sustained his lone position for the sixth year by attending to the cultivation and live stock,—when too boisterous to collect fish,—and by resorting to his ample library when the heavy mists preclude stirring abroad.

The Island for several years has ceased to be the resort of seals and sea-elephants, excepting a dozen or so in the course of a season; a whale or two would also pass within gun shot of the cliffs. The only systematic fishery carried on is along the eastern margin of the Island, by hook and line, for the take of a species of cod and mullet to salt down, and which are much esteemed and in large demand at Bourbon. The presence of man has scared off the seals, &c., of which Vlaming, the discoverer, and succeeding voyagers, among whom was Sir John Barrow, witnessed the existence.

No change has taken place in those remarkable phenomena so graphically described by Sir John Barrow in the voyage of the *Lion*. At several places along the high water mark round the northern side of the basin of ocean water, vapour was seen by our party curling out and the heated stones hissing as the tiny wave lost itself against them. And no wonder, for they, as well as their clayey bedding, were too hot to be handled. Here boiling heat prevailed, but on moving off a boat's length, the temperature of the surface water was the same as the air, 67°; and the water at the bottom, thirty-eight fathoms deep, stood at 52° temperature. We waited for the fall of tide below the mean level, and then we found the pools of water, which had been two or three hours covered with salt water, with vapour floating, now full of boiling chalybeate water. Here we were enabled over and over to realise the singular operation of tossing the fish from the water in which it was hooked to that which forthwith boiled it. Indeed, this can be done at any time, excepting at high tide intervals. Thus may be boiled eggs and potatoes without the trouble of making a fire or using a kettle! These waters when cold are drinkable, and, indeed, the residents use them when their rain water becomes stale, and passing vessels gladly obtain a few casks when very short. The water is esteemed a specific for rheumatism, the patient lying in it as many minutes as he can bear it. For this purpose baths in the rock have been aptly formed to receive a person, and the hot spring of which is of sufficiently moderate temperature to permit the immersion. Besides the actual springs there are vapour recesses on the slopes, of five or six feet indent and three or four feet aperture, within which the hand cannot be held more than half a minute, and the thermometer rises to the boiling point at two feet insertion. In fact a crawfish was forth-

with cooked by us in one of them. There are also clayey puddle holes between the clumps of moss on the table top of the Island hot enough to emit a vapour and certainly too hot to stand upon or near in the stoutest made boots. The Island is evidently charged with subterraneous fire and volcanic gases, and yet no irruption or convulsion has been experienced by the residents,* and the two minor craters on the back slope of the Island are perfectly inactive. By the thermometrical notes of M. Roure, it appears that the temperature ranges as high as 80° of Fahrenheit in summer time, and as low as 34° in the winter; but although snow may be seen on Amsterdam Island (situated, as we found, upon the true bearing of N. 1° E., seventeen leagues distant.) yet none lies upon this Island, and may be attributed to its heated surface. November to March forms the summer season, June to September are the coldest, and, in every respect, the winter months; and it is in the winter season only that thunder and lightning occur,—and then so rarely as to happen but once in the season.

The climate has proved remarkably healthy to Europeans; the two great drawbacks to more than a few settling on the Island is the total absence of fuel and fresh water. We found them depending on rain water of the winter's saving; and, for fuel, a worn out schooner had been sent and hauled up in the crater basin, which they were breaking up as required. Not a tree or shrub grows on the Island, on account of the severe gales of wind to which it is subject.

The elegantly formed whale-bird (prion vittatus) burrows and hatches in the mossy crannies around the crater, while the albatross and penguin resort in great quantities to the cliffs; the young albatross, which is a neatly plumed symmetrical bird, of the size of a gannet or goose, will flock about the ship, at anchor, in a divertingly voracious way, affording pleasant sport enough to the idlers in baiting floating hooks, which it snaps at and is frequently hauled on board. Their enemy, the black, rough, crow feathered sort of bird, going by the name of sea-hen, is more wary. As to the penguins,—they will stand at the point of the holes, while moulting, or in rows, "toeing a line," and stupidly allow you to knock them down or seize them by the neck; the rank and file birds close up the vacancies in fine military spirit and order Not even Jack can dish up any of these birds; therefore, beyond obtaining specimens, there is no object in taking them; but they form an amusing spectacle. When skinned and dissected the rich fat appears by which they are clothed and sustained for a month at a time in the cliffs, whilst moulting. No reptiles have been seen or traced on this Island.

While the ground and features favourable for anchoring and access lies upon the east side of this Island, it is, happily, too the aspect upon which the wind seldom blows;—a gale from east has only occurred

* In a former volume an account is given of active volcanic action at this Island, which, although not within the interval of five years, is, nevertheless, tolerably recent.—Ed.

three times during the last six years. The prevailing wind is from north, veering every three or four days west about to south and back again. But what renders an inshore anchorage unsafe is the setting in of rollers from S.E. At the full and change of the moon days such will occur at all seasons; and as a calm attends these rollers a sailing vessel would be in imminent peril. When the sunken rock, lying about one and a half cables off the S.E. point, with not more than 12 feet water on it, breaks, which it did (and regularly does) a few hours before the off-shore, or long shore, breeze dies away, a vessel should trip and take an offing.

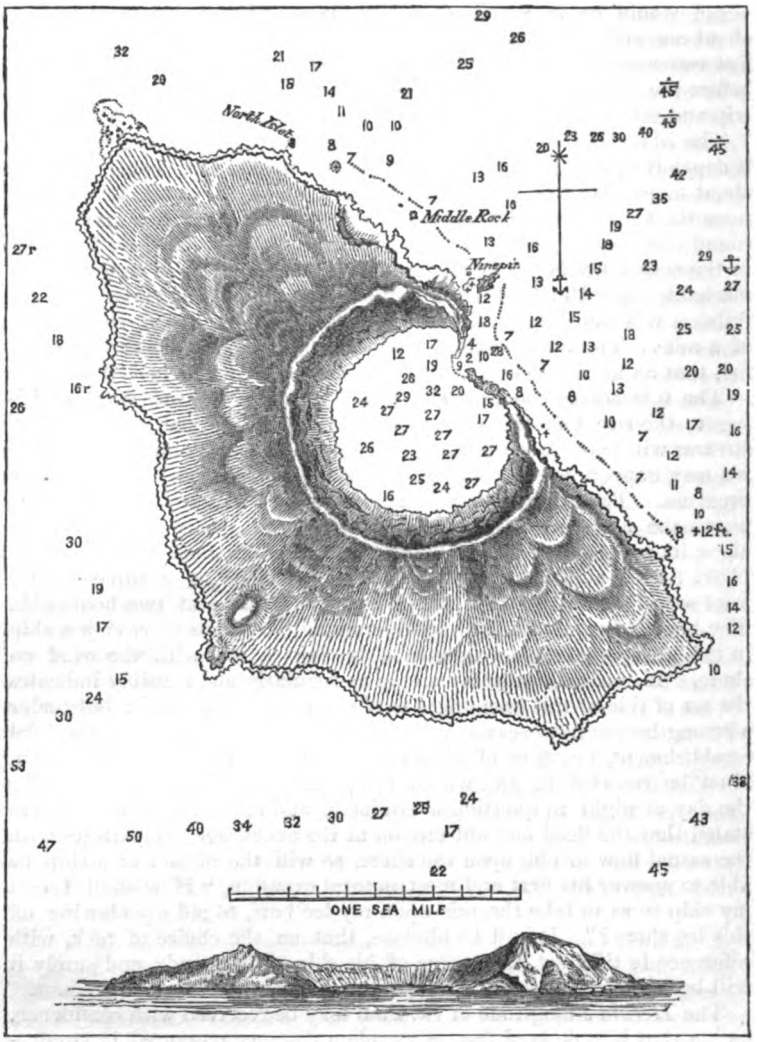
The island is well fixed as to geographical position, and, to or fro, it depends upon latitude and look out for making it, being situated about midway of the east and west tract which for 6,800 miles separates the Cape of Good Hope and Van Diemen Land. The navigation round this island merely requires a quarter of a mile berth to be given to the actual heads. The anchorage is at once beaconed to by the remarkable Nine Pin Islet, close to the north side of the crater, and 21 fathoms will indicate a sufficient distance off shore, say three quarters of a mile. The upper half of the island is so frequently shrouded by fog, that an angle of elevation for distance must not be looked to.

The tide sets round St. Paul Island, turning and returning according to the rise and fall on the shore. An occasional confluence of streams will take place off each point, producing, as the wind and outer sea may happen to be with or against each other, an ebullition like breakers. The actual definable and important course of tidal stream, worth the mariner's attention at this island, is in regular operation along its roadstead; here he may expect a one knot set of flood to the N.W. for six hours, beginning at two hours flood; and three-quarter knot set of ebb to the S.E. for six hours, beginning at two hours ebb. The knowledge of this tidal action may be the means of saving a ship in the always possible exigency of having to slip with the wind on shore. In moderate weather a ship as regularly and sensibly indicates the set of tide at this anchorage as if she were at Spithead: but under a strong breeze from seaward she would be windrode. Then the tidal establishment, i.e., time of high water on full and change of the moon, must be resorted to, and which being X$\frac{1}{4}$, the high water hour for the day or night in question is attained; and according as it is herein stated that the flood and ebb stream at the anchorage sympathises with the actual flow or ebb upon the shore, so will the Master of a ship be able to answer his first and most natural question, "How shall I cast my ship so as to take the tide upon my lee bow, to aid my clawing off this lee shore?" It will be obvious, that on the choice of tack, with reference to tidal set, the rescue of his ship will depend; and surely it will be worth while to turn so palpable a tidal advantage to account.

The *Herald's* longitude of St. Paul may be received with confidence, seeing that it is derived from a meridian distance measured in twenty-two days' run from the Cape of Good Hope Observatory* by nine

* As also with Paramatta Observatory thirty-three days' subsequent run.

chronometers, the rates of which were ascertained by equal altitudes on shore at the island, after five days' interval, and which rates being considered with those ascertained at the Cape, must neutralize the effect of the motion of the ship in the interval; and thus produce per-



PLAN OF ST. PAUL ISLAND.

By the Officers of H.M.S. Herald, Captain H. M. Denham, R.N.

haps a better result than any other voyager could attain. Our meridian distance from the Cape stands 59° 6′ 59″ E.,* or 77° 34′ 9″ E. of Greenwich.

The latitude, 38° 42′ 45″ S., was ascertained by circummeridional altitudes with the circle, in which observation Lieutenant Hutchison and Mr. Smith displayed their usual zeal and skill.

The French resident agent now occupying St. Paul Island, the representative of M. Marie Heurtevant of Bourbon, considers the proprietary of the fishery and the island to be a sort of self-constituted affair, open to any speculative person of any nation who might afford the price set upon it by a seceding party; the tenure being always open to the prior claims of the Dutch Government.

Some further observations, which we had intended to annex to the foregoing, concerning the discovery of these two lonely islands, St. Paul and Amsterdam, are necessarily deferred to another number, to make room for the following account of the wreck of the *Meridian* on the latter island, a few miles to the north of St. Paul, described in the above account by Captain Denham. There appears to be some difficulty in ascertaining the date of their discovery, which seems to have been made by the early Dutch navigators about the commencement of the seventeenth century, when the first voyages were regularly made from Europe to their East India possessions. But we purpose going further into the subject in our next.—ED.

LOSS OF THE MERIDIAN.

Of this painfully-interesting catastrophe, which occurred on the 24th of August last, on the south-western point of the Island of Amsterdam, in the Indian Ocean, we have been favoured with the following narrative by one of the passengers.

On Saturday, June 4th, the ship *Meridian*, Captain Richard Treseda Hernaman, left Gravesend with a full cargo of merchandise, together with twenty-six first-cabin and fifty-eight second-cabin passengers, consisting of men, women, and children; and a crew nominally of twenty-three, but in reality consisting of only fourteen working seamen, including the Captain and three mates, the others being employed as cooks, stewards, &c.; and one sailor, who had rheumatic fever soon after sailing, and who continued ill all the voyage. I may mention that the second mate's watch consisted of only two men and two boys to work the ship. It will thus be seen that the ship was not properly manned; and often the passengers, of their own accord certainly, had to lend their assistance in pulling the ropes; but, of course, this they did only in fine weather: when rough, and their help more needed, they were absent. The provisions were of a very inferior quality. The ship was most certainly a good one, a very fast sailer, and the Captain bore an excellent character, zealous in

* Eventually the meridian distance back from Garden Island, Sydney, was found to be 73° 40′ 9″ W., Garden Island being in 151° 15′ 28″ E.; Garden Island is 50″ E. of Fort Macquarie, or 13′ 55″ E. of Paramatta Observatory.

his profession, and anxious his ship should outsail all others; and this emulation proved our ruin, for on the day we were wrecked we passed the *John Sugars*, for Sydney; and, from our Captain's anxiety to beat it, he was induced to steer in such a way as to run us on the Island of Amsterdam, having, only half an hour before we struck, ordered the man at the wheel to alter the course a point, that very alteration proving our destruction, for if the course had not been altered, we should have been from twelve to fifteen miles clear of the island; this fatal error he paid for with his life.

Our voyage until the fatal night, was a good one, our ship having passed, with one exception, every vessel we came up to, giving great satisfaction to all on board, as we fully expected to make a quick passage to Sydney. I now refer to my journal:—

August 24th.—A boisterous stormy morning, with rain, blowing a strong gale, which commenced at half-past three, a.m.; at which hour we were disturbed by the Captain ordering out all hands to take in sail. At this time, to us who were in bed, there was nothing to indicate the necessity for this precaution, as every thing was quiet; but, in about a quarter of an hour after, a squall came on, and suddenly the wind was heard blowing with great violence; the sea running high, and the ship pitching and rolling heavily. At this time we were able only to carry the fore-topmast staysail until six a.m., when the main-top and fore-top sails, both double-reefed, were hoisted. At noon, the fore-sail, reefed, was set. The gale continued blowing all day; and we were going the right course at ten knots per hour.

Our Captain told us we should not now see the Island of St. Paul as expected, but Amsterdam instead. To day our lat. was 38° 10′, long. not taken. The lat. of the day before was 38° 50′, long. 74° 20′; this I had from the Captain himself. At fifteen minutes past seven, just as we had finished tea, we were alarmed by a great bumping, showing us we were on a rock; the Captain, who was in the cuddy at the time, immediately rushed out and went on the poop; the children and passengers were thrown down with great violence on the floor from one side of the cabin to the other; all were much frightened, and great confusion ensued. On looking out, it was found we were on a reef of rocks, about a quarter of a mile from the Island of Amsterdam, and we were afterwards driven by the force of the waves close in shore. Although it was expected we should sight the island, yet no look out had been kept; even when the watch was changed at six p.m.; the second mate pointed out to the first mate what appeared to him to be a squall rising, but which proved to be the island, yet no notice was taken of it. The bumping continued constantly with every wave; and the Captain, the cook, and Pfau (as before stated) were lost, all the others were eventually rescued. When we first struck, the stern-posts and rudder were knocked from their places, admitting the water into the stern cabins; this fortunately afterwards proved our great safeguard, for shortly the skylight on the poop was broken by the force of the waves, and through it tons of water poured into the cabin with each wave which washed over the ill-fated vessel, and found its way out again through the stern cabins; but for this, and the ship remaining on one side, we should all have been drowned. The second-class passengers, who had scarcely time to get out of their cabin (the water suddenly rising between decks as high as their necks), were brought into the cuddy, where we all remained in a most wretched state until half-past four or five in the morning; we had been recommended so to do by Mr. Leonard Worthington, our third mate, who, throughout the night, behaved in a most gallant manner; telling us, if we would only remain quiet till daylight he would answer for our safety; he likewise promised us that he would not leave the vessel until he had got us safe ashore, which he and a sailor named Snow accomplished in a most praiseworthy manner. Even this assurance of our safety could not allay the uneasiness we felt at our situation.

Prayers were offered up to the Almighty for our preservation, and I believe every one, thinking there was no chance of our being saved, made preparation for going to their last resting-place; but it pleased God this time to spare us. We continued in this perilous situation all night, expecting every moment the ship would go to pieces, from the continued bumping, and the immense quantity of water pouring upon us. At half-past one, a.m. the vessel parted amidships; and, as soon as daylight appeared we prepared to leave the vessel; and as we did so, walking along the main-mast (which fortunately fell so as to form a bridge from the cuddy door to the shore), the waves broke over us, knocking us down on the rugged rocks, and fearfully bruising us.

25th.—When the day fully broke, our situation appeared most frightful, a perpendicular rock of 300 or 400 feet hanging over our heads, with no apparent means of ascent, and the waves washing nearly up to our feet; thus it seemed we had only escaped one danger to be exposed to another, worse if possible—starvation. As the day advanced, the sailors returned to the wreck, for the purpose of getting stores; but, I am sorry to say, plunder appeared their chief object, and the scenes of drunkenness which ensued were most disgraceful, not among the sailors only, for even some of the passengers were also guilty of the same, showing how soon they had forgotten the mercy so lately bestowed upon them. We sat all this day on the rocks, nearly paralysed with the thoughts of our present danger, and of the loss we had sustained—grieved to see the ship we had been so proud of breaking up before our eyes. On examination, it was found that only three lives had been lost, which is wonderful considering the large number of children who were on board.

26th.—We passed the last night on the rocks in great fear that the sea would flow up to the spot on which we rested, and in much anxiety, for it was evident that unless we could get on high ground we should certainly be washed off when the wind was blowing from the S.W. By some means, one of the passengers ascended the cliff the morning after the wreck, proving the possibility of getting up; the sailors to-day looked out for a proper place to fix ropes, and were successful in attaching them to rocks on the top. Some of the passengers went up by means of them, intending to pass the night there; and they set fire to the reeds for the purpose of giving notice of our situation to any vessel that might be passing. The island is covered with reeds of from five to eight feet high, and the fire, at times, extending more rapidly than they had anticipated, put their lives in danger; the light from the fire was to us below on the shore most terrific. Rations were given out to all this morning for the day, consisting of one biscuit and a red herring for adults, and half of the above for the children. On board the ship, as cargo, were a great many red and blue woollen shirts for the gold-diggers; many of these were saved on the first day, and were of great service to us all; but gave us a most curious appearance, all wearing them—men, women, and children. A great number of ready-made trousers were also saved, useful to the women as well as the men.

27th.—The night was again passed by us on the rocks; but, in the course of this day, we ascended the cliff by means of the rope—a most difficult task, but which was accomplished without accident, by aid of the sailors. They drew the women up by means of a rope fastened to them; the men ascended by holding on by the two outer ropes, and pulling themselves up—a distance of at least 300 feet of nearly perpendicular rock. On reaching the top we found the island almost flat for about two or three miles, covered with reeds; and then there arose a very lofty mountain, covered also with high reeds. Fortunately, we found plenty of fresh water whilst on the island, although in the summer time there is most probably a scarcity. During our stay there was a constant rain on the mountain top, which supplies the numerous small

streams. We all passed the night again in the open air, sheltered as well as we could from the wind by the reeds, but exposed to the rain.

28th.—This is Sunday; but we had no service to-day, as usual on board our ship; in the evening, however, we were invited to join some others in prayer which was offered up for our preservation. During the day, numbers of young birds were picked up, destroyed by the fire; they were collected together and cooked, and then divided among all, about one-third of a bird to each; which, on account of our short commons, was very acceptable. One of the party who went out with his gun to endeavour to get some food, on his return, reported that he had seen a ship, but very far off. This day a tent was erected for the women and children to pass the night in, the men sleeping outside; but, during the night, a gale came on, and blew the tent down, causing great confusion.

29th.—The island proves to be very wet, there having been rain every day and night since it has been our lot to be here. A vessel was seen to-day (the *Monmouth*, as we afterwards learnt, and the same that was seen yesterday), which caused much excitement amongst us; fires were lighted to attract attention, and signals were hoisted—with good effect, thank God! for they were answered; and we hope yet to leave this desolate island. They saw us, and neared the land, hoisting signals in return to ours, to show they were aware of our situation; but the sea at this place ran so high, that it was impossible for any boat to live in the surf; therefore she stood away; we hoped, however, to see her again. Most probably she was a whaler, as there are numbers of whales blowing near here. Passed the night again in the open air; heavy rain. There was a gale during the night from the S.W., and the sea ran so high as to wash away many of the stores which had been preserved from the wreck, and which had not yet been removed out of danger.

30th.—Our rations to-day were reduced to half a biscuit, a few raisins, and half-boiled pig, as the loss of stores last night had much reduced them. There is much quarreling and threatening to shoot each other, the effects of drinking from a cask of brandy, which unfortunately was saved from the wreck.

31st.—Finding we had food only for three days, our rations for the day were half a biscuit and a few preserved apples. About ten this morning we were agreeably surprised to see a boat approaching the shore near our encampment, and the persons in it signalled us to move along the cliff to the eastward. This caused great excitement amongst us; the thought of our deliverance created such anxiety that nearly all started hurriedly away without any provisions, understanding that we had only a short distance to go, but we were sadly disappointed. We found the road most rugged and most difficult to pass over from the large rocks lying in our way, and the necessity of keeping so close to the edge of the cliff that in many places walking was rendered most dangerous. One of the party we travelled with had a tin of red herrings with him, of which we each had one for supper when we lay down at night, taking care to fix on a spot near some water.

September 1st.—We started again at sunrise, and had half a herrring for breakfast, no biscuit, and we got over by night another four miles of the rugged road—in one place having to pass over a very steep and high ridge of rocks, the reeds in other places being higher than our heads. The only vegetation, besides the reeds and bushes, seen on our journey so far were wild parsley and sow-thistles. As we travelled on we found the hailstones very acceptable, for we met with very little water during the early part of the day. Whilst we were stopping at the first watering place, we were overtaken by an English sailor named Smith, who had been sent across the island by the Captain of the ship we had formerly seen, to our assistance. He reported the vessel to be an American whaler, the *Monmouth*, Captain Isaac Ludlow, of Long Island. Smith kindly assured us that the Captain would not leave the island until we

were all got off in safety; he was very kind to us, and tried to keep our spirits up, and desired us to make all possible haste. We thanked God for his mercy to us in thus sending aid, and marched on our toilsome journey in far better spirits from the kind treatment of Smith, who did all he could to help us. He told us to go on to the northern side of the island, as no boat could reach us at the place where we were wrecked. The distance, however, we found, was too far for us to reach that day, being quite exhausted; we therefore looked out for a comfortable place to sleep in.

2nd.—We found ourselves much exhausted to-day, not having had any food since yesterday morning, and no water since three p.m. yesterday. Thinking we were not far from our appointed rendezvous, one of the party went forward alone, to get assistance, as the children could scarcely move. Our food to-day was only a sardine each. We passed the night again in the open air, very cold and wet.

3rd.—Started this morning early, with the other party; but my children could not keep up with them, their feet, from walking, being very sore; we therefore went on slowly by ourselves, hoping assistance might reach us soon with provisions; we met with water three times, and just at sunset we saw smoke some distance off. We hastened on, and found a party there who had passed us in the morning, encamped near some water; they had a few cabbage-leaves (given them by some of our sailors who were returning for stores) boiling in a teapot; they gave each of us a spoonful, this being all we had that day excepting water. As the place appeared well sheltered from the wind, we determined to remain here for the night.

4th.—Started early with our companions, but made small progress, being obliged frequently to stop, that the women and children might rest; the only food amongst eight of us this day was two cabbage-stalks and part of a smull (bird eaten raw), which a large bird was devouring on the rock, but our necessities compelled us to rob him of his meal. The reeds were again our bed this night.

I ought to mention, respecting the cabbages, that some years ago they were sown in that part of the island to which we were going by some whalers, and they have thrived well.

5th.—Started at sunrise, and breakfasted on a cabbage-stalk. Walked on in a very exhausted state, until we reached what is called the cabbage garden; here we met a friend who gave us some limpets he had taken from the seashore: these we ate raw, with some cabbages; and, after resting a short time, we started again, and reached the general camp just as the boats from the ship arrived for us. The sailors brought with them some raw salt pork and biscuit, of which we made a hearty meal, and then walked on another mile, with great difficulty, to the place of embarkation, where the women and children were taken off first. On board, tea, biscuit, pork, beef, &c., were liberally supplied to us; but what addded most to our gratification was, that we met with every civility and attention from a kind Captain and crew, who did all in their power to alleviate our sufferings. Words cannot express the gratitude we felt for all this kindness, as well as for having rescued us from the island. On arriving at the place of embarkation we found that the steward of the *Meridian*, who was carrying my youngest child, a girl only four years old, was not there, he having mistaken his road. These, with a sick man, too ill to walk, were left on the island; but the Captain (who was determined not to leave the place until they were all safe on board) sent four of his crew in search of them.

6th.—We were much pleased this morning to see the steward and the child brought on board safe. The intention of the Captain was to take us to the Mauritius—this being the nearest port.

9th.—Until to-day we have been beating about the island, waiting for the

arrival of the sailors with the sick man, who was brought on board this afternoon. Sail was immediately made for the Mauritius.

I must now say something of the island, and of the kindness of all connected with the *Monmouth* to us. We were wrecked on the southern side of Amsterdam, the worst part, and where there is always a surf breaking on the rugged shore. Beach there is none; nothing but immense blocks of hard stone, which have from time to time fallen from the cliff. The island is of volcanic origin: indeed, I am informed by Captain Ludlow he saw smoke issuing from a crater just over the place where we were encamped; and as we travelled along we found all the rocks on the surface bearing every appearance of having at some time been in a fluid state. The stones are very heavy, and contain much iron.

We did not see any animals on the island, but plenty of birds. With the exception of reeds and rushes, there was little vegetation; but there is a good peat, which was exceedingly useful to us in making the fires at our various encampments. The island is about twenty-five miles in circumference, and the part to which we were directed to move (the northern side) is the most pleasant, being much warmer. At this part only did we see any trees. The species was unknown, but one of the sailors thought it was the dog-tree, a bastard species of the mangrove. On this side, too, there is plenty of fine fish to be taken a short distance from the shore, and on the rocks plenty of limpets; but, as we had no boats to take them, to us they were useless. Captain Ludlow, on our arrival on board his ship, sent one of his boats out to catch some, and shortly returned with plenty of large fish, taken with a hook and line, and very good eating they proved.

The kind way in which we were treated by Captain Ludlow can never be effaced from our memories. But for his timely aid, 105 British subjects would have died a miserable death from starvation. We can only look upon our rescue but as a most merciful interposition of Providence; for the *Monmouth* was the only vessel whaling near the island last year, and her arrival there this season was full a fortnight sooner than usual. We who have lost our all by the wreck, are unable to recompense him and his crew as they deserve for the loss they have sustained by assisting us; we trust, however, that the British Government, and the people of England, who are deeply interested in the colony of Australia, will not allow the opportunity to pass of justly rewarding such a noble act of humanity, performed by one of our American brethren. As regards the crew of the *Monmouth*, who are all, with one exception, Americans, we found them most kind and obliging to us all; and, although our rescue was effected at the expense of their whaling, yet for us they were willing, both Captain and crew, to sacrifice their time and profit. Honour to them all for it; and may they never be in a situation to require the same assistance!

Ours is not the first ship which has been cast on the coast of Amsterdam; for, I understand, the *George*, of New London, United States, was wrecked there twelve or fourteen years ago; and the *Lady Munro* was also lost there, with all on board, except two convicts, who were going from the Mauritius to Botany Bay, about twenty years since.

26th.—This morning at half-past six we saw land, and arrived at the outer Harbour of Port Louis at half-past five p.m., when we cast anchor. The doctor and an inspector came on board to inquire into the state of our health. Finding it good, a red flag was left with us to hoist. On the following morning some of the passengers went on shore in the ship's boats; and in the afternoon the Government sent a steamer to take off the remainder, a place having been arranged at the Lazaretto for their reception. Provisions were found for them at first, then an allowance of money was given to each instead. Much

good feeling was expressed for our destitute condition: money and clothes were liberally sent down to be divided, the greatest kindness being shown us by all. Among others, I may mention the names of Messrs. Alloway, George Robinson, Channell, Henry Brun, and the Freemasons living here; each person striving to assist us in the best way he could. Many others were equally zealous in relieving our necessities, but their names are unknown to me. Although we have undergone great hardships and privations, still the Christian charity we have since experienced fully reconciles us to our lot; and may God reward them for the relief they have afforded us.

The Recent Gales and their Results.

[In consigning the following communications to the pages of the *Nautical Magazine*, we can scarcely be persuaded that the terrible events which they relate are those which have occurred to a country that boasts of her maritime superiority and her numerous fleets, that values her seamen as her protectors, and that abounds in wealthy merchants and profound statesmen! Yet so it is. We are proud of all these sources of our greatness, and yet year after year they are sacrificed and the loss is looked on as that of *money!* Will money save the country in her hour of need? Will money make seamen?—it will feed their widows and their children, but we might as well expect it to restore the lives of those who in these frail *mercantile* vessels, often ill-found and half-manned, annually perish from the apathy of their countrymen, which year by year drains this empire of its best defenders!]

Newcastle on Tyne, January 14th, 1854.

Sir,—In my last communication to you I commented on the heartless conduct of those persons who had been the means of stopping the progress of the bill, in the session of 1851, for forming a refuge harbour at Redcar. The dreadful results of the two gales which have since occurred must, have produced in their minds severe reflections! if, indeed, they ever reflect at all: but, alas! without affording any consolation to the surviving relatives of those who have perished in those gales.

No nautical man who will study the position of the wrecked ships at the commencement and progress of these gales can do otherwise than conclude that nearly all of them could have safely entered the harbour at Redcar, had it been even commenced so late as the autumn of 1851!

Even at this period Redcar could have given protection to hundreds of ships during the last gale from the S.E., as at least five thousand feet in length of the southern pier and seven thousand feet of the northernmost pier might have been completed out of the hundreds of thousands of tons of rock run to spoil or waste in uncovering the beds of iron stone, being worked out of the Cleveland hills, adjoining Redcar; nature having, in the presence of the East and Saltscar Rocks, already completed more than three-fourths of the work required for that length of the breakwaters or piers.

So far back as the year 1832, I first drew the attention of the public to the great natural advantages for a refuge harbour at Redcar, and your pages have ever since most warmly advocated its realization.

That the effects of the recent awful gale, the accounts of which now fill columns of the public press, are only what must necessarily result while our north-eastern coast is utterly unprovided with refuge harbours, a reference to what has occurred heretofore will fully show.

Thus, on the 11th of October, 1824, a gale commenced from the E.S.E., which afterwards hauled round to the E.N.E., and one hundred and thirteen sail were driven ashore between Scarborough and the Tyne, of which number thirty-seven wrecks took place in Tees Bay alone!

Again, on the 31st August, 1833, above one hundred sail were driven ashore or foundered on the same coast; and, on the 3rd of October ensuing, not less than forty-four widows and fifty-five fatherless children presented themselves for relief to the Trinity House of Newcastle alone.

The gale of October, 1852, was still more fearful; the first estimate being that one hundred lives had been lost, and a witness of the disasters in Tees Bay, on the shores of which twenty-five ships were cast, wrote that "the sacrifice of life must have been dreadful, as many vessels were seen to go down with all hands."

The gale which has just passed over, in the early part of this month of January, 1854, will be long remembered for its awful loss of life and destruction of property; the value of the latter alone being more than would have been sufficient to have completed the refuge harbour at Redcar. In this gale thirty-eight ships were wrecked in the immediate vicinity of Redcar or on the shores of Tees Bay, in addition to the damage done within the miserable shoal harbours there; of which, the agent for Lloyd's at Hartlepool thus wrote on the 11th inst.:—"The destruction here is dreadful; vessels are even going to pieces and breaking one another up in the outer basins."

Lloyd's List shows also that thirty-one ships were wrecked outside the piers of Sunderland Harbour, in their vain efforts to enter between them; and that much damage was also done within the harbour by striking against the inner faces of the piers, or driving upon the potato garth.

At the Tyne the loss was unusually great as the forest of wrecks at the harbours of West and Old Hartlepool and Sunderland, acting as beacons, induced large fleets of vessels bound for those ports to fly past them to seek refuge in the safer port of the Tyne; into which, fleet after fleet entered, but, in the confusion which took place, thirty-six vessels were driven ashore, either on the rocks on the north side or on the sands on the south. From the prompt succour which was given at the above ports happily, however, but a few crews of the wrecked vessels were drowned, the most fatal cases occurring on the intervening shores, extending as far north as Berwick.

The present state of *Lloyd's List* shows that about one hundred and

twenty-eight vessels have been wrecked, in this recent gale, between Whitby and Warkwarth, or between the rivers Esk and Coquet, without calculating those vessels which are supposed to have foundered at sea with all on board.

Happily, above two hundred ships succeeded in getting refuge in the Firth of Forth; but had the wind chopped round to the E.N.E., as it did in the gale of October, 1824, the disasters would have been fearfully increased, as a far larger fleet was at sea; but even *worse manned and found* than in former times. The Tyne, which on this last occasion gave refuge to so many, would have been to windward of the large fleets which were at one time flying before the gale along the coasts of Yorkshire and Durham.

If but one tythe of the humane exertions of the members of the Committee of the "Royal National Institution for the Preservation of Life from Shipwreck" were given to enforcing attention to the formation of bona fide *Refuge Harbours* and nip the evil in the bud instead of confining themselves to lifeboats, how beneficial would be the result! they would indeed be the benefactors of their country and there would not then be the long list of widows and orphans, either of the ships that are now wrecked or those of the crews of the lifeboats in their noble efforts to save their countrymen.

I am, Sir,
Your obedient servant,
W. A. Brooks, C.E.

To the Editor of the Nautical Magazine.

The terrible gale, which is still blowing while we write, speaks to us in the voice of a trumpet of duties neglected, of lives lost, and property destroyed.

We will not disturb the graves of our gallant seamen by unseemly recrimination, or the sacred lamentations of their bereaved families by noisy sympathy. We commit the dead, who died as men doing their duty, to their merciful Father, and the mourners to His consolation and protection.

We have also our duties. At such a solemn moment, while this maritime disaster is still before us, and its deep impressions are on our hearts, let us endeavour to learn from it a lesson of wisdom for our future guidance.

Those that are dead might have been alive, and the large amount of property that is lost might have been saved, had we well understood our position.

Let us look a little into the operations of this gale. Upon the 3rd inst., from four to five hundred vessels, light and laden, were on the north-eastern coass. Suddenly a gale sprung up from the E.S.E., and, without warning, the life and death struggle began. Every blast raised the sea into greater violence, and every hour rendered the situa-

tion of the staggering vessels more precarious. The gale increased—nothing but flight could save them. But where fly? The shores under their lee were certain destruction, to which they were as certainly tending, and the ports to the northward were scarcely less so, for they were already enveloped in masses of breakers, amidst which there was no ship's course, where steerage way was lost, and where she was at the mercy of the elements.

As we have already said, the more necessity for safety, the less safety is found there. But those dangerous ports were their only chance, and they fled to them,—some to the Tyne, some to the Wear, and others to the Tees. And these are the records:—thirty-five ships on shore at the mouth of the Tyne, thirty-one at the Wear, and forty-four on the shoals of the Tees—one hundred and ten wrecks within thirty miles; and it is to be feared we have not yet learnt the worst.

At the mouth of the Tyne, on the Rocks, and, since, on the Herd, were presented sights such as the present generation never beheld. Ten vessels on the Rocks, their timbers heard cracking amidst the roaring storm, as they were lifted by each succeeding breaker and dashed upon the rocks, or against each other, and then were shivered to pieces, as if they had been sticks in the hands of man. Some vessels bottom upwards, some half buried, lying on their beam-ends, some stove in their bows, their masts gone, others with their broadsides out and portions of their masts left standing, with torn sails fluttering in the gale and plunging into the water as the ships lifted and rolled with the seas—the whole a scene of terrible confusion.

One splendid barque lay with her broadside to the sea, which frequently struck her and covered her from stem to stern, up to the cross-trees, with a canopy of water, hiding her from the sight, her whereabout only known by the reeling masts through the breakers. Most of these vessels went to pieces in a few hours, and at least £50,000 were lost at a blow at the mouth of the Tyne.

But a sight was seen there even worse than that: the *Eliza*, of Kirkwall, was overturned by a huge breaker, and her entire crew were drowned in the presence of thousands of horrified spectators, who could only shudder and pray at the sight. This ill-fated crew had lashed themselves to their vessel, to prevent the seas washing them overboard, and they struggled long and gallantly with their fate, but at length a sea threw her on her beam-ends, and, as they were sinking in the dread waters, one gallant fellow waved a farewell to the crowd on shore,—meant, doubtless, for his wife and children. When the ship rose again, one man, tied to the mast, was suspended by the leg, and as she rolled with violence, he was raised into mid-air, and then dashed again into the waters, a horrible spectacle, long after he was dead.

Such a sight at such a place was an appeal from the dead to the living, which should fill us with remorse and excite us to our duties.

Thanks to the usual exertions of the brave pilots and the skilful management of those in charge of the rockets, the rest of the crews

on both shores, amounting to nearly three hundred men, were all safely got on shore.

While thus one hundred and ten ships were wrecked within a few hours, nearly two hundred more, wisely distrustling their chances at the Tyne, which many of them had left the day before, fled past it to the Forth. The hair-breadth escapes which many of them had, we already know, but do not know of those who had no escape at all. In some places many of them ran along within a mile of the shore, and had the greatest difficulty in beating clear of the "Rocks of the Fern." The wind, fortunately for this flying fleet, veered a point or two to the south; had its action been as much to the north, a more terrible disaster than Britain had ever known since she was a maritime state would have occurred, and scarcely a ship of that two hundred sail would have escaped. As it is, many lives have been lost, and nearly a quarter of a million sterling has been sacrificed in this one gale.

Could these lives and that property have been saved? We think they could. Such terrible doings of the storm and combinations of dangers on the sea, we deem it possible, by a combination of man's energy and knowledge, to meet and avert. But before again detailing the means, let us briefly examine a few more facts connected with the subject.

Parliament votes annually upwards of £200,000 to form Harbours of Refuge. To the Tyne, with all its noble capabilities, and for all the shipping perpetually exposed in the North Sea, parliament votes nothing; while such harbours as Dover, Harwich, the Channel Islands, Portland, and Holyhead, have bestowed on them annually from £20,000 to upwards of 60,000 each.

This, too, while the Tyne has more than seven times the registered tonnage of all those ports united, and upwards of nine times their trading tonnage. Let us see what quantity of tonnage is perpetually exposed in the north seas, and what its disasters.

The last Parliamentary return for 1853 enables us to see that there left in 1852, with cargoes—

	Ships.	Tons.
The Tyne	19,971	2,833,687
The Wear	11,460	1,488,773
Hartlepool	8,716	1,189,143
Stockton	3,240	328,374
Total from the three Northern Ports	43,387	5,839,977
While London had	16,534	2,654,058
Liverpool	14,909	3,233,312
Glasgow and the Clyde	5,688	852,139

And of laden vessels *inwards* and *outwards* there were, for the

Three Northern Ports	56,176	7,344,208
London	26,520	4,814,215
Liverpool	21,435	5,080,941
Glasgow and the Clyde	9,351	1,360,050

These figures include *steamers*, of which

The Northern Ports had	725	61,476
(or one 120th part of their total tonnage.)		
London	5,370	1,626,323
(nearly one-third.)		
Liverpool	5,771	2,058,956
(upwards of two-fifths.)		
Glasgow	3,044	726,704
(upwards of one-half.)		

These facts demonstrate that the three north-eastern ports have more tonnage *under sail* than London, Liverpool, and Glasgow united. The latter three ports possessing 6,843,223 tons, and the three north-eastern ports 7,282,729.

It is clear then that these ports have more sailing property exposed to risk, which is the dangerous property in coast storms, than those other three great ports. The three north-eastern ports have nearly as much outward tonnage as Scotland and Ireland together; and their tonnage inwards and outwards form about *one-fifth* of that of the entire kingdom. There present themselves each year on these dangerous coasts, entering or leaving the three northern ports, about 102,000 vessels; while from Scotland to them and the southern ports, there pass the Fern Lights 18,000 more; and in the North Sea, from England and the continent of Europe, 15,000 more, which pass the Sound: making a total of 135,000 ships during the year in the North Sea. Should a heavy and continuous gale arise from the eastward, for all these ships from the Frith of Forth to Yarmouth Roads, and for large vessels from the Forth to the Thames, *there is no place of shelter—no Harbour of Refuge;* which the present storm and the many wrecks on their coasts too well demonstrate.

The Admiralty wreck-map, which, we understand, is due to the gallant, able, and humane Captain Washington, shows us that in 1852, in a radius of thirty miles, with the Tyne as a centre, there were wrecked on this coast one hundred and twenty-five vessels, of which seventy were total wrecks. Again, from Flamborough Head to the Frith of Forth, a distance of about 140 nautic miles, of which the Tyne is again the exact centre, along which dangerous course a large fleet has just run, without a place to shelter them, we find there were two hundred and thirty-seven wrecks, of which one hundred and twenty-two were totally destroyed, being nearly one-fourth of the total wrecks which occurred on all the coasts of the kingdom.

We find, too, that London and thirty miles to the north and south, had only seventy wrecks, of which thirty-seven were total; and that the Goodwin Sands, almost as classical as Scylla and Charybdis for their terrible dangers, are less fatal than the Black Middens of the Tyne. They had only nineteen, of which six were total wrecks—the Tyne can do more than that in one night, as we have seen. Liverpool, within a radius of thirty miles, had sixty-five, of which twenty-five were total wrecks; and Glasgow had thirty-five in the same extent of coast, with only twelve totally destroyed.

London, Liverpool, and Glasgow, have estuaries and free entrances at all times to vessels caught by gales within their spheres. While here, in the North Sea, there is not a hole to shelter a skiff.

Though thus your clustered sailing tonnage amounts to the whole of theirs united, they have six Harbours of Refuge, while you have not one. The Thames, with its Harbours of Refuge on the north and south, Harwich and Dover. The Mersey, with its Harbour of Refuge at Holyhead, which is daily being extended; and the Clyde, a Harbour of Refuge in itself.

There is no necessity, we are sure, to adduce further facts on this vital subject. The magnitude of our maritime interests, and our terrible losses demonstrate it too clearly, as well as the necessity of some adequate means for their better protection. That means, we endeavoured, two years ago, to develope in the columns of our able contemporary, the *Gateshead Observer*, which articles were afterwards reprinted, and widely circulated by the Commissioners of the Tyne.

After examining the capabilities of the three north-east rivers, we demonstrated there the advantages of turning the destructive harbour of the Tyne, by proper constructions at its mouth, into a Harbour of Refuge.

It will be unnecessary again to go over the same arguments—the necessity and advantage are now admitted on all hands. The question is settled. The time for deliberation is passed, and the time for action is begun. The Admiralty approves of the project, and its engineer has given plans for its execution. Energetic action is now all that is required. With such powerful reasons as the wind and sea present, it cannot long be wanting.

With the report of the Admiralty Engineer we agree in this, that all other minor engineering should cease till the great constructions of the piers that are to turn the Tyne into a Harbour of Refuge be completed. Their influence on the tidal flow we believe will be incalculable, and they may eventually supersede any internal engineering that might in the interval be effected. Every shilling and all the means at the command of the Commissioners should be expended on this great work.

While we cannot refrain from stating our conviction that the proposed line and nature of the piers are admirably adapted for their purpose, and that "the cure of the present evils will not be complete without the south pier also," yet we must, with much deference, dissent from the suggestion that the north pier may be first independently constructed without injury to the harbour.

The very gale that is now blowing, which cast ten vessels on the rocks, shows that these wrecks were owing to the unprotected state of the south end of the bar and Herd, over which a south-east sea was breaking with such force as when the entering vessels caught the ebb to throw them hodily on the rocks. Had the north pier been then constructed, it would not have saved one of these vessels from her fate, for the gale and the sea from the south-east would have still operated with the same effects if the southern pier was not equally

extended. We presume also that the twenty-two ships which have gone ashore on the Herd to the southward would have received no protection whatever, in this south-easterly gale, from the northern pier. In addition to these negative results of the northern pier standing alone, we greatly mistake if some serious positive evils, which seem to have been overlooked, would not also ensue. We beg the attention of the Commissioners and the Admiralty Engineer to these points.

The sands of the Herd and those of the lower reach of the river are of the same geological derivation, being different from those in the higher reaches.

The Insand and the Dortwich Sand derive their existence from the same source, the Herd and the sea-shore between the Tyne and the rocks at Souter Hoint.

Tynemouth Point, which stands more than 1,000 yards further seaward than the south bank of the river, sets the flood generally upwards of half a mile to the south, impinging it upon the southern shore. The consequence is the formation of the wheel by a flood-current from the south, which carries into the river tons of sea sand in every flood. Should then the North Pier be thrown out 666 yards further, as projected, we shall have the direct flood into the Tyne directed near a mile from its course, which will probably double the vortex and its effects from the southward. From striking the shore near to Souter Rocks, it will bring into the harbour such masses of sand as will increase the accumulations there to an almost unmanageable amount. In addition, we submit, that this increased force and range of a flood current from the southward will tend to form new tidal channels, and a delta at the mouth of the harbour. Instead, therefore, of the Northern Pier itself concentrating the full power of the ebb for engineering purposes and effecting the removal of the bar, the scouring power will be weakened, and much of it escape by these new channels to the sea.

Even at present the tide sets to the southward over the Herd Sand and through the wheel, for a great portion of the ebb; a proof of which is the drifting of the lifeboat when upset on the ebb for nearly 1,000 yards to the south before she was cast ashore, as well as the ice during the present storm, that has been brought down the river by the fresh, floating to the south and covering the Herd Sand. For these reasons we deem it of the utmost importance that the South Pier should be carried out simultaneously *pari passu* with that of the North, otherwise great temporary, if not permanent, evils will probably arise. We conceive that before the North Pier be touched the South Pier should be advanced forward to a parallel distance eastward, and that they should then equally progress step by step to their completion as one work. Long before that completion good effects will be experienced, and eventually the river will be scoured, deepened, and protected, and the bar removed into deep water by their joint co-operation. Then will your noble river form a real Harbour of Refuge, with a splendid entrance of 14 feet at low water, instead of six, and a

width between Pier Head and Pier Head of 1,100 feet, 200 feet wider than the Tyne at the New Quay. Reasons of local economy ought not for a moment to be permitted to affect the working of this great question, or to procrastinate its completion.

It is a national work. For ourselves, we demand, as a matter of public right and justice, that this great maritime district, for its better security, shall have the aid of Parliament and the Governmeut.

We deny the justice of bestowing £200,000 of the public money for making Harbours of Refuge for tonnage which, united, scarcely amount to more than a tythe of that of the Tyne, whose wrecks exceed those of all their coasts together, while there is nothing voted for the protection of the latter.

We protest, in the presence of this great calamity, against the neglect and injustice which cruelly and unwisely leaves so many people to perish, and so much valuable property to be destroyed.

We would venture to invite a concentrated effort of the whole maritime population of the North for our common object, to be directed by their representatives on Parliament and the Government. This national object cannot be accomplished too soon. Whilst we delay, human holocausts are sacrificed and national wealth destroyed.

This gale has alone destroyed as much national property along our coasts as would have gone far to accomplish our great purpose. And standing Piers and a Harbour of Refuge are better than sunk ships and drowned men, to say nothing of futurity and its incalculable gain.

In addition to the humane and maritime benefits which a Harbour of Refuge will possess, will be superadded advantages in war. When the dark political cloud which is hanging over Europe shall have burst, and left behind it armed fleets on the ocean and bristling bayonets on the land doing their work, one of the chief fields of operations will be the Baltic and the North Sea. At such a time a harbour on the East Coast, fitted for British ships of war, is another reason for the speedy execution of this work. But, whether or not, the safety of such a number of gallant lives, and the protection of the valuable maritime property exposed day and night upon our coasts, are paramount reasons for the performance of this great duty.

The tempest still thunders in our ears, mingled with the shrieks of drowning men, and tells us in its own dread language of duties neglected, and sternly points to the course we should pursue. Its lessons of wisdom none can misunderstand.

By the following extract the late bad weather seems to have been general.

The late storms, which committed so much devastation on our own coasts, appear to have extended over a large surface of the globe. Letters from Constantinople mention that out of a fleet of nearly 600 merchant vessels, the majority have sustained more or less injury to both ship and cargo. From Spain,

Portugal, and France, the letters report damage; and from the United States and Nova Scotia, the accounts received give the particulars of many casualties. The most recent and severe loss sustained on our own coast, is that of the total destruction of the *John o'Gaunt* clipper, with a valuable cargo of teas from China. She went on shore near Holyhead, and is a total wreck. In order to give some idea of the fearful loss of shipping lately sustained, it may be here observed that there are accounts since the 1st inst. up to Saturday the 14th, of no less than 204 English and foreign vessels having been totally wrecked. The return does not include the still greater number of vessels which have been run on shore, or which may have received serious damage, and which entail upon the shipowner a further fearful sacrifice of property.

The shipowner and the sacrifice of property as usual is uppermost in the writer's mind *(Illustrated News)*. Money again! While no one thinks of the seamen who have perished, who led by the temptation of higher wages than the Crown affords, are thus lured to their destruction—to perish in a gale, which their vessels cannot survive, within sight of their own shores, for want—!—of refuge harbours to receive them. The shipowner, indeed! He betakes himself to recover his total loss (glorious word for him) at the Insurance Office, and finds seamen for his next ships where he can. And does he assist to support the widows and orphans of those who have perished in his ship? Let the Shipwrecked Mariner's Society answer that question. Here are some of the results of these gales:—

At the weekly meeting of the Committee of the Shipwrecked Mariner's Society, held on Friday the 13th inst. Present—Captain the Hon. Francis Maude, R.N., in the chair, Lord Haddo, William Stuart, Esq., Captain Heaslop, R.N., &c., &c. The minutes having been duly read and confirmed, the Committee considered one hundred and ninety-one cases, consisting of the claims of widows and orphans and shipwrecked mariners applying for relief on the ground of the loss of their husbands and fathers, and to help to restore their clothes lost in the late gales.

The following sums were ordered for the different Honary Agents, to meet the cases sent in by them, viz.:—

	£	s.	d.		£	s.	d.
London	10	13	6	Bridport	2	0	0
Conway	4	13	9	Exmouth	2	5	0
Greenock	5	6	3	Jersey	8	10	0
Leith	10	18	0	Lynn	10	5	0
Macduff	1	10	0	North Shields	66	6	6
Robin Hood Bay	3	10	0	South Shields	56	3	9
Stonehaven	1	15	0	Sunderland	72	14	0
Whitby	19	15	0	Bridgewater	1	12	6
Blyth	13	2	6	Guernsey	4	5	0
Dover	1	10	0	Kincardine	1	12	6
Hartlepool	27	15	0	Hull	16	0	0
Liverpool	3	12	6	Plymouth	2	2	6
Newcastle	3	17	6	Southampton	4	7	6
Scarborough	1	12	6	Yarmouth	18	0	0
Seaham	11	5	0				

Reports were read from the different honorary agents describing the awful scenes of distress at their various stations consequent upon the numerous

wrecks, and reporting that the whole of the crews saved had been clothed when necessary, and dispatched per railway to their homes. The Secretary reported three or four crews a day being at the office, arriving from different points of the coast, whom he had dispatched; and that the pressure on the Society at this time was greater than it had been since it was instituted. The agents at various places speak of the exertions of the crews of the lifeboats as beyond all praise. Letters were read reporting missing vessels, supposed to have foundered; also of those known to have been lost with all hands. It was considered that the cases of the widows and orphans expected next week, would draw a much larger sum from the Society's funds. Cheques were signed for the sum of £517 7s. 9d., and the meeting separated.

And thus the deep-rooted evil flourishes. Ships are lost; seamen are drowned;* their widows and children are left to the charitable, the owners are repaid because they were insured, and then comes a boast of the number of shipping built at a celebrated building port. Thus

The *Sunderland Herald*, in publishing its fourth annual list of vessels built in that port, says:—When we first published our list, we claimed for Sunderland a superiority over all the shipbuilding ports in the world, both as to number and tonnage, and the tables we have published hitherto have shown that the port has maintained this *proud pre-eminence*. New York is the only port approaching near to Sunderland in this respect. It appears that the number of vessels built in Sunderland in 1853, is greater by ten than that of the previous year, while the tonnage is greater by 11,834 tons. The average tonnage has also increased, showing that the class of vessels now constructed is much larger than formerly. The value of these vessels fitted out for sea cannot be less than a million. In 1853 there were one hundred and fifty-two vessels building, with a tonnage of 68,479 tons; and, on the 1st of January, 1854, there were on the stocks eighty-eight ships, with an aggregate tonnage of 40,100 O.M. Nearly all of these have been sold. Sunderland supplies other ports to a very large extent; and the number of vessels sold to other ports has increased each year; for while in 1850 it was seventy-eight, in 1851 it was eighty-one, in 1852, ninety-four, and in 1853 one hundred and eight.

How long, we say, is this to last? Verily there is something rotten in other States besides that of our neighbour Denmark. Shipbuilding may flourish on wrecks, but the gentlemen of England, who are famed to live at home at ease, will on some future day find those homes invaded which have hitherto been guarded by our seamen, and will then look in vain for those seamen to defend them, unless they quickly root out the evil to which our *merchant* seamen are subject.

* It is a strange anomaly in our laws, that while a sailor drowned within a harbour has an investigation into the causes of his death by a coroner's inquest, crew upon crew may be drowned at the harbour mouth within 200 or 300 yards, and the law does not condescend to notice it.

If a thorough investigation was made of the causes of wreck upon our shores, and an honest verdict returned, we can imagine a terrible havoc amongst conservators of rivers, mercenary owners who send their ships to sea undermanned, ill-found, or unseaworthy. It would, in addition, lead to many valuable suggestions for the better saving of life and property at sea.

Description of the Portuguese Colonies of Angola and Benguella in Western Africa.—*Translated from Official Documents; published at Lisbon in* 1846.

The territory south of the Equator, subject to the crown of Portugal, extends north and south from the Ambriz River to the sandy deserts of Cape Negro; and from the shores of the Atlantic as far as the remote provinces of Molua, Cassange, and Ganguella in the interior.

In so large a tract of country, there must necessarily be a great variety of geological formation, particularly on the sea coast; presenting as it does to the eye of the navigator an ever changing aspect. From the north of the Bay of Ambriz, where the shore is covered with the luxuriant vegetation of the tropics, a long line of red sandstone cliffs stretches away to the southward; whilst far in the interior the lofty crests of the mountains of Bamba, and the Seven Hills, are discernible. This precipitous coast extends as far as the mouths of the rivers Dandé and Bengo, where the rich cultivation surrounding the smiling district, irrigated by their waters, forms a strong contrast to the general sterility of the country.

The bay, into which the River Bengo falls, terminates at the S.W. in a rocky headland, called Cape Lagostas, which, rising like a wall from the water's edge, forms the eastern extremity of the harbour of St. Paul de Loanda; and between it and the city the cliffs present a beautiful combination of colour, and are the limits of plains of white sand extending far into the interior. Parallel to the coast and to the S.W. of the above-named cape, lies the sandy island of St. Paul de Loanda, over which, on account of its low elevation, the masts of ships in the harbour are visible. A narrow strait, called the Bar of Coimba, divides this island from that of Careange, which extends to the S.W., and is almost a continuation of it. This strait was originally the entrance to the harbour; but is now so choked up with sand that it only affords a passage to boats and vessels of small burthen. The south extremity of the Island of Careange is opposite Point Palmeirinha on the main land, where the coast reassumes its wooded aspect, the palm tree growing in great luxuriance, with groves of mangrove rising behind. A very heavy surf breaks on the shore during the period of full moon, expending itself on the reefs of rock that extend into the sea.

A few miles to the south of Point Palmeirinha is the mouth of the River Coanza: its position being indicated by two round hills called Las Mainas, as well as by the discoloured appearance arising from the outflow of its waters; and a dense vegetation at the bar. To the southward of this river are the mountains of the Naobios; and the little bay into which the waters of the River Suto discharge themselves during the rainy season. The well known promontory of Cape Ledo forms the southern extremity of this bay.

The coast now takes a S.E. direction, and is well-wooded as far as Cape St. Bras, and in the neighbourhood of the important Rivers

Longa, Cubo, and Gunza; besides the inferior ones of Quicombo, Quitungo, Egito, Quinza, Mozombo, Urcula, and Hoanha.

To the south of the River Catumbella, the coast assumes a melancholy and gloomy aspect, slightly diversified at Cape St. Mary, Benguela Bay, Bahia Farta, and Salinas; after which nothing is visible but arid sands, naked rocks, and rugged cliffs, with a few stunted trees scattered here and there on the summits of the hills in the interior. A few shrubs are found to the south of the Isle of Pines, and in the valleys in the vicinity of the streams of St. John, Benguecamonito, Cangala, Senebari, Monaia Cangando, and a few others, the names of which are unknown. At As Mezas a little more vegetation is visible; but it becomes quite extinct after passing Cape Nepo.

The foregoing is a short account of the sea coast, we now turn to the physical features of the interior, gathered from the accounts of various travellers.

The territory of Mossul, comprehending the Portuguese provinces of S. Jose de Encogé, Dembos, Amboca, Duke of Braganza, Golungo, Pedras de Pungo an Dongo, and Cambambe, is intersected by chains of mountains of granite, quartz, and conglomerate, many of them possessing valuable iron mines, and possibly those of some other of the precious metals. Several rivers have their sources amongst the mountains, and irrigate dense forests, which form the haunts of ferocious animals and venemous reptiles. The climate is particularly favourable to cultivation; both as regards the small enclosures which furnish the indolent natives with corn and vegetables, and the districts of Scolo and Bengo, where large plantations are kept up on the banks of the rivers. This district is truly named the granary of Loanda, as it furnishes that city with almost every necessary of life (not excepting water), for the subsistence of the inhabitants; besides firewood, charcoal, wood for building, and forage. Limestone and petroleum are also found here; the latter in pits in the mountains of Libongo. It would be difficult to find in any part of the world a district so fertile and valuable; but these advantages are more than counterbalanced by the unhealthiness of the climate, owing to the pestilential exhalations rising from the marshy soil, which prevails throughout the lands of Slamba, on the banks of the Coanza and its tributary the Lucala, and throughout the whole of the province of Massangano.

The interior of the province of Quissama is one vast tract of sand, where arid plains and barren hills testify to the want of those springs and rivers which support nature in tropical regions seldom visited by rain. From this cause the natives are not an agricultural race; but either pursue war or robbery, or work in the salt mines of Demba, (or Addenda,) bartering their gains for the necessaries of life with tribes more favoured by soil and climate.

To the southward of the River Longa lies the fertile province of Benguella; where, instead of sandy deserts, rich well-watered meadows abound, affording pasturage to numerous herds of cattle and sheep, which form the principal riches of the natives. The soil is favourable to the production of all the grains and fruits of Africa, Ame-

rica, and Europe, being irrigated by the fertilizing streams which have their source amongst the lofty cloud-capped mountains of the Nannos. Mines of iron, copper, and sulphur are worked in the hills, and the forests afford shelter to herds of elements, the rhinoceros, stags, and numerous wild animals, furnishing by their spoils an ample source of profit to the merchants of Benguella and Mossamedes. This fertility extends over the cultivated plains of Bihè Quelengues, Bumbo, Huila, Enjau, Caconda, Galengue, and Sambos; as far as the country inhabited by the Mocoandos, which separates these provinces from the boundless wastes of sand which constitute the ne plus ultra of the Portuguese dominions.

The River Coanza amd the Portuguese Establishments in Western Africa.

The River Coanza is supposed to derive its source amongst the remote regions of Central Africa, and forms the southern boundary of the province of Angola. The turbid and discoloured water of this river, extending far out to sea, indicates its embouchure; which is also distinguishable by two round hills on the north bank. In the centre of the bar at the mouth, is an island covered with wood; with the ruins of a small Dutch fort at the north extremity. The bar is impassable to vessels drawing more than two fathoms water, on account of the numerous shoals and banks formed by the alluvial deposits washed down by the stream; to this cause may be ascribed the existence of some small islets, formerly inhabited, but now deserted except when occasionally visited by fishermen. One of these islands, named Quinzanga, contains a few dwellings; it is at the entrance of a bay, on the eastern side of which the Portuguese establishment of Calumbo is situated.

Calumbo.

This settlement was founded by Paulo Diaz de Novaes at an early period of the conquest of Angola (1577). The Franciscan monks established a mission here, and built an oratory dedicated to St. Joseph. It was formerly garrisoned by a company of militia and a native levy: at present there is only a detachment of infantry, under the command of an officer bearing the title of Chief Pilot of the River Coanza. This place is of great importance, being the emporium of all the commerce of the inland factories on the banks of the river; and for the convenience of the traders, warehouses were erected at the public expense by one of the governors named Tovar. The distance from St. Paul de Loanda is rather more than ten leagues, and from the scarcity of water travellers by this route are obliged to carry that necessary with them.

Throughout this province and lying along the banks of the Coanza, are numerous plantations and tracts of cultivated land, interspersed with barren wastes. The climate is very unhealthy from the existence of numerous marshes; one in particular, called the lagune of filth, after being swollen during the rainy season, becomes stagnant and pu-

trid in the summer. A considerable traffic is carried on between Calumbo and Loanda, in farina, palm oil, almond oil, matting, and timber; besides these, articles for exportation are brought down from the markets and factories in the interior, by launches and small schooners, nothwithstanding the dangerous navigation of the river, and its rapid and deep current.

The Rivor Coanza above Calumbo abounds in alligators, hippopotami, and seals.

The next settlement on the banks of the river is Muxima.

Muxima.

This settlement, at a distance of twenty-eight leagues from the sea coast and eighteen from Calumbo, is on the south bank of the river, and was established in 1599 by a distinguished officer, Captain Balthasar Rebello de Aragao, during the government of John Furtado de Mendonca. It is defended by a fort of masonry, armed with eight heavy guns, and garrisoned by a force of one hundred infantry. Surrounding the fort is a village containing about 500 houses, with a friary and chapel dedicated to Our Lady of the Conception; some of the houses are of stone, and the remainder huts of straw. In this settlement are eight native chiefs feudatories of the Portuguese crown, (including the chief of Muxima,) descended from the former possessors of the country; and the chief of Quizua, who derives his title from the name of a large lake, celebrated for the excellence of its fish. The allegiance of these chiefs is, however, very uncertain, as they frequently rebel in combination with other tribes; but always look to the Government for protection when threatened by their neighbours. The interior of the country is barren; but on the banks of the river mandive, millet, and vegetables are cultivated by the natives, who breed large numbers of pigs, goats, and sheep. Palm and almond oil are exported, besides ivory, bees'-wax, and gum, which are brought from the provinces of Quissarna, Libabo, and Bailundo, and collected here. Muxima is three days' journey from Calumbo, following the course of the river.

Massangano.

This settlement is at the distance of ten leagues, or about two days' journey, from Muxima; it is situated on a tongue of land at the confluence of the River Lucala with the Coanza, and was established between 1580 and 1583, by the first conqueror of the country, Paulo Diaz de Novaes. It was first founded at a place called Macundé, but the site was subsequently changed to its present position. Paulo Diaz erected a church here dedicated to Our Lady of Victory, where he was afterwards buried.

Massangano is a strong military position, and one of the most important Portuguese garrisons, as it not only has proved itself impregnable to the attacks of the barbarous tribes inhabiting these regions, but on one occasion checked the advance of the disciplined troops of the Dutch, when the authorities of St. Paul de Loanda took refuge

there, after that city had fallen into the hands of the enemy. Loanda was afterwards recaptured by Salvador Correa de Sa; on which occasion the privileges of a city were granted to Massangano, and a town hall built, where judicial trials were held. The fortress of Massangano is built of masonry, constructed on a regular plan; it is armed with twelve guns, and contains good magazines, barracks, and offices. The village in its neighbourhood contains about six hundred dwellings, one third of stone, and the remainder built of straw. It is inhabited by a large population of mulattoes. The garrison formerly consisted of two companies of militia and a native levy, now reduced to a light company of seventy men.

The province of Massangano, which is very large, includes that of Flamba; it extends from Calumbo, on the north bank of the Coanza, as far as Trombeta, in the province of Golungo, on the west bank of the Lucala, besides taking in the country on the east side of that river as far as the small stream of the Mucoso.

There are no less than twenty-eight feudatory chiefs in this province, nominally Christians; and it contained in the seventeenth century eight parishes, only one of which, viz., the town, was in existence in the eighteenth.

The climate, though productive, is very unhealthy. It feeds large herds of cattle. A great deal of traffic is carried on here, from its vicinity to the market of Dondo, on the banks of the Mucoso, which is the rendezvous of all the traders from the vast districts of Libolo and Bailundo, besides those from Musima and Cambambé.

Cambambé.

This settlement is situated on the summit of a precipitous rock overhanging the north bank of the Coanza. This spot, at the end of the 16th century was the scene of many sanguinary struggles, owing to the prevailing belief that silver mines existed in the neighbouring moumtains. These disputes terminated in a signal victory gained over the natives by D. Manoel Cerveira Pereira; who was the founder of the colony.

Cambambé is a place of great importance, for, although no silver mines were ever discovered, it is the emporium of all the trade carried on between the districts of Libolo and Cassange, and other regions still more distant. It is defended by a fort of masonry armed with four guns. The village in the neighbourhood of the fort is dedicated to Our Lady of the Rosary; it contains about 500 houses, including some few of stone. The garrison formerly consisted of seventy infantry soldiers with a company of militia and a native levy; it now amounts to 100 regular troops and a light company of about 112 men. The Commandant exercises authority over thirty tributary chiefs, who govern some well populated districts.

The celebrated market of Dondo is in this district, in the neighbourhood of the River Mucuso (the natural boundary between Cambambé and Massangano). It is the principal rendezvous of the traders from Massangano and Musima and of all the tribes dwelling on the

south bank of the Coanza. The chief articles of commerce are ivory, bee's-wax, gum, cabinet woods, timber, and bamboo; which are collected in large quantities. The climate is healthy, and the country moderately productive in grain and cattle.

The inland navigation of the River Coanza terminates here, as, at a short distance above Cambambé, the river precipitates itself in cataracts over lofty rocks. The mist arising from these falls settles on the banks and forms layers of saltpetre, but, notwithstanding this singular circumstance, the water both above and below is sweet and fit to drink. Higher up the country the river is navigable for canoes and small boats, but is so full of islands that vessels of larger size cannot pass through the narrow channels which intervene. These islands were conquered from the King of Matamba or Ginga by Bartholomew Duarte de Sequiera in 1745, during the government of John Jacques de Magalhaes, since which period they have belonged to the Portuguese crown. They now form part of the district of Pedras de Pungo an Dongo, and are called the Islands of Quinalonga..

Pedras de Pungo an Dongo.

This settlement was the ancient court of the Kings of Donga, and was conquered from the last King D. John Hary by the invincible Lopez Luis de Sequeira, during the government of Francisco de Tavora; since which time it has belonged to the Portuguese.

It is situated five miles to the north of the River Coanza, twenty leagues E.N.E. of Cambambé, (a land journey of two days,) and seventy-six leagues from St. Paul de Loanda (an eight days' journey by the route of Cacuaco.)

It is defended by an earthern redoubt, armed with two guns, in a commanding and picturesque position on the wooded summit of an almost inaccessible rock; one amongst a number of isolated peaks which present to the eye an appearance resembling the ruins of an Egyptian city. The only access to these rocks is through a cavern; on emerging from which the path leads, amongst broken and scattered rocks, to the base of the precipitous and lofty cliff on which the fort is situated, and is of so rugged and intricate a nature that it can hardly be discovered without a guide. It is with great difficulty, and only by following goat paths leading up the cliffs, that the settlement is finally reached. But the traveller is amply repaid by finding himself on a delightful plain, enjoying a pure and salutary air, amidst the richest and most luxuriant vegetation.

The best description of this earthly paradise is to be found in a treatise by Senor Fortunato de Mello; who had many opportunities of making himself acquainted with this place, where he spent several days on a visit to his father, a distinguished physician and naturalist. He speaks of the place as follows:—

"The settlement of Pungo an Dongo was selected as a place of banishment for notorious criminals, but the sentence was seldom carried into execution as the Governors of Angola generally enrolled them in a regiment of infantry at Loanda, chiefly at their own request; as

neither judges nor criminals knew anything about the place. This district is more agreeable and healthy than many provinces in Beira Baixa in Portugal. It is entirely free from fever, the air is pure and always cool, the water fresh, wholesome, and cold, precipitating itself over high cliffs of petrified earth, combined with sand and siliceous pebbles, which latter are constantly washed away by the rains, leaving cavities in the rock. The soil is very fertile, producing in abundance mandioc, millet, different kinds of grain, ginger, almonds, bananas, the finest pine-apples in the world, pot herbs of all descriptions throughout the year, pomegranates, oranges, limes, lemons, cotton, indigo, tobacco, rice, wheat, &c.; and is capable of growing the productions of the most fruitful countries in Europe. Game, particularly hares, are very abundant, and the River Coanza in the neighbourhood always affords a good supply of fish. The climate is such that meat will keep fresh, although exposed to the atmosphere, three days, or even five in dry weather, a circumstance unknown in any other place within the tropics. Venomous insects, so general in Africa throughout the rainy season are not known here. The country is well wooded, and affords excellent pasturage to herds of cattle. The milk is very rich, and the cheese may bear comparison with the best of Alemtejo, or the Sierra de Estrella in Portugal.

It is much to be regretted that this place should not have been selected for the capital of the Portuguese dominions in West Africa; and no better position could be chosen for the formation of a colony, offering as it does such a prospect of health and abundance.

There is a village of about two hundred houses in the vicinity of the fort, with a population of twelve hundred, principally mulattoes, and two or three European merchants. They profess the Christian religion, and the parish is dedicated to Our Lady of the Rosary."

The district between this settlement and the Coanza, including the islands of Quinalonga, contains about thirty-five villages or "banzas;" they are situated in the valleys and plains and are under the rule of thirty-five tributary chiefs. It is well irrigated by the streams which take their source amongst the cliffs (before referred to).

The garrison of the fort amounts to 100 regular troops, and the district is defended by a light company of 112 men.

The market of Beja is situated to the south-east of this settlement. It was formerly the rendezvous of the traders of Ginga, Cassango, Ganguella, and Libolo, (to the south of the Coanza,) and even those of Bailundo, as the route to Bihe, Caconda, and Benguella lay through this district in order to avoid the barbarous country of Quissama. This market is now almost deserted.

To the north of Las Pedras de Pungo an Dungo and twelve leagues, or two days' journey, from the settlement is the post of Ambaca, in the province of Alto Golungo. It was established in 1614 by the Governor Bento Banha Cardoso on the banks of the River Lucala at a distance of eight leagues from Massangano, but, in 1616, was transferred to its present position, much farther in the interior but still on the south bank of the river (during the government of Luiz

Mendoz de Vasconcellos). It is defended by an earthern redoubt, armed with eight guns, and was formerly garrisoned by a company of 120 infantry, since removed, in 1838, by Governor Vidal to the newly established settlement of the Duke of Braganza. Ambaca is the capital of Alto Golungo.

District of Alto Golungo.

This territory, comprehending the provinces of Ambaca and Scolo-Golungo, is the most extensive, populous, and valuable possession of the Portuguese in Western Africa. It numbers about 80,000 inhabitants, under 133 tributary chiefs; 130 of whom belong to the ancient jurisdiction of Ambaca, and the remainder to that of Scolo-Golungo. The former pay tribute, that of the latter being commuted by the Governor Saldanha de Gama to one hundred quintals of iron, found in the mountains. This iron was intended for the magnificent foundry of Oeiras, which was building under the auspices of the Governor Sousa Coatruho, but it is now sent to the little foundry of Trombela, the ancient capital of a small province extending from the Lucala to the Bengo, about forty leagues to the east of Loanda.

The province of Alto Golungo is well culivated, and abounding in herds of cattle. Some of the oxen are broken in for the purposes of riding and transporting merchandise between Loanda and the markets in the interior. A hole is bored in the cartilage of the nose, through which a cord is passed, serving as a bridle. These animals travel long distances, sometimes as far as territories attached to the Bonguella.

Besides the iron works in this province, tanneries were established by Governor Tovar.

The people of this country profess the Christian faith, and were converted by the labours of some Carmelite friars, who established themselves near the River Lombigé and founded the mission of Santo Hilariao de Bango aquitamba in the 17th century. They worked with great zeal at first, but gradually relaxed during the 18th century, so that at the present time the spiritual destitution of the poor natives is most lamentable, the missions falling into decay and the churches without clergy, for instance, Nosa Senhora de Assumpscao, at Ambaca, S. Joaquim de Malua, and S. Joao Evangelista de Golungo.

The garrison of this district consists of four light companies, about two hundred and seventy men; but, the frontier being now extended, its best defence lies in the settlement of the Duke of Braganza.

Duke of Braganza.

This settlement was established in 1838, by Colonel Joaquim Fillipe de Anchade, after the conquest of the province from a rebel king named Quiloanga Quiassamba, a vassal of Ginga, who had invaded the territory of Ambaca, then under the rule of the Portuguese feudatory chief Hary. A fort was subsequently built by Governor Vidal, and armed with eight guns. It is an earth work on a good plan, and is garrisoned by 120 men, who formerly occupied Am-

baca. There is but little known respecting this province; it is bounded on the west by Ambaca, with the small kingdom of Matamba to the north, and the almost unknown territory of the Moluas to the east. Many of the natives profess the Christian faith, which was introduced by Capuchin Friars from Italy, who founded the mission of Cabenda on the banks of the River Mombello. Since their departure, about thirty years ago, the country has been entirely destitute of ministers of religion, and there is no parish attached to the settlement. The Governor Vice-Admiral Noronha, formed a plan for establishing a penal colony here of criminals sent over from Rio de Janeiro, but, unfortunately, he gave up his government before their arrival, and the acting authorities chose so bad a season for sending them to the place that disease, combined with other mishaps, carried off nearly the whole of them.

This province, as well as that of Ambaca, was generally considered healthy; but Scolo Golungo is very sickly; a few years since the Governor D. Domingo de Saldanha, died there after a short illness.

Province of Dembos.

This province is very mountainous and but thinly populated, containing rather more than 25,000 inhabitants, under the jurisdiction of six dembos or potentates, who are compelled to furnish troops in case of war, but do not pay any tribute; each of these chiefs has others under his sway. This nation is unfriendly and rebellious, and is a nomade race, constantly moving from place to place and changing their abodes, a characteristic of the tribes on the banks of the River Dondé as far north as the territory of Dembo Ambuela, which, with the eight chiefs that govern it, is subject to the Portuguese crown, and is in the jurisdiction of the settlement of St. Jose de Encogé.

St. Jose de Encogé.

This settlement was established in 1759 by the Governor, Antonio de Vasconcellos, for the defence of the northern frontier of Angola. A short time afterwards it was attacked by the dembos Ambuela and Naboangongo, and the adventurous and nomade tribe of the Mussoens from the interior of the country of Oh-nolo. They were defeated in 1794, and reduced to obedience and vassalage.

The settlement is surrounded by a natural basin of lofty cliffs, called the rock of Encogé, the interior space being of so great an extent that a large army can be encamped within it; the only access is through a defile, which could easily be maintained by a small force and is commanded by the fortress. This fort is of masonry, armed with nine guns and garrisoned by 100 infantry; the province is defended by a light company of seventy men.

A parish, dedicated to S. Jose, was established here by the Italian Capuchins, but is now without clergy.

The climate is very unhealthy and but poorly cultivated, the returns being hardly sufficient for the food of the natives.

The commerce of this settlement should be better than it now is from its vicinity to the River Ambriz and to the kingdom of Congo, which supplies large quantities of ivory.

S. Jose de Encogé is one of the most advanced posts of the Portuguese, but it is at too great a distance, being about seventy leagues from Loanda and above twenty-five from Ambaca, the nearest settlement to the north. This post constitutes the sole protection of the northern frontier of Angola, and it would be desirable to erect a small fort on the old site of the fair of Oanda, on the banks of the Ambriz, close to the territories of the Duque de Quina (who is a vassal of the King of Congo), another at the mouth of the Ambriz, in the territory of the Marquis of Mossul, and a third at the port of Quilungo, in the same territory.

The Marquis of Mossul rules over the coast between the River Logé, north of Ambriz, and the River Lifuné, to the south. There are several chiefs or "manis" under his government.

This province extends to the S.E. as far as the country of the Dembos. It is watered by the River Onzo, which takes its source in the district of Encogé. The principal ports are Ambriz and Quitungo, which are frequented by numerous merchant ships.

Latitude and Longitude of some of the before-mentioned places.

	Lat.	Long. from G.
S. Jose de Encogé	7° 30′ S.,	16° 15′ E.
Ambaca	8 36	16 46
Duque de Braganza	8 47	18 13
Pedras de Pungo an Dongo or Pedras Negras	9 15	16 44
Cambambé	9 27	15 27
Massangano	9 16	14 48
Musima	9 25	14 15
Caconda	14 43	15 41
A. Huila	14 50	14 1
Mouth of the Coanza	9 25	12 57

WRECK OF THE "TAYLEUR."

Our present number details the severe losses we have sustained in our Mercantile Shipping from the recent gales. Another calamitous sacrifice of lives has just occurred in the loss of the emigrant ship *Tayleur* on the outer end of Lambay Island, a little to the north of Dublin Bay, that seems difficult to account for. We presume the ship *was insured and the underwriters will look to that*, but it is very sad to contemplate the sacrifice of life that this has occasioned, which of course will become the subject of investigation by the Board of Trade. We have annexed to the statement of it which appeared in the *Ship-*

ping Gazette the result of a collision, which appears in the same paper. Really our Mercantile Seamen appear to be distinguishing themselves in no very seamanlike way. There is something rotten at the root of all this evil, which ought to be remedied whetever it may be.

Liverpool, Jan. 23rd.—The *Tayleur*, Noble, hence for Melbourne, has been totally lost off Lambay, and only about 270 people (passengers and crew) out of upwards of 600 have been saved. The *Tayleur* sailed from the Mersey at noon on Thursday last, in tow of the steam-tug *Victory*, and was left by the steamer at seven o'clock in the evening, about six miles E.S.E. of the Skerries. During the whole of Friday, and until the ship struck, the wind was from W.S.W. and S.W., and very little progress was made, and about noon on Saturday she struck on the Nose of Lambay Island, and soon sank. Thomas Kemp, one of the surviving passengers, has furnished the following account of the catastrophe:—

"The *Tayleur* had on board, as near as I could learn, 670 persons, including the crew. All went on well until about noon on Saturday. At that time one of the passengers came running into my cabin, and said that there was land on the lee bow. I asked him how far off; he replied, that he believed from three to four miles. I immediately went on deck, and saw the land distinctly, which appeared to me to be only about three quarters of a mile distant. From the progress the ship was making towards the land, I saw there was no hope of escape, and I prepared myself for the worst. The wind was blowing fresh from S.W., the ship being under top-sails. As soon as it was known to the passengers that the land was so close they all crowded on deck, and caused such confusion that the crew were prevented from obeying any orders that might have been conveyed to them by the officers. Both anchors were let go, but either the cables broke, or the heavy sea caused them to drag, for they did not stay the progress of the ship, and she soon struck on a rock, which I afterwards learned was called the Nose of Lambay Island. After striking, she turned broadside on to the rock, and many of the passengers jumped on shore. She remained in this position only a few minutes, then slid off, filled rapidly, and went down stern foremost, with only the top of her mast visible above water. The survivors were mustered and counted, and it was found that there were about 250 saved; the number that perished will therefore be 420. The Captain and first and third Mates are saved. The second Mate and Surgeon, and his wife and child, were drowned. Only three women and two children were saved. The *Tayleur* was a new ship of 2,200 tons register. She was built at Warrington.

We shall look with anxiety for the Report from the Board of Trade on this wreck. What with such wrecks as this, and such occurrences as the collision of the *Ivenstone*, our merchant skippers are gaining a notoriety which appears to us by no means enviable.

Hartlepool, Jan. 21.—Towed in here, last night, the *Lady Stewart*, Elliot, of Newcastle, with two men on board. She left Shields on the 17th, coal laden, for London, and on the 19th, when about ten miles north of the Humber, was in collision with the *Ivenstone*, Allen, of Lynn. The two men being in the forecastle at the time, *were fastened there by the heel of the bowsprit being driven over the forecastle-hatch*, and when they had extricated themselves, they found that the Captain and rest of the crew had left her; having gone on board the other vessel, which was not then in sight.

New Regulations as to Prize and Salvage Money.

by the queen, a proclamation.

Victoria R.

Whereas by our Order in Council of this day's date, we were graciously pleased to annul, from and after the 31st day of March next, our royal Proclamation of the 30th day of July, 1849, regulating according to the scheme set forth therein or recognised thereby, the distribution of the nett proceeds of prizes captured from the enemy, of captures and seizures under the several Acts of Parliament passed, relating to the revenues of Customs, and to trade and navigation, for the abolition of the slave trade, for the capture and destruction of pirates and piratical vessels, and of the rewards conferred for the same; as also of the awards for all salvage granted to the crews of our ships and vessels of war, when not otherwise specially apportioned by the terms of the respective awards and allowances; and in consequence of several new ratings and denominations and certain alterations having been introduced and made in our royal naval service since the date of our said former proclamation, and for other causes, it is expedient that provision should be made for the future distribution of such nett proceeds and salvage not otherwise specially apportioned, and all other moneys whatsoever granted to be shared among the officers and crews of our ships and vessels in the manner of prize money.

We do, therefore, now make known to all our loving subjects, and to all others whom it may concern, by this our proclamation, by and with the advice and consent of our Privy Council, that our royal will and pleasure is, and we do hereby direct that the distribution of all such nett proceeds of prizes, rewards, allowances, salvage awards, and of all bounties and grants whatsoever distributabfe to our Royal Navy in the manner of prize-money shall be made as follows, viz.:—

That the flag-officer or officers shall have one-twentieth part of the whole nett proceeds arising from prizes captured from the enemy, and from all other captures and seizures, &c., as aforesaid, made by any of the ships or vessels under his or their command, and of the rewards conferred for the same, according to the following conditions and modifications, save and except as hereinafter provided and directed; that is to say:—

When there is but one flag officer he shall have the entire one-twentieth part, when two flag officers shall be sharing together, the chief shall have two-thirds, and the other flag officer shall have the remaining one-third of the one-twentieth part; and when there shall be more than two flag officers, the chief shall have one-half of the said one-twentieth part, and the remaining half shall be equally divided among the junior flag officers. Commodores of the first-class and captains of the fleet to share as flag officers. Provided always, that no flag officer, unless actually on board any of our ships or vessels of war, and at the actual taking, sinking, burning, or otherwise destroying any ship or ships of war, privateer or privateers, belonging to the enemy, shall share in the distribution of any head money or bounty money granted as reward for the taking, sinking, burning, or otherwise destroying any such ship or vessel of the enemy.

That no flag officer, unless actually present at the capture or destruction of any pirates or piratical ship, vessel, or boat, shall share in any distribution of the proceeds or bounty in respect of such pirates, or of the crews of such piratical ship, vessel, or boat.

That no flag officer shall share in any remuneration or reward conferred or awarded to the crew of any of our ships or vessels as salvage, unless he shall have been actually on board the ship or vessel to which the award shall be

made, or have personally aided or assisted in the transaction at the time the service was rendered.

That no flag officer commanding in any port in the United Kingdom shall share in the proceeds captured from the enemy, or in any other captures, seizures, rewards, or any distributive proceeds, as aforesaid, made by any ships or vessels which shall sail from or leave such port by order of the Lord High Admiral, or of our Commissioners for executing the office of Lord High Admiral.

That when ships or vessels under the command of several flag officers belonging to separate stations shall be joint captors, &c., each flag officer shall receive a proportion of the one-twentieth part, according to the number of officers and men present under the command of each such flag officer; and when ships or vessels under orders from the Lord High Admiral, or from our Commissioners for executing the office of Lord High Admiral, are joint captors, &c., with other ships or vessels under a flag or flags, the like regulations as to the appointment of the flag share to the flag officer or officers is to be observed.

And with reference to these regulations it is to be noted that a captain, commander, or other commanding officers of a ship or vessel shall be deemed to be under the command of a flag when he shall actually have received some order from, or be acting in the execution of some order issued by a flag officer, whether he be or be not within the limits of the station of such flag officer; and in the event of his being directed to join a flag officer on any station, he shall be deemed to be under the command of such flag officer from the time when he arrives within the limits of the station, which circumstance is always to be carefully noted in the log-book, and it shall be considered that he continues under the flag officer of such station until he shall have received some order directly from, or be acting in the execution of some order issued by some other flag officer duly authorised, or by the Lord High Admiral, or our Commissioners for executing the office of Lord High Admiral.

And we hereby direct that the captain, commander, lieutenant commanding, master commanding, or any other officer duly commanding any ship, sloop, or vessel of war, singly making a capture or seizure, or otherwise entitled to the distributive benefit arising from any proceeds, reward, grant, bounty, salvage, or other award as aforesaid, that is to say, the officer actually in command at the time, shall have one-eighth of the remainder, or, if there is no flag, one-eighth of the entire nett proceeds, except that if the single capturing ship be a rated ship, having a commander under the captain, the commander shall take a portion of the one-eighth part as if he were commander of a sloop according to the proportion herein-after set forth; and if more than one commanding officer of the same rank of command shall be entitled to share as joint captors, &c., the one-eighth shall be equally divided between them; but when captains, commanders, lieutenants commanding, and masters commanding, respectively, our ships and vessels of war, and commanders under captains, in rated ships shall share together, in whatever variety of combination, the one-eighth shall be so divided into parts for a graduated apportionment as to provide for each captain receiving six parts; each commander of a sloop, or commander under the captain, in a rated ship, three parts; and each lieutenant commanding, or master commanding, or other officer actually commanding a small vessel of war, two parts; which we hereby direct shall be the proportion in which they shall respectively share; commodores of the second class, and field officers of marines, or of land forces serving as marines, doing duty as field officers, above the rank of major, to share as captains, and field officers of marines, or of land forces serving as marines, and doing duty in the rank of major, to share as commanders of sloops. And we further direct that after provision shall thus have been made for the flag share (if any), and for the portion of the commanding

officer or officers, and others, as above specified, the remainder of the nett proceeds shall be distributed in 10 classes, so that each officer, man, and boy, composing the rest of the complement of our ships, sloops, and vessels of war, and actually on board at the time of any such capture, seizure, &c., as aforesaid, and every person present and assisting, shall receive shares or a share, according to his class, as set forth in the following scale:

First Class.—Master of the fleet, inspector of steam machinery afloat, when embarked with a fleet, medical inspector or deputy medical inspector, when embarked with a fleet:—Forty-five shares each.

Second Class.—Senior lieutenant of a rated ship, not bearing a commander under the captain, secretary to the admiral of the fleet, or admiral commanding in chief.—Thirty-five shares each.

Third Class.—Sea lieutenant, master, captain of marines, of marine artillery, or of land forces doing duty as marines, whether having higher brevet rank or no, secretary to an admiral or to a commodore of the first class, not commanding in chief, chief engineer:—Twenty-eight shares each.

Fourth Class.—Lieutenant or quartermaster of marines, lieutenant of marine artillery, lieutenant, quartermaster, or ensign of land forces doing duty as marines, secretary to a commodore of the second class, chaplain, surgeon, paymaster, naval instructor, mate, assistant surgeon, second master, clerk in charge, passed clerk, assistant engineer, gunner, boatswain, carpenter:—Eighteen shares each.

Fifth Class.—Midshipman, master's assistant, pilot, clerk (not passed), master at arms, chief gunner's mate, chief boatswain's mate, chief carpenter's mate, chief captain of the forecastle, admiral's coxswain, chief quartermaster, seamen's schoolmaster, ship's steward, ship's cook:—Ten shares each.

Sixth Class.—Naval cadet, clerk's assistant, captain's coxswain, ship's corporal, quartermaster, gunner's mate, boatswain's mate, carpenter's mate, captain of forecastle, captain of the afterguard, captain of the hold, captain of the main top, captain of the fore top, coxswain of the launch, sailmaker, ropemaker, caulker, leading stoker, blacksmith, serjeant of marines, of marine artillery, or of land forces doing duty as marines:—Nine shares each.

Seventh Class.—Captain of the mast, captain of the mizen top, yeoman of the signals, coxswain of the barge, coxswain of the pinnace, coxswain of the cutter, second captain of the forecastle, second captain of the main top, second captain of the fore top, second captain of the afterguard, sailmaker's mate, caulker's mate, musician, cooper, armourer, corporal of marines or of land forces doing duty as marines, bombardier of marine artillery, head krooman.—Six shares each.

Eighth Class.—Leading seaman, shipwright, second captain of the hold, able seaman, carpenter's crew, sailmaker's crew, cooper's crew, armourer's crew, yeoman of store rooms, steward's assistant, ordinary seaman, blacksmith's mate, private and fifer of marines, or of land forces doing duty as marines, gunner of marine artillery, painter, stoker, coal trimmer, second head krooman, sick berth attendant, bandsman, tailor, butcher:—Three shares each.

Ninth Class.—Cook's mate, ship's steward's boy, admiral's domestic, superintendent's domestic, admiral's steward and cook, captain's steward and cook, ward-room and gun-room steward and cook, subordinate officers' steward and cook, commander's servant, secretary's servant, second class ordinary seaman, assistant stoker, barber, boy of the first class, first and second class krooman, supernumeraries except as hereinafter provided; persons borne merely as passengers and not declining to render assistance on any occasion of capture, seizure, &c.:—Two shares each.

Tenth Class.—Boy below the first class, one share.

All supernumeraries holding ranks in the service above the ranks or ratings specified in the fifth class of this our proclamation, who have been ordered to

do duty in any of our ships and vessels by the Lord High Admiral, by our Commissioners for executing the office of Lord High Admiral, by the senior officer of the fleet or squadron, or, if none senior, then by the captain or commanding officer of the capturing ship or vessel, if not by special authority employed in higher capacities, shall share according to the ranks which they respectively hold in the service, but, in all cases, to qualify them for so sharing, and not merely as supernumeraries in the ninth class, due notation of their being thus respectively ordered to do duty must have been made on the muster-books.

And with respect to the supernumeraries of ratings in the service below the denominations of those specified in the fourth class of this our Proclamation, and who at full victuals are engaged in the ordinary duties of the ship, it is our will and pleasure that they shall always share according to the ratings which they bear in the service.

And, in order that our royal intentions may be duly carried into effect, we further direct that when any capture or seizure is made, or service performed for which a distributable grant or reward is to be, or is expected to be, conconferred or awarded to any of our ships or vessels of war, the captain or commanding officer shall transmit, or cause to be transmitted, as soon as may be, to the Secretary of the Admiralty, a true and perfect list of all the officers, seamen, marines, soldiers, and others who were actually on board on the occasion, accompanied by a separate list containing the names of those belonging to the crew who were absent on duty or otherwise at the time, specifying the cause of such absence; each list to contain the quality of the service of each person, together with the respective descriptions of the men taken from the description book of the ship or vessel, and their several ratings, to be subscribed by the captain or commanding officer, and three or more of the chief officers on board.

And when the list of those actually on board, and the separate list of persons absent, though belonging to the ship or vessel, shall have been verified on examination with the muster-books, &c., lodged as official records, the Accountant-General of our Navy shall, upon request, grant to the agent or agents nominated or appointed by the captors or seizors, &c., a certificate that such lists are correct, or have been corrected, as occasion may require, in order that distribution of the respective prizes or other proceeds payable as prize money may be duly made.

And in the event of difficulty arising with respect to any of the regulations hereby ordered, or if any case should occur not herein provided for, or not sufficiently provided for, we are pleased hereby to authorise the Lord High Admiral, or our Commissioners for executing the office of Lord High Admiral for the time being, to issue such directions thereupon as may appear just and expedient, which directions shall have the same force and effect as if specially provided for in this our royal Proclamation, provided always that the distribution hereinbefore ordered shall take effect only with respect to the proceeds of captures, seizures, and services as aforesaid, which shall be made and performed on and after the first day of April, one thousand eight hundred and fifty-four, and that the proceeds arising from all captures, seizures, and services as aforesaid, made or performed prior to that date, shall be distributed in accordance with any proclamation or proclamations now in force, or in force at the time of such captures, seizures, or services respectively, and applicable thereto, which we are pleased hereby to direct accordingly.

Given at our Court at Windsor, this twenty-ninth day of December, in the year of our Lord one thousand eight hundred and fifty-three, and in the seventeenth year of our reign.

God save the Queen.

The Naval Forces of the Country.

In the present state of affairs abroad it becomes a matter of general interest to the people of this country to ascertain, as far as possible, the condition of the effective naval forces at our disposal; and, from the increased activity which has been visible for some time past in the dockyards, we have no doubt that the Admiralty will be prepared to meet, with the utmost promptitude, all the demands which may be made upon the service. We understand that it is the intention of the government to raise the number of seamen and marines for the current year to 53,500 men, which is an increase of about 8,000 on the number voted for last year, and a further addition to the 5,000 men raised under the orders of Lord Derby's administration. The total increase in the Navy since 1852 may therefore be stated at about 13,000 men. Of the force now to be raised for the service of the fleet, 38,000 will be seamen and boys, and 15,500 marines. The unabated demand for ships and seamen in the Merchant Service, which is attributable to the extraordinary increase of our exports and imports, may render it a work of some difficulty summarily to raise so large an additional force; but, on the other hand, the improved condition of the seaman under the last regulations of the Navy, the chance of prize money, and the call of the country, are additional inducements to volunteer for the service. A large proportion of our seafaring men are always abroad, and probably not more than 20,000 seamen, except those serving in the Navy, are at any one moment in England. Some time must therefore elapse before the demands of the service are known to the class of men whom they most concern; but the manner in which 5,000 additional seamen have been raised in the past year, without any extraordinary stimulus, warrants the belief that the Sailors of England will not be wanting to the flag of their country.

The present moment is remarkable for other reasons in the annals of the Naval Service, since it is destined to witness the transformation of the fleet into a steam navy. No one of the tens of thousands who were present at the naval review at Spithead in August last could doubt the expediency and necessity of the application of steam power to the largest ships. Already on that occasion a considerable squadron of line-of battle ships moved by screw propellers was collected; but this force has since been largely increased, and our readers will peruse with interest a list of the line-of-battle ships and frigates now afloat and moved by this powerful mechanism:—

	Guns		H.p.	
Duke of Wellington	130	..	700	Western Squadron
Royal George.....	120	..	400	Devonport
St. Jean d'Acre	101	..	600	Western Squadron
Agamemnon	90	..	600	Bosphorus
Cæsar	90	..	400	Portsmouth
Cressy.....	80	..	400	Sheerness
James Watt	90	..	600	Not in commission
Majestic	80	..	400	Not in commission
Nile.....	90	..	500	Not in commission
Princess Royal	90	..	400	Portsmouth
Sanspareil	70	..	350	Bosphorus
Ajax	58	..	450	Cork
Blenheim	60	..	450	Guardship (Portsmouth)
Hogue.....	60	..	450	Ditto (Devonport)
Edinburgh	58	..	450	Ditto (Portsmouth)
Arrogant	47	..	350	Western Squadron
Impérieuse	50	..	360	Western Squadron

Amphion	34	..	300	Western Squadron
Horatio	24	..	350	Guardship (Sheerness)
Tribune	30	..	300	Western Squadron
Dauntless	24	..	580	Portsmouth
Highflyer	21	..	250	Mediterranean
Eurya'us	50	..	400	

The above are all screw steam-ships; but to these may be added the following, among the more powerful paddlewheel steamers now afloat:—

	Guns		H.p.	
Terrible	21	..	800	Bosphorus
Sidon	22	..	560	Bosphorus
Odin	16	..	560	Western Squadron
Retribution	28	..	400	Bosphorus
Valorous	16	..	400	Western Squadron
Furious	16	..	400	Bosphorus
Leopard	18	..	560	Portsmouth
Magicienne	16	..	400	Devonport
Penelope	16	..	650	West Coast of Africa

We omit vessels of an inferior class, and those we have named all deserve to be ranked as powerful frigates. In addition to these lists the following screw steam-ships are building, and will probably be afloat in a few months:—

	Guns.		Horse Power.
Royal Albert	120	..	400
Marlborough	120	..	
Conqueror	100	..	
Orion	90	..	600
Repulse	90	..	600
Hannibal	90	..	450
Algiers	90	..	450
Exmouth	90	..	400
Hero	90	..	
Forte	50	..	
Chesapeake	50	..	
Curaçoa	30	..	350
San Fiorenzo	50	..	

It appears from these returns that, setting aside the whole sailing fleet of England, we have at present afloat eleven steam line-of-battle ships, soon to be increased to twenty, five guardships with auxiliary steam power, and seven frigates fitted with screw propellers, which may be considered (with one or two exceptions) the finest vessels ever launched of their class.

Of the screw line-of-battle ships, only two (the *Sanspareil* and the *Agamemnon*) are in the Turkish waters, and the former of these two vessels does not, we fear, altogether answer to her name. The greater number of those already in commission belong to Admiral Corry's division, which is termed by the Admiralty the Western Squadron, though it may be considered to be on an experimental cruise; and three are still waiting for commission. So that independent of the British squadron now in the Bosphorus, that portion of the fleet which is not in the Mediterranean consists of an equal number of newer and more powerful ships than those under the command of Admiral Dundas. This result is already creditable to the Admiralty, and it has been accomplished within the last few months on what is still a peace establishment.

Among those politicians who distinguished themselves at an early period of the dispute now pending in the East by loudly recommending a prompt appeal to arms, there may be some who may perceive with satisfaction that we are far

better prepared to meet such an emergency at the present time than we were last spring. At that time the Baltic was open, our naval resources were not collected, and our coasts were comparatively undefended. We have now had time to prepare against the danger. Our armaments, indeed, are still of a very limited character, and cannot be compared to the stupendous exertions of the Emperor of Russia, who has set the whole army of his empire in motion, has 40 line-of-battle ships in commission, has raised four millions and a half o money from the church, and commenced operations on a scale worthy of the campaign of Moscow. But no one will complain that Great Britain has been less violent and precipitate in her demonstrations of hostility, partly from her reluctance to surrender the last hopes of peace, and partly from a just confidence in that power which has never yet failed her. The Admiralty has constructed a fleet of magnificent ships, armed with all that modern science has done for navigation. We trust that young, able, and energetic officers will be selected to command them; and we venture to affirm that, with good ships, good officers, and good treatment, the blue jackets will not fail to do their part in their country's battles.—*Times.*

Russia in the Black Sea.

The *Cologne Gazette* of the 30th ult contains the following details relative to the positions of Russia on the eastern coast of the Black Sea :—

"Anapa is the most northern point on the eastern coast of the Black Sea. It is a celebrated fortress, which the Turks originally constructed to protect their commerce with the tribes of the Caucasus. Since then the Russians have made it their most important military position in Circassia. The harbour is open to every wind, and cannot be turned to any useful account except in the fine season. At Anapa, where the western chain of the Caucasus commences, is situated the real limit of the Russian empire, as it is to the bastions of that fortress that extends the coast, so dreaded, of the Circassians. In spite of their utmost efforts, the Russians have only succeeded in establishing isolated forts, the garrisons of which cannot stir out without running the risk of being cut off. This coast extends from Anapa to Gagi, a distance of 300 kilometres (187 English miles). Between these two places the traveller passes over a rocky coast, crossed by valleys, and crowned with verdant hills, and forming a singular contrast with the masses of white chalk which serve as their base. Those hills are covered with a rich vegetation, and impenetrable forests, amongst which are dispersed the cabins and straggling villages of the Circassians. The first port on the coast is Sudjouk-Kalé, which the Russians have defended by three redoubts. In this port the Russian squadron captured the *Vixen*, an event which produced so great a sensation in 1837. Some way further down is the bay of Juelendjik, the finest and safest on the coast, and the most important station of the Russian flotilla appointed to watch the movements of the Circassians. Farther on is the bay of Pchiat, at the entrance of which the Russians have had a fort since 1837. Along the coast, inhabited by the formidable tribes of the Chapsuks, are the little bays of Nonlan, Djonhoulon, Kodos, Subachi, Naidau, and Mamai. This part of Circassia, which is marked by rich cultivation and numerous villages, opposes the most determined resistance to the Russian rule. Beyond Mamai the western coast of the Caucasus assumes a more imposing character, the rivers being larger, and the general aspect of the hills more rugged and mure lofty. First of all is seen the fine valley of Sutchali, then the fort of Navokinskoi, Cape Lenghi, (called the Cape of Hercules by the ancients,) and the bays of Kamomichelaz and of Kinschuli.

Next, the sombre fortress of Gagi, commanding the entrance into Circassia on the side of Abasia, behind which rise the precipitous rocks which constitute the most elevated points of the Caucasus.

"In quitting the defiles of Gagi, the high mountains of Abasia are met with. The princes of Abasia have been forced to admit the sovereignty of the Czar. Pozunda, famous for its church, which is said to have been founded by the Emperor Justinian, is the first important point of Abasia; then come Bomborai, a fort the garrison of which is decimated by sickness; next Guelendjik, one of the best bays on the coast, where the Russians have a fort, built in 1575 by the Sultan Amurath; and, lastly, Iskuriez, where the learned imagine was founded the celebrated Greek colony of Diescuria, known in the time of the Romans by the name of Sebastopolis, about 25 kilom. (15½ English miles) below Cape Iskarius. The river Galazkha forms the limit between Abasia and the principal point of Jamurzakhaz, extending to the banks of the Ingur, at the mouth of which is the fort of Inaklia. On the left bank of this river commence the alluvial plains of Mingrelia, which join at a distance of 150 kilom. (93¼ English miles) the interior plains of Imeretta and Gouriel. The mountains of the Caucasus on the north, and those of Achalzik on the south, surround this magnificent basin, watered by the rivers Khopi and Rion (Phasis). Redout-Kalé and Poti situated at the month of these two rivers, form the principal points of landing. But it is only Turkish chaloups and small vessels that can enter, on account of the sandbanks which exist there. Large vessels are forced to anchor at 600 metres distance from the coast. Since the suppression of the transit and free trade in 1832, Redout-Kalé and Poti have lost all commercial importance, and all prospects of a happy future. It would seem as if the Russian government intends to abandon these towns to their sad fate. They are surrounded by marshy plains, from which exhale fetid miasmata. At twenty kilom. (eight and a half English miles) above the Phasis, the little river Nassa-Nelea (the Lesis of Arrian) separates the Russian territory from that of Turkey. In proportion as Fort Nicholas, which is the last military station of Russia in the Gouriol, and which the Turks have lately seized on, is departed from, the low grounds which surround Mingrelia disappear insensibly. The Achalzik mountains approach the sea; and at Batoum enormous masses of rocks rise above the coast. From Witzeh the shore falls from the east to the west as it bends to the south. At the western extremity of this curve rises Cape Joros. In the middle is situated Trebizond, become since the commercial blockade of Russia one of the most important places in the Black Sea, being the great *entrepot* of all the articles of importation and exportation from Northern Persia, and Turkey in Asia. England has seized on the trade of Trebizond, which amounts to fifty millions of francs, and which is carried on with Constantinople by a regular line of steamers. Trebizond sends into every part of Asia the products of British industry; so that England has the greatest interest that this place should not fall into the power of the Russians. But, abstraction made of that consideration, the situation of Russia—in appearance so powerful—is exceedingly critical on the eastern shore of the Black Sea. She possesses there only detached forts, and the Turks have taken one of them—that of Saint Nicholas—which the Russians, notwithstanding all their efforts, have not as yet been able to retake."

NAUTICAL NOTICES.

ARDASIER ROCK: *China Sea.*

Extract from the Journal of the English barque *Birman*.—"June 18th at 3.30 a.m., felt the ship graze, and before anything could be done she was hard

and fast, with 3 fathoms alongside and two under her bows. Got our stream anchor out astern, which had to be done twice before we could get her properly clear. Before bearing away I sent the mate to sound, when he found only one narrow outlet to the S.E., being regularly enclosed as in a basin, our anchor being down in 30 fathoms water, and from 3 to 5 fathoms forming the ridge. Had an observation before starting, which agreed perfectly with the previous evening's observation, when we first sighted the shoal, being 7° 37′ N., and 113° 58′ E. P.M. kept her by the wind with it at S.W., which towards 4 p.m. shifted to the westward, and shortly afterwards sighted the Swallow Island and Rocks, being S.W. distant eight miles. We were in sight of the Swallow Rocks all next day."

(This rock seems to occupy the position of the Southern Ardasier, in the chart of the China Sea.)

Winchester Rock: *China Sea.*

Notice.—Of a Rock on which H.M.S. *Winchester* struck at 4 p.m. on the 25th of July, 1853, not laid down on the charts; examined subsequently by H.M. Surveying Sloop *Royalist*. The following *true* bearings place you on it.

N.W. highest part of Pulo Tigo. N. 84° E.
Nosong Point, S. 73° 30′ E., distant fifteen miles.
Mount Nosong, S. 68° 30′ E.
Highest part of Labuan, S. 18° 40′ W.

The above bearings when laid down on the Admiralty Chart by Lieut. D. M. Gordon, place the rock in lat. 5° 41′ 50″ N., long. 115° 17′ 25″ E. It is a narrow ridge of Sandstone about 40 feet in length with 17 feet at low water spring tides over it, and is surrounded by a bank of sand and coral from two to three cables in extent, having an average depth of 5 fathoms, with 10 and 12 fathoms immediately off it.

Wm. Thornton Batt, Commander.

Phœbe Island: *Pacific.*

[Mr. Foster has communicated the following information to the Admiralty, and it is highly satisfactory as accounting for the state of uncertainty in which it has always been. Thus Krusenstern places it among his doubtful islands and omits it from his chart, and others do likewise on his authority. We hope the writer, when he returns from his West India voyage, will pay a visit to the Hydrographic Office.—Ed.]

I, Henry Foster, Chief Mate of the barque *Jamaica*, do certify that I have cruised for several months together, in the years 1842-4, among the islands known as the Kingsmill Group, situate in about long. 175° E., and lat. 1° 30′ to 2° 30′ S., and, during that time, had opportunities of correcting the places of several of the islands of that group; and do also state that the island called Phœbe Island, which is laid down in long. 176° E. and lat. 0° 12′ N., is not in east longitude at all, but lies in 176° W., for in the vessel to which I then belonged (the barque *Sussex*, of London, whaler, Captain George Hammer,) we shaped our course from Byron Islands some twenty or more different times and always failed in our attempts to discover the island which would be impossible if the island was laid down correctly on the charts. But in 1843, running from the Marquesas Island for the Kingsmills, we got into the parallel of lat. 12′ N., in long. 170° W., and steered west, true, and made the island 176° W., or between that and 177°, instead of east longitude, which is an error of nearly 400 miles of longitude, equal to nautical miles nearly, being so near the equator.

I have no doubt but that this statement would have been made before had not both Captain and Chief Mate died shortly after our return to England; I was then an apprentice. But having lately seen a chart with Phœbe Island laid down in east longitude, (which I am positive is not correct,) I thought it my duty, for the good of the public and shipping in general, to make the above statement known.

HENRY FOSTER.

THE PORT OF FOLKESTONE.—It having been found that, in consequence of the continued increase of the business at this port since the regular intercourse with the opposite port of France for the importation of merchandise of all descriptions, including all kinds of silks and fancy goods, wines, &c., the Customs establishment required an increase in the number of officers for the conduct of the revenue business, arrangements have been made for establishing an additional officer at that place for the general purposes of the Customs there. Since the permission was granted by the government authorities for the importation of silks, &c., from the Continent, and also wines in cases into Folkestone, that port has become an important branch of the import business of the country with France and elsewhere.

NEW CHARTS.

Published by the Hydrographic Office, Admiralty, and Sold by J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

BALTIC, Revel Road, Russian Survey, 1846	-	-	1	6
,, Aland Isles, Swedish Survey, 1807	-	-	2	6
,, Entrances to the Belts, Danish Survey	-	-	1	6
GREENLAND, Holstenborg, Captain Inglefield, R.N., 1853	-	-	1	6
BLACK SEA, Achmechet Harbour, Russian Survey	-	-	0	6
,, Balaklava Port	-	-	0	6
,, Rhoda Channel and Anchorage, Capt. Spratt, R.N., 1853			0	6
AUSTRALIA, South Coast, sheet 3, corrected 1853	-	-	3	0
,, Directory, 4th edition, 1853	-	-	2	0
British Lights, corrected to February, 1854	-	-	1	0
French and Spanish Lights, ditto	-	-	0	6
Belgium, Danish, and Kattegat Lights, ditto	-	-	1	0
East India Lights, corrected to November, 1853	-	-	0	3

EDWARD DUNSTERVILLE, Master, R.N.

Hydrographic Office, Admiralty, January 24th, 1854.

TO CORRESPONDENTS.

Will Commander King send us a more complete sketch to illustrate his meaning about crutches for boats?

We have received Mr. Harvey's paper and shall find a place for it in an early number.

Captain Swinburne's letter on Saxby's patent is unavoidably reserved.

We shall adopt Mr Tim's proposals as the discussion cannot but prove useful.

The important letter of P.B., just received, shall appear in our next.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

MARCH, 1854.

A Glance at Vancouver and Queen Charlotte Islands.—*By the Officers of H.M.S. "Virago"—in the Summer of* 1853.

We left Esquimalt Harbour at 6 a.m. on the morning of the 28th April, with Mr. C. E. Stuart of the Hudson's Bay Company on board, steering for the Rosario or Vancouver Strait; this passage being the nearest to "the middle of the channel which separates the continent from Vancouver Island,"* some doubts having arisen as to the line of boundary between the territories of her Britannic Majesty and those of the United States. The Company's vessels, since the discovery of coal at Nanaimo, have generally taken that through the Haro Straits, thereby saving about thirty miles. We were hardly clear of Esquimalt Harbour when thick weather set in with a S.E. wind; but after rounding Point Colvile, the S.E. end of Lopez Island, distant about thirty miles, it cleared up, and we entered the strait, five miles in breadth; Fidalgo Isle forming the eastern shore, Lopez Island the western, Cypress Island ahead. There we met a strong tide against us; and it was 2 p.m. before we were abreast of the north end of Guemes, which forms a clear channel with Cypress Island, both high and well-wooded; the shores bold on both sides, approaching in some places to within half a mile of each other. This passage is preferred to that taken by Vancouver, the tides having less strength and more regularity, besides possessing many more anchorages. Leaving Sinclair Island on our left hand, a large and extensive bay opened, with

* Treaty.

so many channels leading to it, and so many rocky islets surrounding its entrance not laid down in the chart, it was deemed most prudent to seek an anchorage for the night in the Gulf of Georgia, which we found at 4.30, near the north end of M'Loughlin Island, in 7 fathoms, off the entrance of a river on the main land, distant about three miles. Canoes with Indians, men, women, and children, came off to barter a few fish; appearing very friendly, but in a sad savage state.

The Indians reporting coal to be found in large quantities in a bay which was considered to be Bellingham, at daylight the following morning the commander, accompanied by Mr. Bain, the chief engineer, Mr. M'Cay of the H.B. Company's service in charge of Nanaimo, and an Indian guide, proceeded to inspect it; passing through the channel formed by M'Loughlin's Island and the main, which, judging by our soundings, may be used as a ship channel. Following this about eight miles, we came to a deep and well-sheltered bay, stretching from north to south about twelve miles, and in an easterly direction about eight miles. Its shores are less elevated than Vancouver Island, with many green spots and sloping lawns.

Entering this splendid bay close to its northern point, which forms a remarkable green bank about 100 feet high, and richly covered with wild flowers, we espied several log huts; and steering for one pointed out by the Indian as the spot where we should find the coal, another eight miles' pull brought us to the eastern shore, where three Americans are located on their respective claims, and employed digging the surface coal, found in large quantities below high water mark. They allowed us to examine the coal, and freely gave us two bags as samples. The *Virago* would have anchored in the bay and we would have purchased some hundred tons of coal from them, but they declined selling, being at present in treaty with a company forming at San Francisco. The discoverer of the coal is well known to the H.B. Company as the owner of a small coasting vessel trading with the Indians for fish, &c., and appears to possess the usual energy and go-ahead principles of such men.

At the head of the bay is a fine stream of water, where a saw-mill is in course of construction: and several families have already arrived as settlers. The liberal terms on which land is granted to any description of settler by the American Government in either the Washington or Oregon territory, the one north of the Columbia, the other south of it, must always interfere with the successful colonization of Vancouver Island, only thirty miles distant. In the one case a square mile is given, and a title secured at the end of that period on condition that it has been occupied by residence for four years, and registered by its owner according to law. In the other one pound an acre is charged, including rock, &c.!

The anchorage, unlike that laid down in the chart, is as secure as any other; besides the splendid bay, there is an inner harbour close to the coal.

Leaving M'Loughlin anchorage the next morning, 30th, we ran along the Islands Lucia, Patos, and Saturna, forming the western line

of coast of the Gulf of Georgia, which here appeared about nine miles broad, and continued following it, sounding occasionally, until abreast of the Cawitchin Passage, well known to Captain Stuart and other Masters of the H.B. Company's service. This we entered for the purpose of securing an anchorage known as the Salt Springs, with the view of examining the islands and channels between Saturna Isle and Nanaimo, and to explore the coasts, harbours, tides, &c. To do this effectually it was necessary to secure an anchorage for the *Virago* while the boats were employed prosecuting a survey. On returning into the gulf we grounded on a ledge of sunken rocks, but succeeded in getting off again, and early on the 1st May we ran into Nanaimo Harbour, and moored close off the coal pit, in a commodious creek called Commercial Inlet, not more than fifty yards from the shore. Here we took in 200 tons, and on the morning of the 7th we steamed again into the Georgian Gulf towards Sangster and Faveda Islands, both famous for deer, the truth of which was soon realized by a canoe coming off to us with twelve on board, some weighing 90 lbs., and four of which we purchased for a blanket value 6s. 6d.

The latter island is nearly thirty miles in length, very high, producing the best wood for steamers, and easily procured at two safe harbours, near Points Upwood and Marshall. Vancouver passed between Faveda and the main; but as our course lay towards Point Mudge, we passed to the westward of it, as well as Sangster Isle, the latter erroneously laid down in the chart. Off Hanwood and Savary Isles a number of rocks are visible above water, and require a berth of at least three miles.

At 5 we reached Point Mudge, where we were apparently surrounded by land, lofty snow-capped mountains everywhere visible, until we discovered the channel, about a mile wide, lying in a N.N.W. direction, through which we passed, keeping over on the western shore, as off Point Mudge a ledge of rocks extend half a mile. Vancouver notes this place as that of the meeting of the two tides, the flood tide coming from the northward; and this agrees with the experience of more modern navigators. As we entered the passage several canoes, filled with men, women, and children, pulled out into the stream, which was carrying us along at a rapid rate. Some of these canoes contained as many as thirty of the wildest and most savage-looking beings we had yet seen. They kept shouting to us to anchor near their village, which was inside Point Mudge about two miles, at the same time making signs that the tide was too strong for us to enter the rapids. But continuing our course up Discovery Passage, we anchored for the night in Duncan Bay, on the western shore, in 13 fathoms, the rapids distant about four miles.

On examining the passage in a boat with a view to ascertain the state of the tide, the rapid and instantaneous rush of the waters out of Mengies Bay to the northward, gave us ample proof of the dangers of this navigation. It must have been slack water on our first arrival, as the boat was stationary; and in less time than we took in winding the boat, we were carried by the sudden set of the waters to the north

at the rate of ten miles an hour! The sea, which only a few minutes before had shown a glassy smoothness of surface, was now boiling up in the middle of the channel, and forming most dangerous whirlpools and eddies on either side of precipitous rocks, off which there is said to be no bottom at 50 fathoms. For some short interval, so unexpectedly did this occur, that we were in some danger; but providentially we succeeded in sheering alongside the rocks, the offset from which, slight as it was, just keeping us from being dashed against the rugged wall which limited the channel as we were carried along. Had we come in contact with it, destruction awaited us. Escaping from this dangerous passage we contrived to track the boat round the southern point into Mengies Bay, where rapids are formed, and here found an eddy tide.

The next morning in the vessel, from our knowledge of the tides, we passed through this passage without any trouble. The scenery on either side was magnificent. Precipitous mountains, well-wooded, some 1,000 feet high, and covered with snow, on both sides bounded our view, while a sea of rapids extended on either hand about two miles to the shores. A run of an hour and a half brought us to Point Chatham, on which the H.B.C. steamer *Beaver* grounded. A constant and careful look out is required, with steady men at the wheel, in passing this point; the passage being so narrow and tides so rapid and variable, that one unhappy sheer would run a vessel on shore. Between Chatham Point and the opposite shore of Thurlow Isle, the passage is about a mile wide; and here three channels flow together, two in their respective directions to the westward and south-eastward to the ocean, the other up Bates Canal. Following the western channel, formed by Thurlow Isle on the right and Vancouver Island on the left, for nearly twenty miles, we opened the channel between the former and Hardwicke Island; a small island in the middle of it occasions violent and irregular streams of tide, and forms many dangerous eddies. After passing these islands, still keeping about mid-channel, a run of twenty miles brought us into more open water; the shore on our right formed by many islands and rocky islets, totally different from the charts. As we came abreast of Beaver Cove (apparently a snug anchorage though a narrow entrance) five canoes, filled with Millbank Indians bound to Fort Victoria, came alongside. The voyage before them was 500 miles, their track besides lying through many tribes of Indians at war with them; a good sample of the daring of these Indians, their love of wandering, and certainly also the general safety of the navigation. We stopped a few minutes to allow the chief of these people to come aboard, although there was nothing attractive about him. It was at least friendly, and on leaving us they floated down the channel with the tide, on the smooth unruffled sea, enclosed with precipitous snowy mountains, which added not a little to the beauty of the scene. All were well-armed, and each had some article of European dress sufficient to cover the person.

At 4 p.m. we were abreast of M'Neil Harbour, formed by a long well-wooded peninsula, between this and Beaver Harbour, where nearly 3,000

tons of coals (surface) have been collected by the natives. The navigation about here was the only intricate part of our day's run, caused by the shallows some distance off the entrance of the Minipkish River, and the wrong position of the islands on the chart. That called Cormorant Island affords safe anchorage, and shows the finest trees on the coast. As we approached the more open navigation, we met with a strong head wind, and it was past six before we anchored in Beaver Harbour off Fort Rupert, having completed a run of nearly a hundred miles. We remained here two days for the purpose of giving the ship's company a run on shore, as there was a fine and extensive beach, and although as many as five hundred Indians were living in their huts under the guns of the fort, our men were treated by them in the most friendly manner, nor was a single complaint of them heard. There is still nearly 1,000 tons of coal belonging to the company on the beach exposed to the various changes of climate, &c.; but as their charge is 25s. per ton, we embarked only ten tons on trial, to enable our engineer to report on the difference between it and the Nanaimo coal.

Fort Rupert is in charge of Mr. Blenkinsopp, who has with him twenty English labourers, who are generally employed building houses, &c. Its systematic arrangement and its general cleanliness, together with a well-stocked vegetable garden, do credit to the exertions of all parties. The latter appears to bid fair to repay the labour expended on it, as nearly all English vegetables, with some fruits, are thriving well.

Leaving Fort Rupert on the morning of the 11th, we proceeded to sea through the Newitty Channel, formed by the islands of Galiano and Valdez on the north side, and Vancouver Island on the south. The length of this channel is nearly thirty miles, and in many places not more than a mile and a half broad, apparently steep on both sides, and possessing a harbour of refuge on either side,—Shucartie on the southern shore, Bull Harbour on the northern; the latter we were told is narrow at its entrance and difficult of access for a sailing ship. To cross the bar it is advisable to keep the northern shore on board about one third of the distance. Our soundings were not less than nine fathoms; though calm, the long rolling ocean swell warned us of the heavy sea which must sometimes be found there. An opportunity offered to exercise our guns at a target here; and although our firing was very fair, the Indians seemed disappointed. Indeed, they are so quick in drawing conclusions, that if they see a gun fired and no execution done, they exclaim at once,—"Their rifle is of much more service."

Shaping a course for Cape St. James, the southern point of Queen Charlotte Isle, we made the land at about 7 a.m. of the 12th, with strong winds from the N.W. Mitchell Harbour, on the western side, being now too far distant to reach before dark, we bore up for the east side of the island, known as Dixon Channel, in search of an anchorage. Passing Cape St. James within three miles, we obtained soundings in 90 fathoms. The land appeared to consist of a number of rocky islets

as we steamed along the shore; the weather being thick and hazy; and at 3.30, with the assistance of our boats ahead and a vigilant look out, anchored in a snug spot, which received the name of Houston Stewart Channel, after the late Commander of the *Virago*. A plan of this place made by Mr. Inskip, Acting Master, and Messrs. Gordon and Knox, Mates, with those of several others that we visited, does much credit to those gentlemen. On further examination we found this channel led to a fine capacious harbour about three miles distant, leading away to the northward, the channel continuing to the western side of the island, and forming a ship passage to sea through the group known as Queen Charlotte Islands. Here we remained till the 13th, surveying, wooding, and fishing, visited by a few of the natives, from whom we learnt that they belonged to a large village not many miles distant, where plenty of skins would be found. We ascended a fine stream of water nearly two miles, and either side of it being bordered with thick woods, through which there appeared to be some flat land to the south, but to the north the character of the country was mountainous.

The next morning we took an early departure, with a calm and cloudless sky over us; but before noon a strong wind commenced from S.E., which always brings thick weather and generally rain.

Here all confidence in our chart was at an end, as indeed might have been observed when we were off the Cawitchin Entrance, consequently the compass courses could not be relied on. Keeping our course along the land within three miles of it, so as to insure our position, as we advanced north the mountain peaks rose gradually higher, and the whole group of Queen Charlotte Islands appeared much cut up by deep openings and inlets, probably affording good harbours. But it was too thick to venture nearer on this unknown coast.

At noon we distinguished Cumshewas Harbour, with the assistance of our Indian pilot; but his hydrographical knowledge pointed out a long low spit, running off its southern entrance, over which the sea broke high; and we stood on for Skidegates, which some of the old N.W. captains at the Sandwich Islands told us was the best harbour on the coast: continuing N.W.b.W. about twenty miles, along a more low and level line of coast, we came abreast of a low sandy point, off which we struck soundings in seven fathoms, though full three miles distant, and hauling off we stood over towards the northern shore, which is higher, and kept within half a mile of the beach until we made out the village islands, and a remarkably round island, (soundings varying from 11 to 7 fathoms,) which must be kept open, then a south course for six or seven miles after passing the spit took us up to these islands, which are bold on either side. We passed between them and the beach, on which, in a little bay, is a village; steering mid-channel, and following the land round two small points, we opened out a considerable and capacious bay, and anchored in 13 fathoms about half a mile from the shore, completely land-locked, in what might truly be called the Bay of Islands.

A number of canoes soon followed us, the Indians forming an en-

campment ahead of the ship, that kept increasing during our stay. Indeed so great was their astonishment and curiosity, that they preferred remaining for hours alongside of us in their canoes, anxiously watching our proceedings, instead of following their regular pursuit of fishing and getting wood. Halibut of 100 lbs. weight are taken by them in great abundance with lines, and which they were ready to barter. Notwithstanding the caution and watchfulness of our boat keepers, these Indians contrived to steal a brass crutch from the captain's gig. Adopting the principle of Captain Cook as the proper way of dealing with these Indians, summary measures were determined on. The chiefs then on board, the only persons admitted, were sent for, and told they would be taken out to sea unless the stolen property was returned. A short consultation followed this announcement, when one of their number was despatched by them to go on shore in search of it. As he paddled away, we heard him in loud conversation with his countrymen on the shore; and before he landed, the missing crutch was deposited on the rocks, and he returned on board with it in less than a quarter of an hour. The good effects of this measure were evident. During our stay, though more than two hundred were afterwards admitted on board to show us a native dance, not a single article was missing, and according to agreement when the ensign was hauled down, they immediately began to leave the ship.

On the following day, the 16th, we were employed in completing our fuel and water, and under the guidance of an intelligent Indian, Bearskin by name, a party went in search of coal, specimens of which had already been brought alongside by the Indians. We soon came to a small stream of fresh water, which we followed up for nearly a mile and a half, through a tortuous channel, greatly impeded by fallen trees, to a landing place, from whence we commenced the ascent up a steep mountain for nearly 500 feet, through an almost impenetrable forest, save the Indian track, which none but an Indian could have followed. We fell in with apparently the same stream again, and on its left bank a heavy fall of land had laid bare large quantities of coal. Owing to its position the examination was anything but satisfactory; it appeared to dip in a N.W. direction at an angle of 30°, but the thickness of the seam could not be ascertained. However, we preserved some specimens, which from its appearance is as good coal as any we have seen in these parts, and should it crop out near the beach, such is the character of this inland sea, that a secure anchorage for its ready embarkation is almost certain. Having ascertained that the channel we were in opened out a passage to sea to the westward, thus establishing one island between this and the land forming the northern side of the Houston Stewart Passage; it was distinguished by the name of Moresby Island, in honour of the Commander in Chief of this station.

On the 18th we left Skydegates, hoping to reach Fort Simpson, the northernmost inhabited position of H.M. dominions on the N.W. coast, the same evening; but the S.E. gale still followed us, though our glass showed fine weather; and before noon we were enveloped in thick mist. The channel between Queen Charlotte Isle and the continent, known

by the name of Dixon Channel, one of the early navigators before Vancouver, has soundings all over it, varying from 50 to 20 fathoms. Its chief danger is our imperfect knowledge of its shores. A low spit lies off the N.E. point, called Rose Spit, formed of three miles of sand just awash with the surface, and off its northern end no bottom. Steering for Dundas Islands N. ½ E. sixty miles, the bearing and distance given which we had run by 3 p.m., we hauled off and watching the lead, struck soundings in 16 fathoms sand, on which we immediately anchored; and though blowing fresh from the S.E., we were tide rode to the eastward. Here we lay snug till the day broke, when we discovered ourselves about nine miles from the entrance of Brown Passage, which being imperfectly known was not followed, although Vancouver sailed through it. Passing along Dundas Island, which is in fact three separate islands, and rounding Isle de Zayas, a small island with rocks extending off at least three miles, we steamed in for Cape Fox, off which are several islands, leaving Cape Northumberland on our left, a most remarkable high land, making like an island, which once seen cannot be mistaken. South of it, as far as six miles, are rocky islets, but all above water. The land over Point Maskelyn close to Fort Simpson is very high, the rugged sides of the mountains being covered with snow. Some of the peaks are remarkable: one, immediately over the fort, known by the name of Waverley Peak, is a good land mark. Soon after noon we anchored in Port M'Loughlin, in 12 fathoms, a short quarter of a mile from the beach, having run about fifty miles. This is a snug anchorage when made, but difficult of access for sailing ships, the passage being narrow, and should only be attempted with a fair wind. Burines Island and the reef uncovered at low water perfectly shelter it.

Fort Simpson is like the rest of the H.B.C. forts. It was formed in 1831, and is now being rebuilt by Captain M'Neil, the present chief factor. It is a strange sight to behold at least 1,500 Indians, of various tribes, assembled round this building and held in check by the few white men, only twenty in number, who inhabit it. The Chymoyans tribe, who occupy the neighbouring country, number 1,000 fighting men; and Fort Simpson is considered by the Indians as London is to our traders, a place at which they all meet for the general exchange of goods, besides trading with the company.

A small fish, called the Ullachan, is caught by them in great abundance in the rivers up the Portland and other canals, from which they make a great quantity of oil; and this forms one of the principal articles of commerce. Sir George Simpson states that 14,000 Indians of various tribes resort here during the year. At the time of our visit there were about 1,500.

On the 20th our crew were employed with a party of Indians in completing our fuel, and the opportunity was taken of gaining all the information relative to the seizure of the *Susan Sturgess* by the Masset tribe, between twenty and thirty of which people were now present, but their chief was absent at Sitka. We had succeeded in finding Edensaw, the chief of the adjoining tribe, who was a passenger, with

his wife and son, at the time of the destruction of that vessel, and procured his services as pilot for the N.W. coast of Queen Charlotte Isle. The result of the inquiry, into this act of destruction of property, providentially not of life, will appear hereafter.

We were glad to avail ourselves on all occasions of the use of the seine, as fresh meat can no where be procured, and not a deer had been brought alongside for barter, with the single exception of those off Favida. It is worthy of remark that at this the most northern part of the coast we visited, and also the nearest to the snowy mountains, we found the heat greater than to the southward, the thermometer in the shade at 2 p.m. rising to 64°; in fact this proved to be the only real fine day we met with on our cruize after leaving Nanaimo.

Leaving Fort Simpson on the 21st, we passed the N.W. end of the Isle de Lacas, within five miles, and steered S.S.W. to give Rose Spit a good berth, distant about thirty-nine miles. Again we met with strong S.E. winds, with thick hazy weather, which continued till 2 p.m., when it cleared a little, and through the haze we saw a remarkable round hill, looking like an island, known by the name of Macroon Hill, and soon after the line of coast forming the northern shore of Queen Charlotte Isle from Point Rose. The opening into Marset Harbour became very conspicuous as we neared the coast; but from the drawing of the two Indian pilots, the entrance of it being described as narrow, and a very strong tide running, it was not considered prudent to venture in, and we stood on for another anchorage about ten miles further west, where we came to at 7 p.m. in 7½ fathoms. It proved a most capacious and deep bay, with most regular soundings, and stated by our pilots to be near another very large harbour, the entrance of which was about three miles distant. At the head of this sound we could clearly distinguish the opening, but the examination of it was deferred to the next morning, and a secure anchorage found within ten miles of a village of the Market tribe. The weather being thick and overcast with a low barometer, we did not start till late on the following morning, when it cleared a little with every appearance of a change; but this did not continue long, and we were glad to find shelter in another beautiful cove in this north island, where no wind or sea could touch us, and in which we anchored at 1 p.m. on the same day, in 30 fathoms, and employed the remainder of the day in exploring and completing fuel.

Edensan village is at present here, or rather on the northern shore of Queen Charlotte Island, which forms a channel of a mile wide with North Island, leading out to sea; but he is about to remove to the harbour we had just left, which was named by us Virago Sound. He reports that inside the inner harbour is a fresh water river, which takes them one sun or a day to follow up in a canoe, where it opens out into an extensive fresh water lake; in this river salmon are to be caught all the year round, and plenty of halibut in the sound. This village was situated on level ground, with many acres of clear land round it, in which potatoes were planted. The exterior of the

houses of this Indian tribe is commonly ornamented with carving of different animals, and figures of men apparently very old; and the interior contains an excavated space, similar to a large cask, nearly the size of the building, eight feet deep, in which they live, answering the double purpose of additional warmth and protection from their enemies.

The next morning we proceeded to the westward through the channel which is named Parry Passage, after Sir E. Parry. North Island appears to contain flat land, capable of cultivation, and from Indian report has two good harbours on its eastern shore. Shaping a course for Point Frederick we ran about twenty miles to the southward, passing Hippa Island, which is very high and steep, at noon, and steamed for Cape Henry, forming the southern entrance of Mitchell Harbour. To the northward of Hippa Isle the coast is rugged and very rocky. The Indians say no harbours are there; but to the southward of the above island the mountains rise higher, become more broken, and several deep sounds and harbours are passed, which time would not permit us to examine. We entered Gold Harbour, to the north of Kuper Island, by an unknown passage, about nine miles in length, which we have called Inskip Channel, after the Acting Master of the *Virago*. The ground is high and precipitous on both sides, rising even to 1,000 feet almost vertically from the sea, but well clothed with trees. We passed two inlets, which are navigable three or four miles to their extreme, and at 8.30 we anchored in 14½ fathoms in Thetis Cove, in time to fire the first royal salute ever fired in these distant regions in honour of H.M. birthday, and three hearty cheers given by the ship's company were re-echoed a thousand times along the mountains and through the deep ravines which surrounded us. We could not discover the trace of any vessels, nor was even an Indian to be seen! All was solitary grandeur in this most desolate spot we had just visited; its very appearance would drive away civilized beings.

The next morning we visited the vein of quartz and five other places where attempts had been made to discover gold, and we left a notice clearly painted on a board* under the charge of the chiefs, who by this time had begun to assemble, taking care to preserve a copy of it in our log. On our return to the ship, several canoes were alongside, and before the evening we had twenty, but only two pieces of gold were offered for sale among the whole of them, one about a quarter of an ounce in weight, the other half of that, for which the Indians asked such a price that no purchase was made. Several of the officers made some experiments at the diggings, working very hard for some hours,

* NOTICE.—These lands, belonging to H.M. Queen Victoria, Queen of Great Britain and Ireland, her heirs and successors.

All persons are warned against settling here or visiting these lands for the purpose of working gold or other minerals without a licence.

God save the Queen.

Given on board H.M. sloop *Virago*, in Mitchell Harbour, the 24th day of May, 1853, in the 17th year of H.M. reign.

JAMES C. PREVOST, Commander, R.N.

but blasting three times were not rewarded with even a particle of gold. The wooding party proved the most useful of the two.

We remained here the 25th, and sailed on the morning of the 26th, when we stood in for the western entrance of Houston Stewart Channel, to prove our former survey, and at 5 were abreast of Cape St. James. On the morning of the 29th we were again at anchor in Esquimalt Harbour.

NARRATIVE OF THE VOYAGE OF H.M.S. SERPENT, *L. U. Hammet, Esq., Commander, from Hong Kong to Sydney, touching at the Bashees, Port Lloyd, Pescadores, Strong Island, McAskill, Wellington, and Solomon Islands, Timor, Port Essington, and Swan River. Between November 9th, 1852, and June 20th, 1853.*

(Continued from page 67.)

For three days after parting with the *Emily Morgan* we had strong westerly winds and very thick weather, during which, from being unable to get an observation, we unfortunately missed Pleasant Island. This, from the quantity of provisions on board not admitting of any other appropriation of time than actually necessary, obliged us to stand on to the south-eastward, in the vague hope of picking up the unfortunate brig.

On the 21st we made for the Solomon Islands, and after crossing the equator met a strong westerly gale. The violence of the wind, with torrents of rain, drove us to the southward of all the Solomon group; but off Cherry and Barwell Islands we experienced variable winds, with which we made the Island of St. Christoval on the 4th of February. Sighted Guadalcanar on the 5th, and made Cape Hunter, the bold S.W. cape of Guadalcanar Island, on the 6th.

From Cape Hunter we continued along the land, but could discover no anchorage, nor any landing place; the shore being edged by a reef on which the surf broke, so that no boat could attempt to land. Some huts and canoes were seen on the beach, and a few natives, as well as abundance of cocoa-nut trees. About 3 in the afternoon we rounded the southern point of the bay in which the *Wanderer* is stated to have anchored. The wind falling light, and observing broken water in the bay, a boat was sent in to pick out an anchorage, and we then warped in with some difficulty on account of the depth of water in the middle of the bay. At length we gained an anchorage close to a creek, which was concluded to be that where the late Mr. Boyd is stated to have been taken; but besides this creek two other streams of good fresh water were found, running into the bay close to it.

Some natives appeared on the beach as we entered the bay; but they soon scampered off into the jungle, although well armed with

spears and stone-headed hatchets, and carried besides wooden shields. On the beach near the creek appearances indicated that a village once stood there, which were confirmed by our finding the remains of a hut which had been burnt down; and we therefore concluded that this was probably the village stated to have been destroyed by the *Wanderer*. Some canoes now and then approached the ship pretty near; but all we could do would not induce them to come alongside: and if a boat went to try and communicate with them, away they pulled inside the surf, abandoned their canoes, and ran into the jungle. On examining one of the canoes it appeared to be formed from the trunk of a tree hollowed out, very thin and light, with a plank sewn on each side to raise the gunwale. Some fishing gear and a spear were lying in it, the latter formed of some very tough hard wood, the point being hardened by fire. Placing the canoe in safety out of the surf, everything was left uninjured. On one occasion when one of our boats was sounding, the natives came down and put a few yams on a rock; but on the boat going in to receive them they left the yams, retreated into the jungle, and did not return.

While this was going forward our want of water was considered, and we soon managed to obtain ten tons with great ease at the streams, using about one hundred yards of hose. Our pinnace was unable to enter the creek, being prevented by a bar across the entrance, a most unfortunate circumstance, as the water was six feet deep, and quite fresh, one hundred yards above it. Our watering occupations had gone on without interruption; but during the dinner hour, while our men were very busy, having most unsuspiciously left their watering gear and clothes unguarded on the beach, about four hundred yards from the ship, about sixty armed natives were discovered collecting on a point near the ship, and apparently holding a consultation. They were more narrowly watched by us than they expected, for their parley being concluded, they dispersed into parties, and commenced making towards our watering-place by circuitous directions along the beach and the jungle. Our property was evidently in danger, so dispatching a boat to look after that, the Commander proceeded to a point of the bay where some of the natives still remained, in hopes that their numbers would give them confidence enough to allow of his approach; to facilitate which all appearance of arms was concealed. But our precautions were useless; the boat went on, but before it got near them they took themselves off, scampering as hard as their legs could carry them into the woods, all the time yelling at the very top of their voices. And the other parties which, by this time, were close to our watering-place, took the hint as readily, and suddenly disappeared into the jungle at the same time. This was a great disappointment to us, as there seemed to be no hope of establishing that friendly communication by which we might arrive at some intelligence respecting our mission. These islanders appear to be tall fine-looking men, dark-coloured, with long black hair tied up in a bunch on their head. Their only clothing consisted of a cloth round the loins; but some, who appeared to be chiefs, wore shell ornaments round their necks and in their hair.

Neither women nor children were seen among them. We now determined on examining the creek, for which purpose the gig crossed the bar, but we could not get her beyond 500 yards. On this the Captain and some of the crew proceeded further up along the banks of the stream for about a mile, in hopes of finding some village where the natives might be less suspicious; but although foot-marks were evident, no huts, nor paths, nor other marks of inhabitants were seen; the jungle became too thick to proceed further with due regard to the safety of our men. We therefore came to the conclusion that even if these people had only intended at first to make a prisoner of Mr. Boyd, they most probably would deliberately kill him afterwards in revenge for the injuries inflicted by the *Wanderer*, the proceeding of this vessel being at least impolitic while Mr. Boyd's fate was still uncertain. It was not likely, after the treatment they had experienced from the *Wanderer*, that they would place themselves within our reach, as what else could be anticipated in the breast of a savage but the same treatment which he himself would dispense. Hence the unwillingness of the natives to come near us. Therefore, finding it impossible to hold any communication with them, it was deemed by our commander imprudent to remain longer in this open bay. The anchorage was insecure, being open and entirely exposed to the sea from the westward, had we been caught by another gale similar to that we had just experienced on our passage down, our safety would have been very critical, for besides the want of shelter from the wind and sea, the great depth of water in the middle of the bay would have rendered it impossible to warp out sufficiently far to enable us to make sail and work out. This insecurity with the hopelessness of dealing in any manner with the natives, determined our commander on the course which he adopted; we therefore took our departure on the 7th, warping and sailing out as we could; thus leaving the Wanderer Bay and Boyd Creek, a survey of which we had made.

Torres Straits being now impassible, the season of the year rendered it necessary that we should make our passage westward and northward of New Guinea, and we accordingly looked for Timor as our next rendezvous. First we tried to pass to the southward of Santa Ysabel, but finding difficulty in weathering Cape Prieto, we bore away for Pitt Strait. On the night of the 9th we hove to off some islands which were supposed to be in this strait, and at daylight ran along them without seeing any passage. By our observation at noon on the 10th, we found that the current had drifted us to the westward of Cape Labè. Seeing open water to the westward, we stood on in that direction with a fine easterly wind, and, heaving to at 3 a.m. of the 11th off some low islands, we found ourselves at daylight to the northward of Treasury Island. We had therefore passed between Choiseul Island and New Georgia, through a wide and apparently safe channel, which our commander named Victoria Strait, there being no passage marked down there on the chart. We now stood for Cape St. George, intending to proceed along the coast either inside or outside of New Ireland, according to circumstances; but meeting a baffling westerly

wind and an easterly current, we passed out through the Hibernian range between Bornand and Araison Islands, and stood to the northward to pick up the N.E. trade, which, after a week's baffling weather, with frequent calms and rain, we found on the 28th February in lat. 3° N. The breeze however was not steady until we reached nearly 5°.

On entering Gillolo passage on the 13th April, we boarded the American merchant ship *Talbot*, Goodhue, Master, bound to Hong Kong, with stores for the Japanese expedition. We purchased from the Master some sugar and tea, of which articles we were getting very short.

Having been a long time on salt provisions, and the sick, especially our surgeon, requiring a change of diet if possible, it appeared desirable to put into Geby Island; so at daylight on the 14th we anchored off the north point of Fow Island, opposite a stream of fresh water on Geby Island. A few canoes came off to us, but they had very little in them, and would only barter for calico or knives. About seven tons of water were obtained here with difficulty, on account of the shallowness of the mouth of the stream.

On the 15th the sons of the Chief of Geby paid us a visit on board, and immediately assured us that they would send us a plentiful supply of sheep, turtle, fowls, &c. Such a promise was no small inducement to wait a few hours, which was readily determined on, and while moving the ship down to another anchorage in a bay to the eastward of Fow Island, she slightly grazed a coral reef in the centre of the channel between the two islands, but was immediately hove off by the kedge, and sustained no injury, as the water was smooth and the weather calm. We then accompanied our visiters on shore, and after a walk of about four miles reached Ketchepee, the capital, on the northern side of the island. It consists of twenty or thirty houses or large huts, substantially built of bamboo and cocoa-nut wood, and thatched with grass; the chief's house in particular being very solidly built, and ornamented with carved wood on the outside. The inhabitants, among whom we saw no arms of any kind, amounted perhaps to between three and four hundred, and are apparently of Malay origin. They are Mahomedans, and appeared extremely quiet, and were very courteous towards us. The most respectable were neatly dressed in coloured calico. They cultivate sugar, maize, yams, sweet potatoes, rice, lemons, and the chile pepper; but not in any great quantity. We now found that our hopes of large fresh supplies were likely to be disappointed, as it appeared that the whole island could only muster four sheep! which belonged to the chief, a fine old man, about eighty years of age. But he gave us one of them, and a few fowls, and sweet potatoes, for which he refused our coin. Wise he was no doubt, for far more precious to him were some razors and other small articles, which he gladly accepted in return. Turtle we might have had by remaining some days for them, but this was impossible, and we sailed in the evening, passing west of Bouro.

The anchorage to the eastward of Fow Island is more convenient

for every purpose of shipping than the other, there being a stream of fresh water abreast of it, where a ship may easily fill up at any time, except at the top of high water. On visiting the lagoon in the centre of Fow Island, three fathoms water were found in the entrance, deepening inside to sixteen, where a ship could repair any serious damage, as she would be completely land locked.

On the 23rd we had the misfortune to lose M. C. French, our surgeon, who had been long suffering from dyspepsia and inflammation of the brain, and died a little before noon. Mr. Charles Sproull, the assistant surgeon, was appointed to act as surgeon in his place.

Passing through the Ambay Passage on the 25th, we anchored at Delhi on the 27th. This is a small settlement belonging to the Portuguese. The Governor, Don Manoel de Gama de Saldanha, who spoke English and French very well, received us very kindly, offering every assistance in his power. We here found that buffaloes and other live stock, were to be had, but fresh water was scarce and very difficult to get, and even then was not good; bread, of which we were short, was not to be had. Our return to the civilized world was marked by a salute of the Portuguese flag with twenty-one guns, which was immediately returned by the fort, a wretched building, mounting fifteen guns of various small calibres, and is only kept up as some kind of defence against the piratical proas, which occasionally visit the coast. It is garrisoned by a captain and fifty men.

The houses of Delhi consist of a framework of wood, filled up with the dried stalks of palm leaves, so arranged as to exclude the rain, but to admit the air, and they are thickly thatched with the remainder of the leaves. They are only one story high, on account of the island being subject to earthquakes. The town contains about 1,000 inhabitants, who are Catholic Malays in appearance; in the interior the heathen natives are at perpetual warfare among themselves, doing each other all the harm they can, a state of affairs which says little for their *Christian* rulers. The settlement is by no means healthy, all the Portuguese, numbering about forty, suffering constantly from intermittent fever. The country around affords abundance of good soil, but is much neglected from want of energy and activity among the natives. Fruit of all kinds is plentiful, growing as it does spontaneously, and requiring no cultivation. Bees'-wax and sandal-wood are exported; the former being worth about thirty dollars and the latter five dollars per picul (133 lbs.). The imports consist of most articles of consumption from Java; the duties being 6 per cent. on imports, and 5 per cent. on exports, with some difference for wines and spirits. The anchorage inside the reef is perfectly safe but difficult to enter and leave. The Governor expressed an intention of bringing the fresh water down to the beach by pipes; it will then be a very desirable place for a ship to call at, as pilots will come out if required. A ship intending to stay only a day or two, should anchor outside, where the holding ground is good but the water deeper On inquiring for Dr. Leickhardt, nothing had been heard of him, but the Governor informed us that he might

be heard of at Koepang, where abundance of provisions might be had.

We sailed from Delhi on the 28th, and, being much favoured with a strong westerly current, arrived at Koepang at daylight on the 31st. Here we saluted the Dutch flag with twenty-one guns; which was returned by Fort Concordia. On making known to the Governor, Van Capellan, our want of provisions, he immediately assured us that what we could not obtain from the merchants he would supply out of the government stores. Our inquiries were then for Dr. Leickhardt: on which, the Governor produced a paper containing a request to him from the Government of Sydney to assist his party if possible, but he had heard nothing of them. He considered it was very unlikely that Dr. Leickhardt could succeed in reaching Timor from Port Essington, as there had been no trade and little communication between the two places since the abandonment of the latter settlement by the English.*

The town has a clean and neat appearance from the sea, the principal houses being built of stone and roofed with bright red tiles, but only one story high, on account of earthquakes. The population now amounts to about 2,000 of whom about 50 are Europeans. The natives resemble those at Delhi; are quiet but indolent. Fort Concordia is very old and of no strength, besides being commanded by a hill about 1,000 yards inland of it; a vessel could approach to within 500 yards of it. The garrison consists of an European Captain and about fifty native soldiers.

The exports of Koepang consist of bees'-wax and sandalwood; but the imports, except of necessaries from Java, are trifling, as the duties are very high, amounting on some foreign manufactures to 25 per cent. We obtained some buffaloes and other live stock here, but fruit and vegetables are not plentiful. Water is conveniently procured during the easterly monsoon, being conveyed through the town to the beach, close to the Chinese joss-house. In the westerly monsoon a ship would have to go to Boerong Island, on the opposite side of the bay, for it.†

Our attention was attracted here by the wreck of a vessel lying, partly dismasted on the reef which faces the beach before the town. It appeared, on inquiry that this was the last of the barque *Secret*, of Liverpool, of the house of Lockett and Company: that she had been wrecked on the 18th February last, chiefly from having anchored too close in. The vessel and cargo had been sold to a Danish merchant (Mr. Hansen) for a small price compared to their value. When she first arrived some of the crew had refused to work or proceed to Hong Kong in her, giving as a reason that they were afraid of their lives from the drunkenness of the Master. Before we arrived four of these seamen had left in the *Banca*, schooner of the Dutch Navy, for Sou-

* A full account of the possession being taken and the abandonment of this place will be found in some early volumes of this work.—Ed.

† We find no complaint of the water here like that in our last volume.—Ed.

rabaya, after having given a great deal of trouble at Koepang. Three apprentices had entered on board the *Octavia*, an American whaler, (Pell, Master,) who had most kindly supplied us with some bread. The Master, William Valentine Jeate, and four Chinamen, were going to Macassar in a schooner belonging to Mr. Hansen. The remainder, Robert R. Ely, Mate, William Snape, steward, and Hugh Kelly, apprentice, were received on board of us, as distressed British seamen, at the request of the Governor. The four Chinese had been from China to England in a vessel called the *Old England*, belonging to Ripley (of Liverpool), and were returning to Shanghae in the *Secret*, to receive their wages in goods, for which they declared they had seen the order put into Jeate's hands; but this order could not be found, and he denied all knowledge of it. It appears a wonder how the *Secret* reached Timor, if the accounts respecting the conduct of the Master were correct. The second Mate had fallen overboard and was drowned, off St. Paul Island, in a fit of drunkenness. We were informed that the vessel and cargo were insured to half their value.

Having filled up our fuel and water and obtained what provisions we required, on the 4th April we took our departure and proceeded through the Straits of Samao and Rotti towards Port Essington.

The westerly wind favoured us until the 7th, when the east monsoon set in, daily increasing in strength and accompanied with frequent squalls of wind and rain. This, combined with a westerly current of from ten to twenty miles a day, made our progress very slow. The sick list materially increased since leaving Koepang,* the number on the 8th being twenty-six; diarrhœa was the principal complaint, caused, perhaps, by the change of diet and, it may be, partly by the cheap bad liquor which we could not entirely prevent the crew from obtaining at Koepang, while provisioning, watering, &c.

We anchored at Port Essington at noon on the 18th. On landing, found the settlement totally destroyed, the houses having been burnt down accidentally, by the natives setting fire to the grass. One well only with water in it was discovered, and very little of it, in fact it was not good enough to take on board. We searched along the beach for the stream mentioned as being near the settlement, but could not find it or any marks of it. A few natives came to us, nearly all of whom spoke broken English; they informed us that no strangers of any kind had been there since the settlers had been removed, and they had heard nothing of any travellers in the interior. The natives are black, very ill-looking, and go entirely naked, both men and women; their bodies are marked all over with scars, made on purpose; a species of tattooing. They had no apparent habitation, and were destitute of food, begging us to give them something to eat. Our surprise at this was great when we saw plenty of fish in the bay and marks of buffaloes in the bush, besides the natives themselves offering to procure us

* This is the repetition of a common occurrence after leaving Koepang, and might be worthy of inquiry.—Ed.

plenty of turtle and oysters, if we would wait. We learnt from them that there were plenty of wild ponies in the woods. No ship should touch here for water or refreshments; firewood only can be obtained. Malays appear to visit this place occasionally for trepang, which is abundant. Some tanks were lying on the wharf, but broken and useless; the wharf itself is fast going to ruin. We found the weather here oppressively hot and close; the sick list got up to twenty-seven, including three officers; and we gladly left it next day for Swan River.

(To be continued.)

THE ADMIRALTY. *(Communicated by Mr. Barrow.)*

Stowe, in his Survey of London, states that "behind the North side of King Street, is Charles Street, a fine large street, not many years built, with good houses well inhabited: and Duke Street, new built, with good houses and well inhabited, especially that side towards St. James' Park, the back windows having a pleasant prospect thereon: and many of the inhabitants have the favour of a door out of their garden into the park, which is no small benefit, by reason of the enjoyment of such good walks. At the South end of this street is seated a large house made use of for the Admiralty Office, until it was thence removed to Wallingford House,* against Whitehall, as more convenient, and built at King William's charge. This house was first built for the late Lord Jeffreys, Lord Chancellor to King James the II. And for his accommodation the said King permitted a fair pair of free stone stairs to be made into the Park."

In 1632 the Admiralty was first put into Commission—the Great Officers of State being the Commissioners. During the Commonwealth, the affairs of the Admiralty were managed by a Committee of Parliament, and at the Restoration in 1660, James Duke of York became Lord High Admiral.

In 1684 King Charles II. held the Admiralty in his own hands until his death, when James II. again made himself Lord High Admiral.

In 1688-9 the Admiralty was a second time put in Commission, and the Board of Admiralty appears to have assembled at "Admiral Herbert's Lodgings in Channel Row, Westminster," he being at that time First Lord of the Admiralty. The Patent appointing him, together with six other Lords, was dated 6th March, 1688-9, in the first year of the Reign of King William the Third. Prior to this, from 1660

* It was first removed to Greenwich, and then to Wallingford House.

to 1688, the Duke of York issued Orders and Instructions for all classes of Officers both in the Military and Civil Departments of the Navy, and may be said to have organized the Naval Services of Great Britain. The first Code of General Instructions extant, are the "Duke of York's Fighting Instructions" bearing date 1660, which formed the basis of all the subsequent ones, down to those now in force, which were issued in 1844, having been prepared with great labour and care by Admiral Sir George Cockburn, whose extraordinary zeal in bringing them into as perfect a state as possible, is well known.

The Board appear to have read in their Patent at Admiral Herbert's Lodgings on the 9th May, 1688-9, and to have continued to meet at his house daily till the 29th May, 1689, generally in the afternoon "post meridiem" but occasionally in the morning, and sometimes in the evening. On the 24th May, of that year, they held their first meeting at the "Admiralty Office in York Buildings."

In 1694, the salaries of each of the seven Lords was a Thousand a year, as appears by the entry of the Estimates of the Navy for that year, viz.:

Navy Office, 1 January, 1694.

Commers. for Executing the office of Lord High Admll. of Engld.—Seaven att £1,000 pr. ann. ea.		7,000 00 00
Treasurer of the Navy		3,000 00 00
Principall Officers.	Comptroller	500 00 00
	Surveyour	500 00 00
	Clerke of the Acts	500 00 00
Commissrs. Ten att 500 pr. ann. ea.		5,000 00 00
Secretary to the Commrs. of the Admiralty		500 00 00
Assistant to the Surveyour		300 00 00
Assistant to ye Clerke of the Acts		300 00 00
Assistant to ye Comptrolor of Victualling		300 00 00

From 1702 to 1708 George Prince of Denmark was Lord High Admiral, and from 1708 to 1709 the Earl of Pembroke held that Office. The Admiralty was then again put in Commission and so continued till the year 1827, when the Duke of Clarence became Lord High Admiral. From 1828 to the present time it has been in Commission.

In 1720 an edition of Stowe, corrected and improved, and very much enlarged, was published by John Strype, and brought down "by careful hands to the present time, 1754." In this last edition it is stated "the Admiralty Office, lately rebuilt with brick and stone, stands on the west side of the street, opposite to Scotland Yard, the east front whereof hath two deep wings and resembles a Roman N, which we enter by a magnificent Portico supported by Stone Columns. There are in it besides the Hall and other common rooms, seven handsome lofty apartments, with the convenience of separate houses for the seven Lords of the Admiralty. On the west, next the Park, it hath a plain uniform front, the end only jutting out a little beyond the rest of

the building, which is two stories high besides garrets, having a pleasant garden before it: but I am informed that, either through a defect in the ground it is founded upon, or in the materials, the building is not like to stand many years."

Be this as it may, we know that it has stood the test of a hundred years, and is likely to last some hundred years yet.

The Great Circle Course Indicator.—*By Lieutenant E. D. Ashe, R.N.*

Lieutenant Ashe, of the Royal Navy, the talented director of the observatory at Quebec, previous to leaving this country in the autumn of 1850 for Quebec, devised a simple useful instrument for the purpose of finding the Great Circle course and distance between places for the use of navigators. It was at the time when Great Circle sailing was regaining attention, and lectures were given here and there on a subject which was soon found to be scarcely worth while to lecture on. But Lieutenant Ashe made no essay on this ground, and, starting for his destination, left his views on the subject to be carried out while he proceeded to his business at Quebec. The *Nautical Magazine*, as the general receptacle of any inventions likely to become useful to seamen, is the fittest place for its description; and we have, therefore, prepared the following account of it for our readers, under the name given to it by its inventor as

The Great Circle Course Indicator.

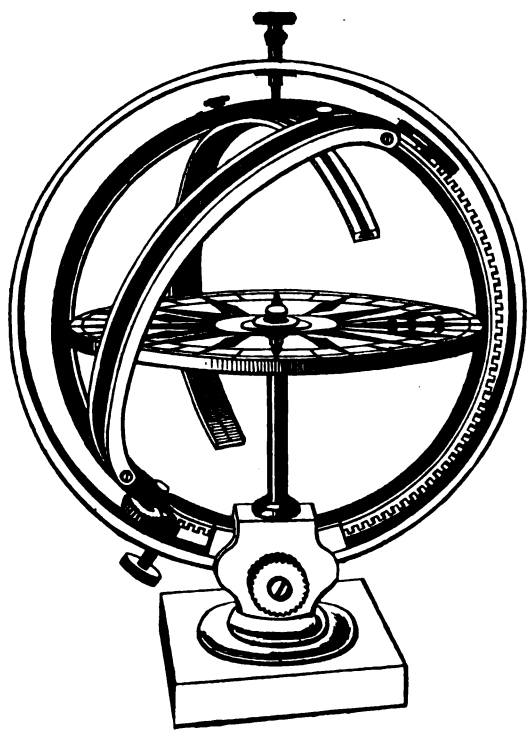
The meridian circle inside the large outer one is supported by a brass socket attached to the stand of the instrument at the nadir. The outer circle carries the zenith point, which is raised or depressed by a screw at pleasure. This meridian circle is also moveable by a screw in the brass socket which carries it, so that by altering its place in the socket the poles may be elevated or depressed as required. The anterior or elevated portion of this meridian circle consists of two semicircles moveable at the poles, marked east and west, these being similar to each other and graduated in degrees and minutes, are readily adjusted and fixed at any angle by a clamp screw. Another screw moves these semicircles in azimuth, and they are then fixed at the required angle by the clamp screw.

A moveable arc traverses these moveable meridians in any direction and, continuing to the horizon, indicates the course to be steered by compass at the point on the compass card intersected by it. This moveable arc, called the course indicator, is fitted with two brass pointers (intended to represent the ship), so as to slide easily in a

groove on this arc and to show the places of departure and arrival; and this arc is adjusted as follows:

The moveable meridians are opened to an angle equal to the difference of longitude between the place of departure and arrival, measured by the moveable arc being brought to the equator of both, and are fixed at that angle by the clamp screw. The movable arc is then released, and when the place of arrival is west of the departure the zero on this arc is clamped at the latitude of the place of the departure on the eastern meridian. The arc is then brought to coincide with the latitude of the place of arrival on the western meridian. The zero of this arc or the point of departure on the eastern meridian being then brought under the zenith point, the intercepted arc then represents the distance to be sailed over, and the intersection of the same arc on the compass card beneath it gives the course to be steered, and the distance is read off on that portion of the arc C that is intercepted between the two meridians.

It may be as well to remark that the north and south points of this card being fixed so as to coincide with the outer meridian circle the course thus read off is the true course, to be corrected for variation and local attraction before adopting it with the binnacle compass.



The foregoing is a general view of the instrument, we here annex further descriptions of its parts with more explicit directions for its use.

In the following directions the various parts are denominated as under :—

The vertical ring	*The fixed meridian*
The pin passing through it.....	*The zenith*
The wheel below the rack	*The screw at the nadir*
The graduated semicircles	*The moveable meridians*
The eastern semicircle	*The eastern meridian*
The western semicircle	*The western meridian*
The clamp at one joint	*The screw at the north pole*
The pinion at the other	*The screw at the south pole*
The graduated arc with a groove ..	*The course arc*
The sliding indexes in it.....	*The ships (eastern and western)*
The compass card	*The compass.*

Precautions.—Care should always be taken, in the adjustments of the course arc to the moveable meridians, to make it bear evenly against both the meridians before clamping it to them, in order to avoid that risk of bending the course arc; and also, in opening or closing the moveable meridians, not to attempt to move the western meridian except by turning the pinion.

For Great Circle Sailing.

Adjust the ships, by their points of intersection, to the difference of longitude between the two places shown by the graduations on the course arc, counting from its eastern or its western end, according to the position of the place of departure.

Adjust the moveable meridians to the angle of difference of longitude between the places, measured by the course arc brought to the zeros or equators of these meridians, and clamp them at that angle by the screw at the north pole, then loosen the course arc *only*, and :

When bound to the westward.—Adjust the course arc, with the eastern ship at zero, to the latitude of the place of departure shown on the eastern meridian, and with the western ship* to the latitude of the place bound to, shown on the western meridian.

When bound to the eastward.—Adjust the course arc, with the western ship at zero, to the latitude of the place of departure shown on the western meridian, and with the eastern ship* to the latitude of the place bound to, shown on the eastern meridian.

The course arc being adjusted as above, bring the moveable meridian of the place of departure to the fixed meridian, with the ship under the zenith,—(by the screws at the south pole and the nadir.)—then the lubber line on the under side of the course arc will indicate against the compass the first *true* great-circle course to be steered.†

As the vessel proceeds on her voyage, the ship is to be moved on in the groove according to the progress made, and in its new place again brought under the zenith, when the course from that point will be indicated as before.†

* Without regard to its position on the course arc, but by moving it in the groove as necessary to effect the adjustment.

† Except when sailing on the meridian, the continuing on this course for only a short distance would lead higher in latitude than is due to the circular track, the vessel should therefore be kept somewhat lower than, "nothing to the *Pole*-ward of," the exact course indicated.

When by a foul wind or any other cause the vessel is diverted much from her course, the instrument must be readjusted as above, from the ascertained place of the vessel, whenever the great-circle course, thence to the place bound to, is required to be known; the knowledge of this course pointing out the proper tack on which to sail or lie to when the deviation is only occasioned by foul winds. For small accidental differences the track may be regained by slight deviations from the courses indicated.

To ascertain the highest latitude that will be reached, bring the course arc—(by the screws at the nadir and the south pole)—into the position to indicate an east or a west course,* and then,—by the screw at the south pole *only*,—bring either of the moveable meridians to the zenith, which will point out the latitude required.

For Composite Sailing.

In those cases, of constant occurrence, where a track is pursued *composed* of parts of two great circles and of one small circle,—(this last being the parallel of the predetermined highest latitude to be attained,†)—the instrument requires two adjustments: one for the courses from the place of departure to the parallel; the other for those from the parallel to the place bound to; the parallel being reached and left at two points that are the vertices of two great circles, the one passing through the place of departure, the other through the place bound to.

First adjustment.—Adjust the instrument, by bringing under the zenith, the *highest latitude*—(shown on the moveable meridian of the same name as the position of the longitude bound to)—with the course arc coinciding with this latitude, and with the east or the west point of the compass. Then carefully keeping them so, adjust the other moveable meridian at the *latitude from* to the course arc, and tighten the screw at the north pole; now‡ bring the ship at the *latitude from* to the zenith, and steer, as in other cases, on the courses indicated, until the highest latitude has been reached.

Proceed thence along the parallel until the longitude has been attained from which to again sail on a great circle. This longitude is found as follows:

Second adjustment.—To find the longitude of the vertex of the second great circle.

Adjust the instrument as if for sailing *from* the place bound to, to the highest latitude, then loosen the course arc *only*, and measure with it at their equators the angle between the moveable meridians, which is the difference of longitude between the place bound to and the point required, and will show the longitude of this point, if the course arc is adjusted to the meridian of the place bound to, at its proper longitude.‖

Having ascertained the longitude of the point of fresh departure, readjust the course arc for sailing to the place bound *to* from this point, and when arrived at it, proceed thence by the second great circle, on the various courses that will be indicated in succession.

If it should happen that the course arc does not reach the compass in the direction of the course, it will do so in the *opposite* direction in any case.

* If the portion of the course arc between the moveable meridians cannot be brought into this position, the latitude of one of the places is the highest latitude.

† The great circle which passes through the places extending beyond those navigable limits which it would be either impossible or imprudent to exceed.

‡ Altering the course arc to commence the departure at zero or not as most convenient.

‖ It is obvious that the longitude of the vertex of the first great circle might be similarly found, were it required.

For finding the true bearing of a heavenly body, either by its amplitudes or by an azimuth.

Adjust the course arc with the zenith distance shown on it,* coinciding with the declination shown on one of the moveable meridians,—the eastern or the western, according as the observation is of a rising or of a falling body—and with its (the course arc's) zero, at the latitude shown on the other moveable meridian.

Bring the latitude to the zenith, and the lubber line on the course arc will indicate against the compass the true bearing required.

The instrument is made by Messrs. Lilley and Son, nautical instrument makers, the manufacturers of Sir W. Snow Harris's steering compass, Jamaica-terrace, near the West India Docks.

[We have received other communications on this subject but prefer giving Lieut. Ashe's instrument the precedence, as it is entitled to it in point of date. The term "regaining attention" is here used in reference to "Great Circle Sailing" as there is nothing new in it, and the trouble only attending it has occasioned its neglect. The instruments, however, now invented, and even a common globe, besides the tables which we have noticed some time since, all tend to facilitate its application and render it popular.—ED.]

REMARKS ON A PASSAGE FROM THE THAMES TO ST. PETERSBURGH THROUGH THE SOUND.—*By A. G. Whichelo, Second Master of H.M.S. "Excellent."*

Leaving the Swin, after passing the Sunk Light Vessel, an E.b.N.½N. course for fourteen or fifteen miles, will carry you to the southward of the Shipwash, with Orfordness Church and the Ship Head Light Vessel (one light) in one, bearing about N.N.W. From thence an E.N.E. course for eighty miles will place you on the edge of the Brown Bank, in 18 or 19 fathoms, dark sand, shoaling to 17 and 15 fathoms in the next twenty-eight or thirty miles, when you will deepen to 18 fathoms fine sand and possibly bits of shells, in the latitude of the Texel, then distant about forty-five miles. Twenty miles further you may possibly get a cast of fourteen fathoms dark sand on the Little Brown Bank, and again deepen to 16 fathoms sand and ouze. Fifteen miles further you will be up with Holle Poort, and should you get 15 or 16 fathoms white sand, you are to the eastward of the track here pointed out, and on the bank, which extends off to the westward of it; ten or fifteen miles ought to carry you across it; but if bound to the eastward for the Elbe or Weser, unless you have ascertained your true position by good sights, on no account shape a course for Heligoland, but continue running to the north-eastward till in lat. 54° 7′ N., and have 21 or 22 fathoms *mud*, you will thus have a most excellent guide in the soundings as you are running along the edge of the bank which lines the coast, and steering due east will carry you up to the island.

* In an amplitude 90°

If you get 18 or 19 fathoms whitish sand, you are to the southward of the Fairway; but with a muddy bottom you are in the right track.

If crossing the North Sea in foggy or dirty weather, the lead should invariably be hove every two hours, and the greatest attention paid to the quality of the ground; and by night, or when not sure of your position, when approaching Holle Poort, a point more to the northward will be the better course till in lat. 53° 30′, when you may haul or edge away to the eastward with safety, observing to keep in ouzy or muddy soundings, which is the character of the bottom the whole of the way up to Heligoland, which lies in 54° 10′ N., and 7° 33′ E. In crossing the North Sea you will almost invariably find you have been set to the eastward of your reckoning, no doubt caused in some measure by a regular current setting round the Texel to the north-eastward, and by the indraught of the numerous channels into the Zuyder Zee, so that the foregoing directions should be strictly attended to. Having run your distance down without making the island by day or the light at night from fog or other causes, keep the lead going, and when you shoal to 11 or 12 fathoms blue clay, anchor, and when it clears you will be almost sure to find yourself between the Elbe Light Ship and the island. In working round the land to the eastward never stand in-shore by night to less than 14 fathoms, or by day to 12 or 13 fathoms sand, and off till you have 18 or 20 fathoms mud. The transition from sand to mud is so very marked that it cannot fail to point out your distance from the shore. A good look out from the mast-head should always be kept, and the lead always be going when standing in-shore by day or night, as the coast is very low all along, (the trees and buildings showing before the land,) and lined with sand banks, which extend a long distance off, more especially in the vicinity of the Rivers Ems, Jahde, Weser, Elbe, &c. Borkum Light is a good bright fixed light, and may be seen fourteen to sixteen miles off in clear weather. The flat off Borkum is very remarkable, and is a good guide for your distance from Heligoland, as on this part of the coast there are no soundings like it, the bottom being a mixture of red and yellow sand: from 17 fathoms on its outer edge, Heligoland bears easterly sixty miles.

Bound to the Elbe from Heligoland, you should bring the Monk, a very remarkable broken rock, open of the high pinnacle which is separated from the S.W. end of the island, bearing N.W.b.N., then steer S.E. or S.b.E., according as you have the wind and tide. This course will carry you down to the Lightship, which has three masts, carries a large red flag at the main by day, and one bright fixed light by night; she lies in 11 fathoms, with the Red Buoy, the Schaarhorn Beacon, and Neuwark high Light in a line, bearing south-easterly, pass her close on either side, and when up with the Beacon Buoy a S.E.b.E. ½ E. course for three miles will take you up to the Inner Lightship, (two fixed lights one over the other,) she lies close to the head of the Sand Rif, and must be passed or left on the port hand; but in summer and with fine weather you will find the Pilot Galliot about a mile and a half from the Outer Lightship; if blowing hard

she runs up to Neuwark, and you get a pilot from the Inner Lightship, where you also generally discharge the pilot when bound out. If a pilot cannot be got, anchor close to the Lightship; but when circumstances compel you to run up for Cuxhaven, you will find the buoys, Black Can Buoys on the starboard, and White Nun Buoys on the port hand; run up in mid-channel and observe that there are beacons on the buoys where the angles alter. The anchorage at Cuxhaven is from a quarter to three quarters of a mile from the shore, in from 5½ to 9 fathoms mud, the Lighthouse bearing S.W. to S.S.W.

If in distress and obliged to beach the ship to save the crew, endeavour to get as far inside the Inner Lightship as possible, and put her on the Schaarhorn or Neuwark Sands, where you may find refuge on the beacons, and at low water save all hands.

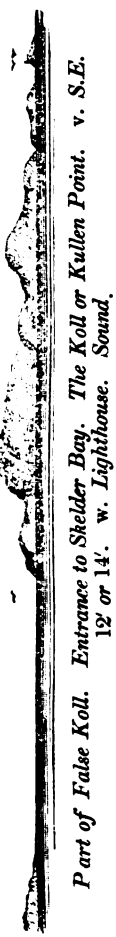
The Rivers Elbe, Weser, and Jahde, are all buoyed in the same manner, viz., White Buoys on the port, and Black on the starboard, hand going up.

Vessels touching at Heligoland and intending to remain only a short time, will find good anchorage to the eastward of Sandy Island, bringing the south extreme of Heligoland or the Lighthouse on with the north end of Sandy Island, in 8 or 9 fathoms, muddy bottom, well sheltered from westerly gales.

From the Elbe bound to the northward for the Sleeve a N.W. course from the Outer Lightship will take you to the westward of Heligoland, give it a berth in passing of a mile at least. This is the safe side of the island, there being no out lying rocks except close on shore. Having brought the north-western extreme to bear about south, a N.b.W. course for one hundred miles will be a safe course, and carry you clear of the Horn Reefs; but keep the lead going; and after running eighty to eighty-five miles you will suddenly shoal from 20 or 21 fathoms to 15 or 16 fathoms, and shortly after again deepen to 20 fathoms, having crossed the N.E. end of the Dogger Bank; but if not sure of your position, and you continue to get shoal casts of less than 15 fathoms, haul away to the westward immediately, until you deepen to 20 fathoms, coarse sand.

The Horn Reefs are rendered the more dangerous by the constant indraught which there is on this coast. There is very fair anchorage among them, and a Lightship might lay there nearly all the year long, and would prove of inestimable benefit to vessels navigating in their vicinity. Having rounded the reefs, a course may be shaped to make the Holmen, which lies N.E. seventy-six or seventy-seven miles from the extremity of the reef. In coming in with the land from Bovenbergen to the Holmen, a stranger will find it very difficult to determine his whereabouts, from the great similarity in the form of it and the number of buildings which line the coast appearing like watch-towers. About the bluff marked on the charts as "Holmen with the houses," stands a large village with one of these towers near the edge of the cliff, clear of the rest of the buildings and at a distance looking like a lighthouse. You will find a very strong set in-shore near the point, owing to the indraught caused by the Agger Channel, so that by night

you must be very cautious in approaching the shore, the soundings being very irregular, and not to be depended on as a guide to your distance off shore. From Holmen with the houses to the Lighhouse Holmen the shore is low, but rising gradually in the interior, and appears well cultivated. There is a very remarkable building, apparently a farm-house, standing about a mile in-shore; and a little below it a large mill, this is about one third the distance between the Holmen, and may be seen a long distance off; on the first sight of the Lighthouse Holmen it makes like a cluster of islands with the Lighthouse on the highest; it shows a bright flashing light, and may be seen ten or twelve miles off. Between this and the Scaw you must give the shore a wide berth, and with a large ship it would be advisable to keep in the deep water, following up the line of the Jutt's Reef, which will keep you well clear of the dangers off the coast in the vicinity of Hartshalls. The Scaw will readily be known by its Lighthouse and church: it may be approached boldly from seaward, but N.E.b.E. from the Lighthouse a reef runs off at least four miles. There are several beacons to mark its edges, but they are very difficult to be seen, and the greatest caution is necessary, when rounding the point go no nearer than 12 or 13 fathoms, and when the light bears W.S.W. you are clear of the reef, and may steer S.E.b.S. twenty-five miles, which will take you down between Trindelen Lightship and Wingoe Beacon. Trindelen Lightvessel carries one fixed light, which may be seen ten miles. She is moored close to a dangerous rock, which lies six miles from Lessoe Island; but the island cannot be seen unless in very clear weather. Having passed the light and brought it to bear S.S.W., a S. ¼ E. course for forty-four miles will take you down to the Anholt Lightvessel (one revolving light). She lies near the extremity of the reef which runs off from Anholt Island in an E.b.S. direction full seven miles. On the island stands a Lighthouse, which shows a flashing light; and when the Lightship is not at her station, a second fixed light is shown to the eastward. When the Lightvessel and the Lighthouse are in one, they bear W. ¼ N. and E. ¼ S. Having passed the Lightvessel about a mile distant, the S. ½ E. course for thirty miles further will take you to the entrance of the Sound; but in a sailing vessel, with a westerly wind, you must be careful you are not set to leeward of the Koll Point into Skelder Bay by the current, which with those winds sets right into the bay. The Koll is very high, and may be seen full twenty miles off. Near the extreme point stands a Lighthouse 270 feet above the level of the sea, exhibiting a bright revolving light. Having made the Koll you will soon



Part of False Koll. Entrance to Skelder Bay. The Koll or Kullen Point. v. S.E. 12′ or 14′. w. Lighthouse. Sound.

Hveen Island, opening of Kromberg, mark to clear the Lappen. w. S.E.b.S. 3 miles, in 20 fathoms.

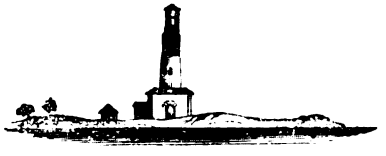
perceive the Zealand shore, which is not so high as the Koll, but is well-wooded, and in a high state of cultivation. There are two fixed lights standing on Nakke Head, so that at night you will have the revolving light on Koll on your port, and the two lights on Nakke on your starboard, hand; and being in mid-channel a S.b.E. ½ E. course will lead down to the Red Beacon Buoy on the northern end of the Lappen ground. But at night, and having no pilot on board, it would be advisable to anchor, either on the Swedish coast under the Koll with north-easterly winds, or on the Zealand shore with south-westerly winds: the latter is to be preferred, as there is better holding ground and freer from danger than the opposite shore. The marks for anchoring are, Nakke Lights nearly in a line, and Koll Point Light N.b.E., in 4 or 5 fathoms, mud. Here there is little or no tide, but a current sets through the Sound to the northward and southward, according to the winds. By daylight you may run up to Kronberg without a pilot, observing to keep Gilberg Head in sight until the Island of Hveen comes open of Kronberg Castle. These marks will lead you clear of the Lappen, which is well-marked by beacons and buoys; there being a Red Beacon Buoy on the northern end, a large Black Buoy on the north-eastern side, and several Brooms up to the end near Kronberg.

Kronberg may be rounded within a ship's length. Here merchant ships must heave to or anchor until boarded by a boat from the guardship, Having procured a pilot, the course towards Copenhagen will be S.b.W. eighteen or nineteen miles; this will take you down to the entrance of the King's Channel. The only danger in the way for large vessels except those alongshore, is the Disken, which lies a mile south of Kronberg Point, and has 4 fathoms on it: it is two miles long and from half to three quarters of a mile wide. Kronberg Spires in a line clears it to the eastward, and the highest part of the Koll Sand just open to the right of the high spire, clears it to the westward. On it is anchorage, but the holding ground is not so good as when to S.W. of it. You may anchor anywhere from Elsineur to Copenhagen. On approaching Copenhagen, as soon as its towers can be seen, bring the highest spire, which is the south-easternmost one, on with the shears at the Dockyard, they form a very conspicuous object and cannot be mistaken, this mark will clear you of the Stubben, and when you see the buoys of the grounds and channel, and have no pilot on board, bring to until you get one, as the entrance to the harbour is

not only narrow but the harbour itself is much confined, and often crowded with vessels: it extends from the Trekronnen Battery to the Dockyard Mole, a distance of about a mile and a half. An extensive flat runs along-shore on the starboard hand, and from the Trekronnen to the sheers on the port hand. Large vessels run in till well clear of the Battery, and bring up as short as possible, letting go the starboard or port or the weather anchor according as the wind is, and then veering away sufficient cable to allow them to drop to leeward as much as possible out of the Fairway, and let go the other anchor under foot. When the wind shifts, one cable must be veered and the other hove in, so that she may ride by the weathernmost anchor, and in as little space as possible. I can give no directions which would be of any service to a stranger navigating between Copenhagen and Dragoe, as the pilot assured me the shoals were constantly shifting and the marks not to be depended upon; but on taxing him with deceiving with respecting to one of the leading marks, he owned that they were forbidden to give foreigners any information, and were sworn to secresy before receiving their pilot certificate; and in a steamer proceeding fast through a channel where the angles are constantly altering it is next to impossible to fix on any leading marks.

From Dragoe to Swinemunde.

Having passed the Dragoe Lightship (one fixed light), a S.S.W. course, eighteen miles, will take you down well clear of Falsterbo Reef and Lightship. In running down the only dangers are the Lille and Bred Grunds on your port hand; but by keeping Falsterbo Lighthouse to the eastward of S.b.E. you will keep well clear of all danger.



Falsterbo Light, S.E.b.E. five miles.

On Falsterbo Point stands a Lighthouse, one half of it white-washed and the other red, as shown in the engraving. It shows a bright fixed light; but it is only lit during the winter months when the Lightship is not at her station. The Lightvessel shows two fixed lights, one a few feet higher than the other; they are hoisted on separate masts, but when the vessel is end on they appear one above the other. She is moored nearly six miles from Falsterbo Point, just clear of the reef, in 7 fathoms. On the opposite coast, at Cape Stevens, a revolving light is shown: it revolves in three minutes, and shows a flash every half minute. In thick weather or in winter always keep the Danish shore on-board, as the soundings are regular up to the beach. Having passed Falsterbo, your course down to Arcona and Jasmund Point will be S.E.b.S.¼ S. fifty-four miles; but if you find a wind prevailing from the north and eastward, beware of a westerly set into Mecklenburg Bay towards the Belt, and haul out in time. On Arcona Point stands a Lighthouse, showing a bright fixed light, at an elevation of nearly 200 feet above the sea, which may be seen twenty-five miles off.

Arcona South.

Trompa Vik.

v. Jasmund Point, S. 19° 30′ E.

Arcona Point is a bluff sandy-looking cliff. The cliffs to the westward of it appear alternate patches of dark and light coloured sand.

Jasmund Point is very remarkable, and may always be known by the white cliff: it is covered with trees, and appears thickly inhabited.

In Trompa Vik is anchorage with southerly winds; but many sand banks lie along the shore, and render a near approach dangerous to large vessels. From a berth off Jasmund to a similar distance from Griefswald Island the course is S. ½ E. twenty miles, and to Swinemunde Entrance twenty miles further.

Griefswald Lighthouse shows two fixed lights, one above the other.

Swinemund Light is a very bad one, and can seldom be seen more than eight miles off. Bring it to bear S.b.W. as soon as possible, and run direct for it till you shoal to 6 or 7 fathoms about half a mile off, and anchor till a pilot comes off. The pilots represented it as difficult for a vessel the length of the *Odin*, 210 feet, to wind inside the moles, and we consequently remained in the roads; but I subsequently heard that the Russian steam frigate *Kamschatka*, a vessel said to be some three or four feet longer than ourselves, has frequently been in and secured alongside the quay.

N.E.b.E. from Swinemunde Entrance, distant about fifteen miles, lies an extensive bank, called the Oder Bank, having, on some parts of it only 17 or 18 feet water; upon it two vessels were lost in 1849. It must be approached with caution, standing no nearer than 6 or 7 fathoms; and when Swinemunde Light is seen (coming from the eastward) it must not be brought more to the southward than S.W. till within ten miles of it. This is from information given me by the Pilot Commodore, who also told me that the Stolpe Bank no longer exists.

From Swinemunde to Hoborg Lighthouse on the S.W. end of Gottland, the course is N.E.b.E. ½ E. about 220 miles; and on approaching the island the soundings on Hoborg Reef are an excellent guide for your position.

From the S.W. end of Gottland to Dagerort is N.E.b.E. one hundred and sixty-three miles. The S.W. and N.E. ends of Gottland are marked by revolving lights, and on the Island of Ostergarnsholm on the east side is a fixed light. On Dagerort, which is the south point at the entrance of the Gulf of Finland, stands a fixed light, visible thirty miles off. On the Island of Filsand is a revolving light in the place of the two fixed lights formerly exhibited. The alteration took place in the early part of the present year. Having rounded Da-

gerort, giving a berth to Neckmans Grounds, you are in the gulf, and from that point to Kronstadt is one succession of lights and lighthouses, all of the very best description.

Having rounded Dagerort, and brought the Lighthouse to bear S.S.E. distant twenty miles, your course will be E. ¼ N. for seventy-five miles. This will take you within range of Odensholm Fixed Light and Packerort Fixed Light; and when the latter bears south or S.b.E., steer E. ¼ N. for another thirty miles, and you will pass successively Sourop Head Light (fixed), Nargen Light (revolving), and Kokskar Fixed Light, between the two latter lie the dangers called Ragnilds Grund, the Reval Stone, the Ny Grund, and Devil's Eye; they are all marked with White Beacons on north and Red Beacons and flags on the south sides. You are to the westward of all of them so long as Sourop Head Lighthouse is open of Nargen Island. Bearing about S.W. ¼ S. and Kokskar Light S.E., will clear them to the northward and eastward. Having brought Kokskar to bear S.S.E. eight or ten miles, an E. ¼ S. southerly course for fifty-six miles will take you up to the little Island of Rodskar. The only danger in this track is the Kalbaden Grund to the northward, which must be approached with caution, as it is said to extend further to the southward than shown in the charts.

Before you make Rodskar, the island of Hogland will be seen. The Sailing Directions advise the passage north of Hogland to be taken; but I differ from them, as it is very narrow between the shoals; while the southward of the island is quite clear, with a clear working channel of at least four and a half miles wide. You may round the south point of Hogland at the distance of half a mile, and by night, when the low light comes in sight you may shape a course E.N.E. for Sommars Island, on which stands a bright fixed light, which may be seen at least twelve miles in clear weather. The island is steep to,

Sommers Island, N.W. ¼ W.

and may be approached by night or day within a quarter of a mile to the southward. Small as this island is, there are a great number of inhabitants on it, and on the N.E. side of the island is a small harbour, with 4 to 5 fathoms water, and good holding ground.

East a little northerly nearly ten miles from Sommars, lies the Island of Nerva, on which a large beacon is erected, which looks so like a lighthouse that in coming up with it in hazy weather it might be mistaken

Nerva Island and Tower, N. ¼ W. one and a half miles.

for Sommars Island Lighthouse. There are no houses on it, and the island appears very level and even, while the contrary is the case with Sommars, as will be seen by these views. Nerva is steep all round.

From Sommars steer E. ¼ S. fourteen miles, and you will have the lighthouse on Seskar bearing S.E.b.S.¼S. nearly, and the reef which runs off it for four miles is between you and it; and an E.b.S.¾S. course will then carry you down between Tolbeacon and London Chests Lights to the anchorage off Kronstadt. With Seskar Lighthouse bearing S.b.W. distant about six and a half miles, we observed two beacons such as the Russians place on the edge of shoals. They are not laid down in the charts. And when close to the northern one we had no bottom at 18 fathoms with the hand lead. They were only seen on our return, so I had no opportunity of making inquiries respecting them. The beacon flags pointing out the channel from Tolbeacon to Kronstadt are Red on the port and White on the starboard side. The anchorage is between Peter the Great and Cronslott Forts, in 4½ or 5 fathoms, mud. Here you swing to ebb and flood, but there is so little tide, you are often wind rode.

Steam Wharf Proposed in Table Bay.

We have received the following letter containing a proposal of Mr. Scott's for loading and unloading vessels in Table Bay, in nearly all weathers, and which, in his opinion, would obviate the necessity for docks, although not for a breakwater. They have also been laid before the Colonial Government.

Wynberg, 9th December, 1853.

Sir,—As the present imperfect harbour accommodation afforded by Table Bay appears to be attracting general attention, I beg, as the projector of an improved method for "Loading, unloading, provisioning, and watering, landing and embarking goods, passengers, and mails," at all times, and in nearly all weathers, to offer my plans for the consideration of the Municipality, as well as for the information of the people of Cape Town and the Colony in general.

It is pretty generally admitted, that the present mode of communication by boats, is slow in action, uncertain as to time, insecure, if not unsafe, even under ordinary circumstances, as well as expensive, and in windy weather impracticable. That the system is highly unsatisfactory to the people in general. That ships are delayed considerably longer than necessary in the prosecution of their voyages, their expenses multiplied, their operations rendered thereby comparatively profitless, their detention in Table Bay certain, their departure uncertain, and to sum up, valuable and expensive property lies in our bay at the mercy of the winds and waves, and the only remedies for such accumulated evils hitherto proposed, are so expensive in design, so

massive in construction, and so remote in expectation or anticipation, that any immediate or reasonable amelioration amidst the chaos of gigantic plans and estimates, seems hopeless.

That unnecessary delays, particularly to the steam-vessels compelled to use our bay as a coaling station, are productive of the greatest mischief to the character of the colony as a place of resort, by rendering it imperative on the large Ocean Steam Companies to seek other places affording better and cheaper accommodation, or avoid the Cape altogether.

It is admitted, also, that now is the time for some effort to be made to rescue the Cape from comparative desertion and well-merited distrust, as well as relieve ourselves of the present expensive and dilatory system, adding, as it does, to the cost price of every imported article.

To coal, or load a vessel, to discharge and land, to provision and water, and, if necessary, embark or land passengers and mail bags in such weather that the ordinary boats cannot move, much less approach a vessel in the Roads, by a sure and certain method, combining the facility of a steam tug with the stability of a wharf, it is hoped will be considered as offering a real and essential benefit, and if not an entire removal of the present difficulties, will tend at least to obviate eleven-twelfths of our present suffering.

The projector, in offering thus much, is prepared for plenty of opposition, and where antagonistic interests prevail much obloquy and disparagement; but conviction of the simplicity and applicability of the contemplated method, both in design and detail, induces him to persevere, and to strive for the common welfare, to prevail on the peo- of this colony to assist in developing a plan, inexpensive in construction, insignificant (in fact) in amount (£10,000 at a rough calculation) compared with the estimated expences of either Breakwaters, Harbours of Refuge, and Docks, easy of attainment, and, better still, almost immediate in application.

I beg to apologize for offering such imperfect plans for public inspection; never having before used scale or compasses I trust will be sufficient excuse. I merely place them before you for the sake of illustration as to the general application of the method.

I have, &c.

BERESFORD SCOTT, R.N.

To the Secretary to the Municipality, &c. Cape Town.

Remarks on Steam Wharf projected by Beresford Scott, R.N.

The anchorage in Table Bay, it is generally admitted, affords excellent holding ground.

I would construct an iron vessel and fit her with steam-bridge apparatus, as at present in use across Portsmouth Harbour.

I propose carrying on operations from the south jetty, or the open beach, to the southward or eastward of the castle, or in a line N.W.

and S.E. from such part of Table Bay as will least interfere with the anchorage.

The chains passing through the vessel over or under two cog wheels ten or twelve feet or more apart, set in motion by steam-engines, will be secured thus: the ends to the N.W. will be to six anchors, somewhat similar to the plan; the ends to the S.E. to the shore.

These chains, after passing through the vessel, will be sufficiently slack, after performing the required effort of propulsion, to fall to the bottom, and will not interfere in any way with the free navigation of the bay, any more than the bridge at present, and for years past, in operation, interferes with the free navigation of the royal Harbour of Portsmouth, which it crosses every quarter of an hour.

As the N.W. and S.E. winds are the principal obstacles to the present system, particularly the latter, and although there is a heavier sea with N.W. winds, still it will be generally admitted that gales from that direction are not so troublesome, from their infrequency, as those from the S.E. I propose carrying on the operations by the steam-wharf on those parallels; but as, from the slackness of the chains, she can swing to any wind with common attention. Winds from other quarters of the compass, generally light and variable as compared with south-easters or north-westers, will therefore not obstruct my movements or disarrange the plan of operations.

In addition to the bridge-apparatus, my idea is, that she should be fitted with paddle-wheels or screws as auxiliaries in case of need, or to enable her to perform the duties of a perfect steam-ship when disconnected, or vessels in the offing requiring assistance. To those unacquainted with nautical matters, it may be as well to explain here, that almost instant disconnection, either with the shore or the outer anchors, can be accomplished by unshackling, (driving the pins out,) and my vessel could then move as an ordinary steam-ship.

It will not be far from correct to assert that S.E. winds prevail nine-twelfths of the year, and that many days are entirely lost by their violence; a glance at my plan will show that for that period my operations will be unobstructed; and as the water at the head of the bay is smooth during these gales, I shall be able, with perfect ease and security, to embark and land at the jetty, by means of my sheers, or across my own stages, joining the jetty, with which, like the bridge at Portsmouth, I would have her fitted.

During N.W. winds, by keeping at a safe distance, which by the depth of water off the jetty, and the proposed light draught of water of the vessel, I could do, and yet land and embark by my sheers. I do not think many, if any, days would be lost by gales from that direction.

The vessel should be built head and stern alike, similar in those respects to H.M. steam-vessel *Janus*, and fitted with rudders, capable of being used at both ends, the one not required or not in use forming the stem, whilst that end may be used as a bow.

The size and steam-power must depend on those undertaking the

object to determine. Great beam, the principal requisite, with the lightest possible draught of water to insure stability, say six or eight feet, size and capacity could be secured by length and breadth, the greater the beam the more buoyant, and thereby the greater spread by sheer be obtained, and consequently distance to a greater extent in proportion be allowed for the loading and unloading. I do not think any weather, if the wind blew steadily from any point of the compass, would require vessels to anchor further from my steam-wharf than three times their own breadth.

To be built in water-tight compartments, one or more of which could be used for the purpose of watering ships, which compartments could be also used for ballasting the wharf, by admitting salt water, if requisite, to give stability on discharging cargo, or provided she was returning to or going off from the shore otherwise empty, and which could be quickly expelled by the engine-pump, could in ordinary weather load or unload four vessels at once, two on each side, or load two and discharge two.

Vessels to load or clear must of course anchor or move to within a reasonable safe distance, say three times their own breadth, abreast of the sheers from which they purpose loading or unloading, as the wind and circumstances may admit and require; and where time is of consequence, such as dispatching a mail-steamer, her own engines would soon give her that command. Other vessels, if not already anchored in or parallel to my line of operations, which could be easily done on first anchoring by means of beacons and land marks, can move when convenient, as they must do even for entering docks, to the required position.

The tackles from the vessel's mast-head or yard-arm, as the case may be, must be connected with the tackles from my sheers before commencing operations; if this cannot be done by boat, or from the end of the sheers, or lower boom ends, or the usual methods familiar to seamen, from the violence of the weather or other causes, Manby's simple but certain apparatus could in that extremity be used, by which connection could be established and the work commenced.

Such is a general outline of the plan I propose.

BERESFORD SCOTT, R.N.

The Commissioners expressed their obligations to Mr. Scott for the interest he had manifested in the improvement of the bay.

BEHRING STRAIT EXPEDITION.

The despatches of Captain Maguire from the Behring Strait division of the search are far too voluminous to be transferred to the pages of the *Nautical Magazine*; but are, nevertheless, of much interest. Great credit is due to him for his successful exertions in

getting the *Plover* into harbour at Point Barrow, and for his judgment and extreme forbearance with the troublesome natives of that place, who were ever on the alert to pilfer and often threatened attacks upon the crew; which were, happily, resisted without loss of life,—only one accident having occurred, by which a native was unintentionally shot, through the inadvertence of one of the *Plover's* crew.

Captain Maguire has again gone up with the *Plover* to Point Barrow, as a depot for any parties from Captain Collinson's ship that might fall back upon the coast; while the *Rattlesnake*, under Captain Trollope, winters at Port Clarence.

The following is the last letter received from Captain Trollope, (by the *Koh-i-noor*, trader,) dated a few days subsequent to the departure of Captain Frederick, of the *Amphitrite*; which ship will, probably, again go up this summer to communicate with the relief ships.

The *Koh-i-noor*, a small schooner of 135 tons, George Levine, Master, from Hong Kong, is on her return to that port, and I take the opportunity of writing although, I have nothing to add but that we are watering, wooding, and preparing for the winter.

The *Koh-i-noor* is trading for skins and walrus teeth; she left Hong Kong on the 27th May, and arrived here on the 2nd August, whence she proceeded to the coast of Asia, but does not appear to have gone farther than Koliutchin or Burney Island.

The Supercargo, Mr. Gustav Overbeck, told me that he found the natives had papers, in French and Russian, addressed to any ship-wrecked persons, desiring them to write their state and condition on the back, when the papers would be forwarded to the Russian ports and measures taken to assist and relieve them. He did not make an exact copy, but this was the purport, and it appears so far satisfactory as proving that even in this remote quarter steps have been taken by the Russian Government for assisting our missing countrymen; and as this has accidentally been proved in this part, the most distant from the Russian head-quarters, it may be inferred that similar measures have been taken more to the west.

Mr. Levine reports having seen or fallen in with twenty-five sail of whalers; whales, walrus, and seals in the utmost abundance. He had some very fine specimens of tusks, some, the pair, weighing 20lbs, while the average is 5lbs. to 10lbs. and 12lbs. Altogether, he seemed to think a profitable voyage had been made, and that they would double the original outlay.

The ice appears to have prevented their further advance, as it seems to have been his wish to have gone up to Herald Island; but his reports are vague in this respect, and he had not paid much attention to his position.

The *Koh-i-noor*, or some similar vessel, is to leave Hong Kong in May, 1854, and renew the voyage they have made this year, and he speaks of coming to Port Spencer with supplies of potatoes, pigs, &c., for the whalers. I mention this as it may be convenient to their

lordships to know that such means of communication exist. Mr. Levine tells me that he informed the senior officer at Hong Kong that he was coming here, and offered to bring any thing for Captain Collinson's ships.

I have the honour to be, &c.,
HENRY TROLLOPE, Commander.

On going on board the *Koh-i-noor*, I found that Mr. Overbeck had made a copy of the French part of the paper alluded to in my letter.
12th September, 1853. H. T.

Messieurs les étrangers !—Les croiseurs m'ont donnés la connaissance de votre naufrage près du côte de l'empire Russe. C'est pourquoi je vous prie de m'avertir en écrivant sur le papier.
De quelle pays êtes-vous ?
Quel est le bût de votre croisière sur la mer glaciale ?
De quel moyen pensez vous revenir à votre patrie ?
Et ne faut il pas pour vous quelque recours ?
FERDINAND CHMIEHWSSKIEY.
Fredne-Kolymsk, le 24 Mars, 1853.

KANE'S ARCTIC EXPEDITION.

A letter from Dr. Kane, giving the experiences of the Arctic expedition under his command up to July 30th, 1853, has kindly been communicated to us. It is the first letter received from him since the expedition sailed, and is written in a hopeful and encouraging spirit. The gallant commander describes a calm, of twelve days' duration, which came over them, and they lay almost still, ancient mariner-like, like a painted ship upon a painted ocean. This calm began on the 30th June. Then a stiff breeze set in from the south, hauling shorewards, and sending them on at the rate of eight knots an hour. During the calm, Commander Kane had sent into Sukkertoppen and laid in a good supply of reindeer skins, filling at the same time his water casks.

The Commander then proceeds to describe his procedures for undertaking a long sledge journey, and his plans generally. It was his intention to remain in the brig as long as possible, seeking a harbour on the eastern side of Smith Sound. The moment the vessel comes to anchor he will leave Olsen, a trustworthy man, in charge, to prepare for winter quarters, drop his whale-boat, with himself, the Esquimaux, and seven men, and take advantage of in-shore tide-leads to continue his journey to the north. The Commander describes particularly the amphibious qualities of the boat—for water or ice—together with her provisions for ninety days, exclusive of forty days for her crew. The object of this is to establish a depot in the autumn months, before the full setting in of winter; a matter which the Commander thinks perfectly practicable, though not yet undertaken by the English explorers. He anticipates that his return to the brig will probably be during the solemn darkness of the winter night; but, apart from the novelty and excitement of such a journey, the moon, in his high northern declination, will come in at the very nick of

time, becoming circumpolar on the 13th October and November, and giving twelve days of unbroken light. With the aid of lunars, and constantly recurring meridian observations of the stars, no danger of losing his way was apprehended. The Commander had been laboriously occupied in fitting out for this journey. Upon establishing the depot, to serve as a provisioning centre for after operations, he hoped to return to the brig afoot, leaving the boat, in case of finding the open water, by which he trusted to be able to follow the traces or direction of the missing ships. His next journey would not take place until the retnrn of light, as a few weeks' rest would be essential.

Dr. Kane had obtained, during the calm, several observations as to the position of the coast-line of Greenland between Fiskernæs and Sukkertoppen, a distance of 140 miles. These determinations show that the coast-line upon the Danish charts of Graah, as well as those of the English and the late expedition, is nearly an entire degree of longitude too much to the westward. He removes it some twenty-six miles to the eastward—an important change in the axis of Baffin Bay.—*From a New York paper of January 17th.*

Dr. Bodenstadt on Russia and Circassia.

At the present crisis the following account of Russian rule, given by Dr. Bodenstadt, in a work entitled the *Morning Land*, is interesting:—

It is incredible how ruinous and demoralising the Russian influence is on all the tribes subjected to the sceptre of the white Czar. The manners and customs peculiar to the country, which have occupied for centuries the place of laws, vanish before the foreign intruders, without being supplanted by anything better. The distinctions of goodness are effaced, and the bad is extended and generalised, as the weed luxuriates everywhere with ease, while flowers and fruit trees need careful training.

The Russians cannot ply this training, for they have never shared in its beneficient influence themselves. They can only multiply the primordial ills and burdens of the people, without giving them a moral counterbalance.

The only things they bring with them into the conquered lands are new coercive measures from the old coercive state, new forms of deceit, of falsehood, and of abuse of the church for objects of police.

Following the course of thought, let us look, for a while, at the two provinces lying nearest us here, Georgia and Armenia, to which the Emperor, in exchange for all the sacrifices wrung from them, has hitherto been able to offer nothing but a French dress coat and the Russian language.

What advantage is it to these people that, in order to attain, conformably with the ruling prejudice, an appearance of civilization, they are forced into clothes and gloves of French cut, at the expense of their own picturesque national costume?

What advantage, further, is it to them to renounce their own language and customs, for the purpose of receiving the Russian language and customs in their stead?

The Georgian as well as the Armenian literature can claim for itself a perfect equality with the Russian. Whatever of new the Russians have to offer in this respect belongs not to themselves, but is borrowed, mutilated and falsified from the German, English, and French.

Is Russian erudition, forsooth, to play the part of mediator between these provinces and classical antiquity? A single glance at the catalogue of the old library of Ethsmiadsin suffices to show that this is unnecessary.

As the Armenians had an excellent translation of the Bible half a century before the Russians knew anything of Christianity, so they had likewise translations and imitations of the ancient classics long before the Czar's dominion grew up from the ruins of the republic of Novgorod, a grave of culture for the old, and a scourge for the new world.

Or is it imagined that Russia has promoted the agriculture, the commerce, the trade, the industry of the Georgians and Armenians?

Few of the children of these lands find their bread in the workshop, but many find their death on the battle-field.

The agriculture still reminds one of the primitive condition of men, and has only been promoted here and there by those Governors who, like Prince Woronzov, have found in it a favourite occupation.

Of the trades, those only flourish which produce the instruments of war, arms, and military accoutrements.

And how can it be otherwise in lands where, for more than half a century, all human activity, on the great scale, has been directed solely to battle, murder, and destruction, and the merits of men are only reckoned by the number of their fellow-men whom they have slain?

The arts of peace love not the noise of war, and fly affrighted before the thunder of cannon, the trampling of steeds, and the trumpets of battle.

What remains, then, still left for the conquerors to do for the welfare of these lands?

He who, with attentive ear and eye, travels through the wide empire of the Czar, surrounding three parts of the world with its snares, and then takes the sum of his contemplations, will tremble in thought at the destiny which this colossus of nations has yet to fulfil.

He who doubts of the impending fulfilment of this destiny knows not history and knows not Russia.

However different in origin and interests the strangely mingled hords may be which constitute this giant realm, there exists one mighty bond that holds them all together—the Byzantine church! Whoever remains out of it will soon be forced into it; and ere the coming century begins, all the inhabitants of Russia will be of one faith.

Already that great net, whose meshes the Neva and the Volga, the Don and the Dnieper, the Kyros and the Araxes, form, incloses a preponderating Christian population, in whose midst the scattered Islamitish race, the descendants of the Golden Horde, are lost like drops in the ocean.

What a marvellous disposition of things, that the Russian empire, whose governing principle is the diametrical opposite of the Christian law, should be the very one to make of Christianity the corner and keystone of its might! And a no less marvellous disposition of things is it, that the Czar, in whatever direction he stretches his far-grasping arms, should find Christian points of support whereon to knit the threads of fate for the followers of Islam, artfully scattered by him: that he should find Armenians at the foot of Ararat, and Georgians at the foot of Caucasus!

But of what kind is this Christianity, that masses together so many millions of human beings into one great whole, and uses them as moving springs to the manifestations of a power that will sooner or later give the old world a new transformation?

Follow me for a moment into the Russian mother-land, and throw a flying glance over the religious state of things prevailing there.

See that poor soldier, who, tired and hungry from his long march, is first performing his sacred exercises ere he takes his meal and seeks repose.

He draws a little image of the Virgin from his pocket, spits on it, and wipes it with his coat-sleeve; then he sets it down on the ground, kneels before it, and crosses himself, and kisses it in pious devotion.

Or enter with me, on a Sunday, one of the gloomy image-adorned Russian churches. If the dress of those present is not already sufficient to indicate their differences of station, you may readily distinguish these by the manner in which each person makes the sign of the cross.

Consider first that man of rank, as he stands before the miracle-working image of a Kasanshian Mother of God, bows slightly before it, and crosses himself notably. Translated into our vernacular, the language of this personage's face would run in somewhat of the following strain:—"I know that all this is a pious farce, but one must give no offence to the people, else all respect would be lost. Would the people continue to toil for us if they were to lose their trust in the assurances we cause to be made to them of the joys of heaven?"

Now, look at that kaftan-clad, fat merchant, as, with crafty glance and confident step, he makes up to the priest to get his soul freed from the trafficking sins of the past week.

He knows the priest, and is sure that a good piece of money will meet with a good reception from him. That is why he goes so carelessly, in the consciousness of being able to settle in the lump the whole of his sinful account; and when the absolution is over he takes his position in front of the most miraculous image, and makes so prodigious a sign of the cross, that before this act all the remaining scruples of his soul must vanish away.

Consider, in fine, that poor countryman, who steals in humbly at the door, and gazes shyly round him in the incense-beclouded spaces. The pomp and the splendour are too much for the poor fellow.

"God!" he thinks, "but what a gracious lord the Emperor is, that he lets such fine churches be built for us poor devils! God bless the Emperor!"

And then he steps timidly up to some holy image, where the golden ground and the dark colours form the most glaring contrast, and throws himself down before it, and crosses the floor with his forehead, so that his long hair falls right over his face; and thus he wearies himself with prostrations and enormous crossing, until he can do no more for exhaustion. For the poorer the man in Russia, the larger the cross he signs and wears.

* * * * * *

The condition of the tribes hostile to Russia, that inhabit the provinces lying between the Kuban and Black Sea, takes us back to the very beginning of human society. Here, there is no state, in our sense of the word—no long descended princely house, possessing greater power than any other house; no government by the grace of God or man; no official rank, no police, no standing army, no caste living at the cost of others—nothing, in short, at all of what in Europe is held indispensably necessary to the maintenance of political prosperity and to the settlement of hopeful sons.

The foundation of social order among the Circassians is the clan-life, as it has existed among them for thousands of years in almost unaltered form. The single tribes, originally developed from single families, have grown up by degrees to perfect states (in size and population), without ever feeling the need of regulating their affairs otherwise than according to old-established usage. Never was a written law prevalent in this country—writing, indeed, to the present day, being here a rare art, of which even among the most distinguished of the people, only a few can boast. The sole, universally recognized law, in-dwelling in the individual, and extending over the whole tribe, is the law of mutual help.

The family ties are scarcely so strong among us as those which entwine

around the population of a whole Circassian tribe. Such a tribe (tokum), notwithstanding the internal connection of its members, and the solidity of its interests, does not, however, of necessity form a locally united whole. The single constituents of a tribe may dwell scattered about all over the land; they are held together by the oath taken on their entrance into the union, and by the great advantages arising to them from this union. If, for example, a member of the tribe of Tshikapu is robbed, injured, or murdered by a member of the tribe Pshu, the tribe Pshu is answerable, as a body, for the crime committed, and both tribes remain at feud until the misdeed is atoned for according to established usage, *i.e.*, until a penalty corresponding to the offence is paid. This penalty commonly consists in the surrender of a certain number of oxen determined by the greatness of the crime. For slaying a man, the tribe to whom the murderer belongs has to deliver up 200 oxen; for slaying a woman, 100 oxen; for carrying off a maiden, 25 oxen. In a similar way a penalty is fixed for every offence. In doubtful cases the question is decided by an oath court, composed of twelve persons, the six eldest of whom are men of blameless lives chosen from each tribe. Great respect is associated with the dignity of a sworn man, which likewise includes in itself the office of judge; and no one to whom the slightest stain attaches is admissable to this dignity. The decision of the sworn men is held sacred by the people, and they have power of life and death over the accused when their verdict is unanimous. Wilful murder is commonly punished, apart from the penalty to be paid by the tribe, with death. The execution consists in fastening a heavy stone round the murderer's neck, and hurling him into the sea. Owing to the very obligation of a tribe to answer for each of its members, a keen mutual oversight prevails among them, which is more effective than the best system of police, and the carrying out of which is rendered all the easier as the Circassians never dwell together in large communities. Their largest aouls are scarcely equal in population to our smallest villages. It happens, therefore, that the inhabitants of an aoul are always intimately acquainted with the circumstances of each other's property and possessions; and the increase of a household's cattle, sheep, and horses (the common object sof robbery) can never remain a secret long.

If, however, it happens that the clan is unable to find out the criminal, or makes objections to paying the required penalty, every member of the clan is considered an accomplice, and remains exposed, during the pending of the cause, to insult and ill-treatment of all kinds. Not only, then, must he carefully beware of setting foot in a hostile aoul, but in every third place where he meets with a warrior of the injured clan a bloody scene is almost sure to follow.

The clan is answerable for the individual, and the individual for the clan. The injury as well as the satisfaction always comes to the account of the common clan-union. Expiation is made, not by the criminal, but by his innocent fraternity. Satisfaction is received, not by the injured party, but by the tokum to which he belongs.

* * * * * *

The public affairs of the tokum are always discussed in a medzhiliz (council of the people), under the open sky. Every free man has a right of taking part in the consultation. Generally, however, a representation here takes place; the acknowledged wisest and bravest men being chosen from the midst of the people, and allowed to have oversight and rule unhindered, so long as it is manifest they do not act against the advantage of the clan.

Since the introduction of Islam into this country, it has been the custom of the peoples' councils, as well as in the oath-court, for at least one learned kadi to be present, to explain the institutes of the Koran in application to the case

in question. This, however, exercises little influence on the decisions of the Tamata; the old custom of the country being always held to be still more sacred than the Koran. Use is stronger than religion, and, where the two meet in conflict, the former invariably comes off victorious. The Circassians endeavour all the more to be good Mohammedans, as Christianity has become so hateful to them through the Russians; notwithstanding, they lay little stress on the Mohammedan festivals, whilst they observe with great scrupulousness the feasts of their old deities, Shiblé, Tleps, Sseosseros. This may, no doubt, be chiefly explained from the circumstance that their old heathen holidays, in contrast with the Islamitsh, wear a prevailing cheerful expression, and are connected with great animal sacrifices, merry-makings, and feastings.

For, just as great as the endurance with which the Circassian bears privations of all kinds when necessity requires it is, on the other hand, his inclination for the joyous banquet. In the field, the warrior takes a handful of raw millet and a draught of fresh spring water, contented, without murmuring; but at home, in the circle of friends, he readily regales himself with good roast meat, with pilav, with busa, and arka, and with the many sweet pastries and messes peculiar to the country, prepared of maize, millet, and honey. Vegetables of all kinds, though the land is admirably fitted for their cultivation, are as much forbidden and hated among the Circassians as swine's flesh. Roast meats and sweet-breads are always and everywhere the chief constituents of the repast. Just as among the Georgians and Armenians, what is left in the dishes is, immediately on changing them, eaten by the servants, partly standing, partly sitting down, one after another, in a corner of the room.

Occasion for great festive gatherings is given especially by the medzhiliz, by the gaining of a victory, as well as by every joyous and mournful family event.

Every Circassian has his own house, to which a little outbuilding or guest-house is always attached, where every stranger finds at all times friendly reception, food, and lodging. The hospitality of the Circassians is world-famed, and deserves, indeed, the mention of praise; though it differs in no essential respect from the hospitality of the other mountain-races of the Caucasus, except in being more restrictive, which existing relations of course require. Among the neutral tribes, or those which are friendly with the Russians, such as the Kabardians, Ossets, Tushians, &c., any one can find a hospitable reception, without thereby putting the kunak into great embarassment; but the hostile Circassians must strictly see to it that, under the protection of hospitality, no spies or Muscovitish emissaries steal into the land, as has already repeatedly happened. I need only call to mind the two German names, Tausch and Thurnau. Tausch, a common fellow, who suffered himself to be employed by the Russians for any purpose for the sake of gain, came off, as the course of things so often is, with sound skin; whilst Baron von Thurnau, a distinguished Russian officer, lived for nearly three years in mournful captivity among the Abazechians.

VEGETABLE RATIONS WITH SALT PROVISIONS.—The favourable reports made upon Edwards' Patent Preserved Potato as an invaluable sea store, have brought this economical article of diet into general use. According to the East India Company's scale of victualling for the troops, &c., a ration of this potato, (equivalent to half a pound of the vegetable when cooked,) is supplied three times a week with the *salt meat*, at the trifling cost of about a halfpenny per ration. We have always considered this prepared vegetable a great boon to our naval messes, as also for transports and military services at foreign stations, for which it is peculiarly adapted, both in an economical as well as medical point of view.

Bottle Papers.*

(Continued from vol. xxii. p. 440.)

Ospray.—Track 45.

Trinidad, 10th August, 1822.

Sir,—I have the honour to transmit to you the enclosed document taken out of a bottle thrown on the coast of Mayaro in this island on the 28th ultimo.

I have, &c.,

Aretas William Young, Ad.-Gen.

J. W. Croker, Esq., Secretary, Admiralty.

"The bottle which contains this card was thrown into the sea in lat. 6° 18′ S., long. 15° 35′ W., at noon on the 17th day of Jan. 1822, from the ship *Osprey*, of Glasgow, which sailed from Greenock on the 20th day of February, 1820, on a trading voyage round the world. Whoever finds this is requested to insert a notice of the time and place in some literary or political publication, with the view of establishing facts relative to the currents of the ocean. Eighty-seven days from Calcutta towards Greenock. 'All well.'"

Windermere.—Track 45 *a*.

Pernambuco, 23d December, 1851.

Sir,—I have received the enclosed from Mr. H. Ellery, U.S. Vice-Consul at Ceara, who says it was picked up off that port on the 29th ultimo.

Yours, &c.

Hy. Christophers.

"Barque *Windermere*, R. C. Ross, Commander, from London, bound to Hobart Town, September 20th, 1851. All well. Lat. 5° 35′ S., long. 22° 4′ W. It is requested that the account of this may be sent to the Editor of the *Nautical Magazine*, London."

Lady Montague.—Track 46.

Guernsey, 13th August, 1821.

Sir,—As nothing that relates to Navigation can be indifferent at the Admiralty Office, and a note of facts connected with it is probably taken and preserved there, I think it proper to inform you that a bottle was picked up at sea near the Hanway Rocks, on the west coast of Guernsey, on the 6th August, 1821, containing a paper with these words.

"This bottle was thrown overboard two leagues and a half N.E. of Ascension Island, from the American ship *Lady Montague*, from New York toward the Island of Borneo on the 15th October, 1820, in order to ascertain the currents in those latitudes.

Captain, James Poore
Chief Mate, Wm. Simons
Second Mate, Peter Jones
Boatswain, John Eliot
Carpenter, John Cox."

I have, &c.,

Daniel de Lisle Brock,
Bailiff of Guernsey.

To J. W. Croker, Esq.

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* For Chart of tracks see number for November, 1852.

MARY OF HALIFAX.—Track 47.

Custom-House, Westport, 22nd July, 1840.

Sir,—This day the enclosed paper was handed me by Robert Mealy, who picked it up at Clare Island, and brought it to Westport, a distance of eighteen miles, for the purpose of being transmitted to your Office. He has requested me to bring his claim before you for some remuneration for his trouble. Should the reward sought be a usual thing, I beg to recommend him to your favourable notice.

I have, &c.,

RICHARD DOWNLEY, Collector.

Secretary of the Admiralty, London.

"This bottle was throwu overboard from the British barque *Mary of Halifax*, James H. Godfrey, Master, in lat. 47° 20′ N., and long. 27° 25′ W., on a voyage from Savannah to Liverpool, this 22nd day of March, 1840, wind S.E.

"This paper found 11th day of July, 1840, by me at Clare Island Lighthouse in lat. 53° 45′ N., and long. 10° 36′ W.

ROBERT MEALEY."

NAVAL STRENGTH OF GREAT BRITAIN.

To estimate this, it is only necessary, after recollecting that we have already a splendid fleet in the Black Sea, to consider the force of the Squadron which is destined to operate in the Baltic. On this service we are to dispatch 15 ships of the line, 4 screw steam-ships, and 11 heavy frigates. This force, even in mere numbers, is at least double that with which some of our most famous actions were fought and won; but, in point of fact, such a method of enumeration would convey no adequate notion of the truth. Every vessel now commissioned is nearly twice as powerful as vessels of the same nominal rate fifty years ago. Every gun now is as destructive as two were then. Nelson in one of his greatest victories had 13 ships, which mounted 938 guns: the 15 ships of the line in the Baltic Fleet will mount 1,431; the screw sixties, 236; and the frigates, 343. This makes a total of 1,810 guns—each gun being in calibre, construction, and improvements incomparably more formidable than of old. Science, too, has now made us independent of wind and tide. Of the thirty vessels which will form the Baltic Squadron, being five three-deckers, with *Duke of Wellington* at their head, five nineties, three eighties, two seventies, and four sixties, besides others, small only by comparison, no fewer than twenty-three will be moveable by steam power, so that the main strength of the Squadron can be brought to bear upon any point at any moment.

The Fleet for the North Sea and the Baltic.

	Guns.	
Duke of Wellington, screw.....	131	Western Squadron
Neptune	120	Portsmouth
St. George	120	Devonport
Royal George, screw	120	Devonport
St. Jean d'Acre, screw	101	Western Squadron
Princess Royal, screw.....	91	Portsmouth
Cæsar, screw	91	Portsmouth
Nile, screw	91	Devonport
James Watt, screw	91	Devonport

	Guns.	
Prince Regent	90	Western Squadron
Monarch	84	Sheerness
Cressy, screw	81	Sheerness
Majestic, screw	80	Sheerness
Boscawen	70	Portsmouth
Cumberland	70	North America
Blenheim, screw	60	Portsmouth
Hogue, screw	60	Devonport
Edinburgh, screw	58	Portsmouth
Ajax, screw	58	Cork
Imperieuse, screw	51	Western Squadron
Euryalus, screw	51	Sheerness
Arrogant, screw	46	Western Squadron
Pique	40	Devonport
Amphion, screw	34	Western Squadron
Dauntless, screw	33	Portsmouth
Tribune, screw	30	Western Squadron
Leopard, paddle	18	Portsmouth
Magicienne, paddle	16	Western Squadron
Valorous, paddle	16	Western Squadron
Desperate, screw	8	Western Squadron

Naval and Military Gazette.

THE ROYAL STEAM FORCE OF GREAT BRITAIN.—The following account of the progress of our royal steam navy appears in a contemporary:—"England possesses more marine steam power in her Royal Navy than all the imperial steam fleets of the world combined could furnish. A few years since we possessed only some 14,000 horse power, but on the 1st of January, 1854, the British navy included no less than 202 steam vessels of all classes, whilst the nominal steam power of machinery in those ships represented more than that of 55,300 horses, with a reserve of 2,800 horse power available for other royal ships."

NAUTICAL NOTICES.

LOG OF THE "BRAZILIERA," FROM LIVERPOOL TO THE RIVER PLATE.

The South American and General Steam Navigation Company was established last year for the purpose of securing a monthly line of screw steamers of the first class, to run from the Birkenhead Dock to Brazils and the River Plate, calling at Lisbon, St. Vincent, Pernambuco, Bahia, and Rio de Janeiro. The first vessel placed on the line was the *Braziliera*, built by Mr. John Laird, of Birkenhead, and of the following dimensions and power:—Length, 230 feet; beam, 30 feet; tonnage, old measurement, 1,014, new, 1,100. Her engines are direct acting, of 200 h.p., nominal; 54 in. cylinder, and 2 ft. 9 in. stroke, driving a propeller 14 ft. 6 in. diameter and 26 ft. pitch, 45 to 50 revolutions per minute. She was fully loaded with coal and cargo on her first trip, of which, as far as Bahia, we annex the Log, and we understand the load displacement on leaving Liverpool was 1,700 tons.

The establishment of this line will be a great convenience to this country, the Brazils, and Portugal, but especially to Manchester and the manufacturing districts, where the company has its principal shareholders and directors, James Aspinall Turner, Esq., of Manchester, President of the Commercial Association, being the present Chairman of the Company.

ABSTRACT OF LOG *of the Screw Steam-ship "Braziliera,"*

Date.		Winds.	Courses.	Distces.	Latitude.	Longitude.	Consump. of Coal.
1853.					° ′	° ′	tons cwt.
August	25	N. & Vble.	Various.	205	51 40N.	6 56W	26 12
	26	W.N.W.	S. 19°W.	109	49 59	7 40	25 3
	27	Westery.	S. 29 W.	157	47 45	9 35	23 19
	28	Variable.	S. 5 W.	254	43 35	9 47	23 14
	29	N.N.E.	S. 2 E.	243	39 35	9 40	26 0
	30	6 hours.		65			5 0*
	31	N.N.W.	S. 47 W.	203	36 26	12 17	19 12
September	1	N.E.	S. 39 W.	264	32 55	15 49	21 16
	2	E.N.E.	S. 25 W.	252	29 7	17 53	23 12
	3	E	S. 25 W.	254	25 20	20 0	22 15
	4	E S E.	S. 26 W.	251	21 35	22 0	24 11
	5	Variable.	S. 33 W.	267	17 51	24 47	26 0
	6	Variable.		66			7 8
	,,	N.E.	S. 23 W.	121	15 3	25 53	11 14
	7	Variable.	S. 6 W.	223	11 22	26 10	20 10
	8	S.b.W.	S. 5 E.	173	8 31	25 47	24 18
	9	Southerly.	S. 14 W.	221	5 0	26 38	24 4
	10	S.	S. 21 W.	234	1 34N.	28 30	24 12
	11	S.S.E.	S. 30 W.	265	2 14 S.	30 39	23 18
	12	S.E.b.S.	S. 27 W.	287	6 27	32 39	25 4
	13	S.E.	S. 56 W.	167	8 3	34 53	15 7
	14	S.b.E.	S. 24 W.	204	11 9 S.	36 22W	21 7
	15	S.S.E.	S. 47 W.	184			16 5

* Lighting up 4 vs. before going out of dock; going round light-ship, about 15 tons more.

from Liverpool towards Lisbon and South America.

REMARKS.

25th. A.M. Breeze increasing and sea getting up; p.m. strong gales, vessel shipping much water.
26th. A.M. Blowing a whole gale; p.m. ditto, with engines going dead slow; ship under balance reef topsail.
27th. A.M. Strong gale, started head rails, and other damage; p.m. more moderate, carrying all sails at times.
28th. A.M. Wind moderating; p.m. moderate and fine, wind fresh and all sail set
29th. A.M. Light winds and fine throughout; at 5 p.m, off the rock of Lis-
30th. bon; 8.45 moored to the buoy in the Tagus.
P.S.—During the gale she went through the water four miles per hour, engines dead slow, and under balance reef fore and main trysails, four points from the wind.
31st. These 27½ hours steady breeze from the northward under all sail.
1st. Twenty hours out of these twenty-four cut off greater working expansively. Porto Santo in sight.
2nd. Steady breeze, all sail set, working nearly full steam, Palma in sight.
3rd. Light wind, working expansively, hot sultry weather, 44 revolutions, port.
4th. Light easterly winds throughout, engines 45 revolutions, wind doing little good.
5th. The whole of these twenty-four hours light winds from N.E.
6th. The latter part of these six hours blowing hard from the N.E. The same at anchor. During the passage from Palma we experienced light trade winds, so that I could not attempt one boiler, we having economized our fuel as much as possible, which you can see by our small consumption. All hands give general satisfaction, and I hope to be in Pernambuco on the twentieth day from Liverpool.
Left Port Praya, St. Vincent, at 10.45 p.m.; twelve hours with one boiler only.
7th. Eight hours under one boiler; midnight wind flew into the S.W.
8th. These twenty-four hours strong southerly winds and head sea, shipping water forward.
9th. Strong southerly wind and current setting S.S.E., under topsails and jibs, water smooth.
10th. Steady breeze and fine clear weather, all sails set, useful.
11th. Throughout the whole of these twenty-four hours steady breeze and fine, all sail set.
12th. Fresh breeze throughout the whole of these twenty-four hours, all sail set.
13th. Steady breeze at 1.15, a.m.; Pernambuco Light W.S.W. five leagues at 2.25 a.m. Came to anchor in Pernambuco Roads, 8½ fathoms water, Light bearing N.W. ½ W. one and a half miles.
Thus performing the voyage from Liverpool Rock in 19d. 12h.
14th. Left Pernambuco Roads at 3 p.m.; left behind the surgeon and one passenger; light winds.
15th. Steady breeze and fine weather, under all canvas at 3.15 a.m.; Bahia Light W.b,S. six leagues; at 5.30 anchored at Fort do Mar.

DANIEL GREEN.

On the Westerly Variation in the South Atlantic and Indian Oceans.

At Sea, December 17, 1853.

Sir,—Having found, for several voyages, that the Westerly variation in the South Atlantic and Indian Oceans is increasing, and as the weather from the Cape to St. Helena is often cloudy, that no observations can be obtained, which has caused vessels to miss the island, by allowing the variation marked on the chart, I send you my observations from the Straits of Sunda to the Equator, taken during my last voyage from China, if you think them worth publishing.

Date 1853	Lat. ° ′	Long. ° ′	Var. ° ′	Date 1853	Lat, ° ′	Long. ° ′	Var. ° ′
Oct. 20	12 20 S.	90 50 E.	2 15 W	Nov. 9	31 0 S.	35 10 E.	28 15 W
25	17 30	76 0	7 15	14	34 35	25 30	31 0
27	19 50	69 0	9 0	17	32 40	13 40	28 0
28	21 0	65 40	10 10	20	26 45	5 35	27 0
Nov. 1	24 30	55 50	16 0	25	17 10	4 35 W	25 0
4	26 30	48 30	19 45	Dec. 1	11 15	11 50	21 30
5	27 30	45 40	20 40	3	8 20	14 45	21 0
7	29 0	40 45	23 0	6	3 20	19 10	19 30

In your number for January, 1852, your correspondent "H." remarks, that timely notice should be given of new Lights, referring to those on the South coast of Ireland, I will give you an instance in which I was much perplexed with Ballycotton Light. On the 5th January, 1852, (being then on my passage from Mauritius to the Clyde,) I was steering along that coast, with a fresh gale at S.S.W. and thick rainy weather, when I sighted Ballycotton Light. Not being aware of any lighthouse being in the course of erection there, I did not know what to make of it, and had I not been confident of the ship's position, I would certainly have hove to, thus losing time, or I might have mistaken it for some other light; as it was, it gave me unnecessary anxiety until I made the Tuskar Light.

Every Shipmaster should have timely notice of any alterations in the lights around our coast This could be easily done by furnishing each vessel with a list of alterations intended, previous to clearing outwards at the Custom House.

The first notice I saw of Ballycotton Light was on my arrival at Greenwich, but it would have been too late to know it then, had I run my vessel ashore in consequence of mistaking that light for some other.

I remain, Sir, your obedient servant,

P. B.

To the Editor of the Nautical Magazine.

[Query: Are these Variations corrected for Local Attraction?—Ed.]

On the Position of Pulo Cambing, in Biema Bay.

Sydney, New South Wales, 24th, Nov., 1853.

Sir,—Having but recently seen the last, or Sixth edition of Horsburgh's India Directory, and in comparing parts of it with those of the Fifth in my possession, I was much surprised at noticing in it for the first time the latitude of the North end of Pulo Cambing, in Biema Bay, to be as stated by me 8° 7′ S, while in the former 8° 27′ S. To a person seeing both, would render it questionable which to assume as the correct, irrespective of rendering doubtful the accuracy of the longitude, with such a discrepancy in the latitude. On reference to my day book for observations, I find them to have been as under particularized; and on further reference to my letter book, find that I enclosed the late Mr. Horsburgh, on the 27th of March, 1833, a sketch of Biema Bay, and from

nothing being mentioned in the letter of either latitude or longitude, conclude they must have been stated on the sketch, the original of which I cannot now find, and am therefore perfectly at a loss to know how such an error could have arisen, being well aware of the attention and accuracy of my late esteemed friend.

I remain, Sir, your's obediently,
SAMUEL ASHMORE.

1828, Sept. 27th, Aldebaran, Mean Meridian Altitude,	°	′	″
used the Index error	8	26	33
,, ,, 27th and 28th, Capella	8	26	32
,, Oct. 8th and 9th, Canopus.....	8	27	21
Means of Stars North and South	8	26	56 S.

The altitudes were taken on a quicksilver horizon, and a Troughton's reflecting circle.

	°	′	″
Sept. 21st to 18th Oct., 16 Sets of Lunar distances W. of the Moon	118	44	7E.
,, 29th to 4th Oct., 25 Sets ,, E. of the Moon	118	48	29
Mean of Observations E. and W. of the Moon	118	46	18

Longitude by Chronometers 118° 46′ 45″ E., or 4° 42′ 26″ W. of the S.W. end of Timor.

To the Editor of the Nautical Magazine.

PASSAGES ACROSS THE LINE.

Liverpool, January 12th, 1854.

SIR,—Having read a letter in your Magazine of November, 1852, signed "A Novice," and you requesting other Masters would send you accounts of passages across the Line, I herewith send for the information of the Novice and others, extracts of my last three voyages out and home.

I passed Madeira, bound to Calcutta, on the 8th March, 1851, with a fiesh breeze from N.E, and passed to the Eastward of the Cape de Verds on the 13th, running down in 19° 30′ W. with a brisk trade from E.N.E., and a current to the Southward of fifteen miles per day. Lost the Trades in 5° N. on the 20th. From the 21st to 24th had a strong current setting to the N.E., with light variable airs and rain. Got the wind at S.S.E. in 1° 45′ N. on the 27th. Crossed the Line on the 28th, in 19° 30′ W. Had the Trades veering from S.E.b.E. to S.S.E. as far as 17° S. and 28° 30′ W., when the wind veered to the Northward.

Returning on the same voyage I passed Ascension on the 29th October, with the trades light from S.S.E. Crossed the line on the 3rd November, in 20° W. Lost the Southerly wind on the 5th, in 4° 12′ N., and 22° 17′ W.; then had the wind from the Southward and Eastward, which induced me and many others to pass to the Eastward of the Western Islands, and I think shortened the passage considerably, being eighteen days from the Cape de Verds to soundings, and not going to the Westward of 28°.

On the second voyage I passed Madeira on the 3rd April, 1852, bound to China. Got the N.E. Trade the next day in 30° N. and 17° W. Passed to the Eastward of the Cape Verds on the 9th, in 20° W. Lost the Trades on the 15th, in 4° 22′ N. and 19° 20′ W. Then had it squally and variable until the 18th, when we got the S.E. Trade in 1° N. and 19° 50′ W. Crossed the Line next day in 21° W; had a very light and indifferent Trade hanging far from the southward; got as far as 27° 50′ W. in 26° 30′ S.

Returning I passed Ascension on the 15th December, with the Trades light

from the S.S.E. Crossed the Line on the 20th, in 19° 58′ W. Lost the Southerly wind on the 22nd, in 4° 30′ N. Got the N.E. Trade on the 25th, in 7° N. and 22° 30′ W.; lost them on the 6th January, in 29 N. and 36° W.; had them strong throughout.

On the third voyage I passed Madeira on the 29th March, 1853, bound to China. Got the N.E. Trade the next day, in 30° 49′ N. and 18° 50′ W. Passed to the eastward of the Cape Verds on the 5th April, running down in 20° W., with the Trades light from N.E. Lost them on the 13th in 4° N. and 18° 40′ W.; then had light airs from the southward, with much rain, and squally at times until the 21st, when we got the S.E. Trades, in 1° 20′ N. and 19° 30′ W.; had them fresh as far as 21° 43′ S. and 29° 9′ W.

Returning I passed Ascension on the 12th November, with a brisk Trade from S.S.E. to South. Crossed the Line on the 15th in 20° W. Lost the Southerly wind on the 18th, in 4° 30′ N., and 23° W. Got a strong breeze the following day from the eastward, when it gradually veered to N.E., and continued between E. and N. to Cape Clear.

I have been many times across the Line, and never found any difficulty getting to the Southward, by passing to the eastward of the Cape Verds, in the proper season, say from December to April, but not later, and I think a few days is saved by that route.

If you think the above worth inserting in your Magazine, from which I have gained much valuable information, by doing so you will much oblige,

Your most obedient servant,

A LIVERPOOL SHIPMASTER.

To the Editor of the Nautical Magazine.

ON ROCKETS FROM THE SMALLS LIGHTHOUSE.

Liverpool, 6th February, 1854.

SIR,—Will you have the goodness to permit an old "Channel Groper" to request you to consider of how much importance it would be to the navigation of St. George Channel, if a Signal Rocket was sent up at stated intervals of time, say ten or fifteen minutes, from the Smalls Lighthouse during the night.

My attention was first turned to this subject in 1821, when bound from the Mediterranean to Liverpool, and having fallen to the eastward, passed between Scilly and the Lands End. Aware of a considerable error in my steering compass from local attraction, I shaped a course from Cape Cornwall for Tuskar, allowing *only* two points variation, notwithstanding which I made the Smalls Light on the port bow, (wind westerly,) and had to haul up to weather it. It blew a heavy gale, and in hauling up shipped a heavy sea, which did some damage. Now if there had been Rockets exhibited from the Smalls, we should have run no such risk.

Since that time I have spoken to many experienced and intelligent seamen on the subject, (probably to more than a hundred,) and every one agreed with with me in the opinion that such a measure would be most desirable and advantageous; and some remarked, "That no danger could arise from such an exhibition of rockets, as no other lighthouse in the kingdom is so distinguished."

I have several times tried in vain, from the mast-head of small vessels, to see Tuskar and the Smalls at once, but unsuccessfully; but two persons, on whose veracity I depend, assure me they have done so from aloft in large vessels certainly, but not very distinctly.

The difference of lat. between the Smalls and Tuskar is about 30 miles, and difference of long. 28′, or about 17·25 of Mer. Dist.; Mid lat. 51° 58′ N. Now if a meridian line is struck between these Lights, it will be found that there is only about 8·5 miles to give or take upon either side. True, we seldom hear of vessels being wrecked by getting to the eastward of the Smalls; but many are lost on the Irish coast, as I believe from anxiety to avoid the dangers

to the eastward, and placing more confidence in sighting Tuskar than the Smalls.

Firmly convinced in my own mind of the great importance of the suggestion, I venture to hope you will, on consideration, coincide with me, and if you do so, that you will use your influence to get the measure carried into effect.

The recent loss of the fine ship *Sillery Cove*, from Quebec, in Cardigan Bay, in consequence of Bardsey *Light* having been mistaken for Wicklow *Lights*, induces me to mention that a man of superior intelligence, (a Mr. Cooper,) at Greenock, told me in 1820 that he had observed something deceptive in Bardsey Light. That it sometimes appeared like two lights, and at times might be mistaken, when very distant, for a revolving light. Mr. Cooper's remarks led me to pay attention to this subject, and I feel convinced he was right, and also that at times it is seen further off than could be expected; and perhaps this may in some cases lead those in charge of ships to imagine they are nearer the Welsh shore than they really are, and may embolden them to stand over freely towards the Irish coast, and thus may in some degree tend to increase the too numerous wrecks on the Blackwater, Arklow, &c., Banks.

Since the wreck of the *Sillery Cove*, I have heard many persons in whom I considered confidence might be placed, speak of some kind of occular deception about Bardsey Light. One only the other day, who remarked that he had seen it appearing as two lights, and also so that it might easily be mistaken for a revolving light.

I am unable to assign a cause for these appearances of Bardsey Light, but I am quite convinced there is something deceptive about it.

I am, Sir, your very obedient servant,

To the Editor of the Nautical Magazine. NAUTICUS.

FASTNET ROCK LIGHT.

London, January 23.

SIR,—Have ships ever been lost from similar causes to the following? is a question that deeply concerns all Shipmasters and Underwriters. On Saturday, the 14th inst., on my passage from London to Limerick, at 11·45 p.m., I made the revolving light on the Fastnet Rock, on the south-west coast of Ireland, about a point on the starboard bow, bearing N.N.W., twelve or fourteen miles distant. After keeping the light in sight for half an hour, it disappeared altogether for fully fifty minutes; it then appeared as a fixed light, of a very low order, for twenty minutes, and not until we were within three miles of the rock did the light begin to revolve. The night was as bright and clear as it could well be, and the rock and lighthouse plainly seen, with the aid of a night glass, by my mates and myself, long before the light began to show itself. Such gross neglect, or inefficiency of machinery, connected with one of the most important lights on the coasts of the United Kingdom, is a very serious matter; and what grave suspicions does the foregoing case excite within one when we know that not many years since a sad casualty occurred in this very locality, on a dark stormy night, from the light on Cape Clear (right over their heads) being covered with mist. This casualty, and others nearly similar, induced the Ballast Board in Dublin to condemn the Cape Light as being at too great an elevation, and place it much lower, on the Fastnet Rock, distant about four miles from the former. This has been carried into effect but three weeks only, and already is criminal neglect visible.

I trust that the publicity this will receive through your pages will cause an investigation into the matter, and effectually prevent a similar occurrence.

I remain, Sir, your obedient servant,

JAMES JENKINS,

Master of the screw steamer *Holyrood*.

[Being pressed for time and space now we shall look to these subjects in a future number.—ED.]

Documents required by Merchant Captains at Elsineur.

The following is forwarded to us by Messrs. Rainals, Deacon, & Co., and is dated Elsineur, Jan 25:

Two sets of bills of lading: When bound to Russia, and whenever the same contain any marks or numbers in the margin, the master of the vessel should sign his name under the same, as well as in the usual place.

From the United States of America.—Bill of registry, manifest and bills of lading: When laden with cotton for Russia, the master should be supplied with certificate, authenticated by the Danish Consul, setting forth that such cotton is the growth of the United States; or, if it be Brazilian or other cotton, it should be stated that it has been duly landed in a port of the United States, and not shipped direct from a vessel from a foreign port.

From the Island of Cuba—Bill of registry, manifest, custom-house passports, bills of lading, and, whenever a clean bill of health can be obtained from the Danish Consul, such should be taken.

From any port in Europe (laden with cotton for Russia)—A certificate duly authenticated before the Danish Consul, stating that such cotton is not the growth of Egypt or of the Levant, and has undergone quarantine, according to the rules of the place of shipment. If not supplied with such a certificate, a vessel would be liable to quarantine, and, in some cases, have her entire cargo discharged; besides said certificate are required, in all cases, bill of registry, manifest, cocket and bills of lading; from France, Holland, Belgium, Portugal, and Hamburg, also outward clearances; from Holland and Belgium further Prussian consular certificate when a vessel is bound to Prussia.

A vessel in ballast should be provided with a document from the custom-house at the place from which she departed, stating the name of the port she belongs to, as also that she is in ballast; if the word "ballast" be left out, the vessel is liable to a fine.—*Shipping Gazette.*

Refractory Seamen.

Cape of Good Hope, Dec. 1st.

In consequence of the frequent offences committed by seamen at this port, a government notice, containing the following caution, has just been issued by direction of his Honour the Lieut.-Governor:—

1.—Seamen sentenced to imprisonment with hard labour, under the General Merchant Seamen's Act, and the Mercantile Marine Act, 1850, are liable to be sent to the convict stations, there to be worked upon the roads. These stations are about sixty miles distant from Cape Town, and the discipline is of the most rigid description.

2.—The following are the hours for labour, meals, and rest, which are never departed from, except where extra labour is awarded for offences committed at the station:—4 months.—16th October to 15th February.—Labour, 6 to 11 a.m.—Meals and rest, 2 hours.—Labour 1 to 6 p.m. 2 months.—16th February to 15th April.—Labour 6.30 to 11 a.m.—Meals and rest, 1½ hour.—Labour, 12.30 to 5.30 p.m.—4 months.—16th April to 15th August.—Labour, 7.30 to 11 a.m.—Meals and rest, 1 hour.—Labour, 12 to 4.30 p.m. 2 months.—16th August to 15th October.—Labour, 7 to 11 a.m.—Meals and rest, 1 hour.—Labour, 12 to 5 p.m.

The rations are only issued once a day, on return from work.

3.—Smoking is strictly prohibited.

4.—Insolence in language or manner to the officers or constables of the station, carelessness, indolence, neglect, wilful mismanagement, or evasion of

allotted work, are punished by extra labour, solitary confinement, spare diet, and corporal punishment, with shaving of the head.

5.—Any prisoner at a road station deserting therefrom, although he should voluntarily return within forty-eight hours, is liable to imprisonment, with hard labour, for a period of six months, calculated from the expiration of his original sentence, in addition to other punishments; and in cases where he does not voluntarily return within forty-eight hours, he is liable to imprisonment, with hard labour, for two years, from the date of the expiration of his sentence, and to receive, besides, corporal punishment not exceeding seventy-five lashes.

6.—The prisoners are guarded by constables and police-officers, in a number proportionate to the strength of the gang, armed with loaded fire-arms; and in the case of any prisoner deserting from a road station, who, when pursued or discovered, shall fly or resist, so that, except by wounding or killing him, he cannot be apprehended, every constable or police officer may lawfully prevent such prisoner from escaping, where no other means will avail, even by taking his life.

7.—Seamen are liable to be sent to road stations when sentenced to imprisonment with hard labour, for any number of days, however few; while there, they will be separated from each other, both as respects stations and gangs; and, when their sentence is expired, they will be liberated at the station, and have to find their own cost and means to return to Cape Town.—*Cape of Good Hope Shipping and Mercantile Gazette.*

Notices to Mariners.

Light on Cape Corrobedo, Coast of Spain, (Atlantic.)—[No. 154]—The Spanish Government has given notice that on the 20th of February a Fixed Light was to be displayed from Cape Corrobedo, in Gallicia, on the North West coast of Spain. It will stand in 42° 34′ 38″ N. and 9° 4′ 32″ W. of Greenwich; and being 102 feet above the level of the sea, will be visible from the deck of a moderate sized vessel at the distance of 15 miles.

Mediterranean, Light on Plana Island, Coast of Valencia, Spain.—[No. 154.]—The Spanish Government has given notice, that from especial circumstances it has not been possible to display the Light on Plana Island, on the coast of Valencia, on the day which had been fixed for that purpose. And therefore the notice No. 146, which states that the above Light would be shown on the 1st of January, is for the present cancelled.

Light on Southsea Castle.—[No. 155.]—A notice of only temporary importance.

Fixed Light on Cape Prior, Coast of Gallicia. Spain.—[No. 156.]—The Spanish Government has given notice that on the 1st of March next, a Fixed Light will be established on the Northern side of Cape Prior, in 43° 33′ 40″ N., and 8° 18′ 52″ W. of Greenwsch. This Light is elevated 448 feet above the level of the sea, and might therefore be seen at a distance of 24 miles, but being of the third order, it will not probably be visible beyond that of five leagues.

Light on the Giovanni Rock, Coast of Istria, Adriatic.—[No. 157.]—Her Majesty's Government has been informed that a Lighthouse is now constructing on the Giovanni Rock, near Rovigno, in the Adriatic, in 45° 2′ 32″ N., and 13° 37′ 6″ E. of Greenwich. The Light is to revolve so as to appear successively Bright and Red, and will be established on the 1st of August next. This alternating light is to stand 73 feet above the level of the sea, and will be visible at the distance of five leagues.

Safe and Expeditious Plan of Lowering a Ship's Boat at Sea.

Sir,—Another melancholy instance of shipwreck and loss of life is brought before us in the case of the *Eva*, in the immediate vicinity of which vessel was a first-class passenger steamer, and yet, according to the published letter of one of the passengers, owing to the inefficiency of her boats, no life was saved from a watery grave by them. After some hours useless looking on, this first-class passenger steamer resumed her course, leaving to an humble fishing smack, with its limited resources, the honour of saving seven lives.

This is a serious consideration, and with numerous other instances confirms the feeling, that there is some improvement necessary in the fitting as well as in the character of the boats carried by ships, in order that they may be at all times ready to lower away at a moment's notice, and be such that when they are in the water, volunteers may not have their ardour damped by the feeling that they are going on a forlorn hope while venturing in them.

I have heard that some of the Cunard steamers have their boats fitted with slip stoppers, &c., to expedite their despatch; but during many years at sea in various craft, it has never been my lot (with but two exceptions) to see ships' boats kept ready for lowering away on an emergency. Lashings have to be let go, gripes cleared, tackles uncoiled, boats hoisted out, oars, rowlocks, or rudders hunted for—one or more of these requirements often involving a serious and fatal loss of time before the boat is ready for use; added to which, in the lowering of a boat with anything of a sea on, there is a great risk of swamping her from having to overhaul and unhook the tackles.

All sailors know that, with the usual tackles, it is impossible to lower a stern boat while the ship has head way, and that it is often a difficult operation in a quarter boat. To remedy this evil, I beg to submit the subjoined plan to the attention of practical men, and feel sure you will have the goodness to give it publicity in your pages.

I have long ago considered the difficulty, and proved the success of the arrangement, and feel satisfied that the method I propose, when properly understood, will meet with general approbation, and be seen to be within the reach of all, with a trifling alteration of present fittings. So simple and effectual is it, that I would feel no hesitation in being lowered in a stern boat in a seaway when the ship was going three or four knots through the water.

It is very important for all Commanders to have their boats in an efficient state, and ready for immediate use, for when a loss of life takes place the whole blame (often very unfairly) falls on us, if any fault can be attributed to inefficiency on this head.

How many boats, passed by Surveyors as being of the legal dimensions, &c., have we seen carried which proved to be useless when required, and in which no captain could blame his crew for refusing to do duty?

All ships should have a life boat on each quarter. The most safe, efficient, and durable boats I have seen in use are the corrugated metallic ones made by Francis of New York. These are all life boats of the lightest and most buoyant construction. The confidence inspired in the hands who man them, by having such boats as these under them, tends materially to the success of the perilous service they are so often engaged in. Francis' boats are a little more expensive at first, but this is soon repaid by their durability. I have seen them in as good and efficient a state after nearly four years' hard service as they were when first made, having only cost an occasional coat of paint in the interim. They do not require covers, as neither heat nor wet will injure them, which is an additional recommendation, as it saves time and trouble of removal when the boats are needed.

That the following plan may be deemed worthy of adoption by my brother

mariners, as removing some of the serious difficulties and dangers attending boat service, and thereby aid in saving life, is the earnest desire of, Sir, yours, &c.,

ROBT. H. CHURCH TIMS

Proposed Plan.

Make the boats' davits sufficiently strong to carry their respective boats in all weathers at sea.

Fit on the outer side of the head of each davit a strong wooden roller with a deep score, to take the bight of a 4 or 5 inch rope.

Have two short slip ring stoppers (made of chain), one for each davit. Make the boats' gripes the proper length, the upper end of each gripe, being passed over the boat and span, is to be kept always fast; the lower end having a thimble in it to hook over the point of a strong iron hook fitted securely opposite each gripe on the main rail, *point downwards*. The rollers in the davit heads are each for a runner or single rope, of a proper size, according to the weight of the boat, having a hook spliced in the end.

When the boat is hoisted up with the tackles as usual, hook the eye of the lower end of each gripe over its respective hook on the main rail, pass a stout strap round both parts of each gripe, heave well taut by twisting the ends with a small heaver; stop the end of the heavers with a rope yarn, and the boat is now as secure as it is possible to make her. To leave her ready for lowering speedily, hook on the chain stoppers, unhook the tackles, and stow them clear of the boat altogether, as they are merely required for hoisting.

Pass the bight of the runners over the rollers in each davit head, hook and mouse them on to the bow and stern rings of the boat instead of the tackles. Haul in the slack and belay to stout cavals fitted for lowering away from.

In lowering away cut the rope-yarn stops on the heavers, and clear the straps; the lower end of the gripes being now slack, will drop off the hooks downwards of themselves.

Raise the slip rings of the chain stoppers, and the boat will then be hanging by the runners only. And now comes a most important point of advantage in the plan, for having *only single ropes* to lower away with, both ends can be let go from the deck the moment the boat touches the water; there is no overhauling of three or more parts of a tackle, no unhooking to be done, the boat is perfectly clear of the ship, or, if necessary, the bow runner can be held on and used as a painter.

THE *Himalaya*, OFF MALTA, Feb. 7, 1854.

The success of this gigantic vessel is now established. Combining great and unrivalled speed, with splendid accommodation for passengers, and ample stowage for the largest freight, she resembles more a floating city than a ship. On her outward passage, she performed the run from Gibraltar to Malta, a distance of over 1,000 miles, in 74½ hours—the quickest run on record; while from Malta to Alexandria, a distance of 830 miles, she accomplished in 61¼ hours, beating the quickest run before made by 7¾ hours. During the outward voyage she made 9 knots against a strong gale of wind and heavy head sea. Her best run in 24 hours was 350 miles, with plain sail set, her speed being for some hours 16 knots, or over 18½ English miles.

Returning from Alexandria, she reached Malta in 68 hours, with a continuance of head winds and sea; making 10 knots against a very heavy head sea and strong breeze, and 13½ knots with light head winds and sea.

Her measurements within and without, her palatial saloon and sleeping-cabins, her promenade deck, in short, her multitudinous appliances, the power and speed of her engines, all have been told; and I shall only add, that there seems now to be no question as to the superiority of the screw, in vessels of large tonnage, over the paddles, as regards speed, economy of space, and fuel.

THE GUANO DEPOSITS OF THE CHINCHA ISLANDS.—A note has been received at the Peruvian Legation from the Minister of Finance of the Republic, bearing date the 24th of December, in which the following is communicated to the Chargé d'Affaires:—"The government nominated a deputation, composed of Mr. Charles Faraguet, a French engineer in the service of Peru, and many other engineers and professors of Chemistry, native as well as foreign, in order that they might undertake the measurement of the guano of the Chincha Islands. This, therefore, has been effected, by men best qualified for the purpose, with as much accuracy as could possibly be obtained, adopting the latest improvements in the scientific proceedings, and the following result has been given:—That the island situated at the north contains 4,189,477; the centre island, 2,505,948; the south island, 5,680,675; or, a total of 12,376,100 tons. (This aggregate indicates tons of measurement which will yield an increase of one-third when reduced to tons of weight, which are those sold in the market. Calculating on this well-known fact, the above 12,376,100 tons will yield 16,501,466 tons of weight saleable. Besides the Chincha Islands, it is well known that Peru possesses many other guano deposits, containing a very considerable quantity, the measurement of which has also been ordered by the government, and will be published in due course.) The reports of the deputation are now being printed by order of the government." In addition to the preceding, the original plans formed by the engineers, reduced to a small compass, have been transmitted to the Legation for the purpose of having a sufficient number of lithographic copies executed, to be forwarded to Lima as early as possible, to be added to other documents that were about to be printed for publication. The government has authorized the Chargé d'Affaires to publish, as he may deem convenient, the plans of the islands in this or any other country of Europe.—*Daily News.*

NEW CHARTS.

Published by the Hydrographic Office, Admiralty, and Sold by J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

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,, ,, sheet 20, Buenaventura to Cape Marzo, Captain Kellett, R.N., 1849 - - - - -		1	6
,, Central, sheet 1, Cape Marzo to Cape Mariato, Captain Kellett, R.N., 1849 - - - - -		1	6
,, ,, sheet 2, Cape Mariato to Parida, Captain Kellett, R.N., 1849 - - - - - -		1	6
,, ,, sheet 3, Cape Parida to Gulf of Nicaya, Captain Kellett, R,N., 1849 - - - - -		2	0
,, Panama Bay, Captain Kellett, R.N., 1849 -		2	0
NORTH AMERICA, West Coast, Machlochlin Harbour, 1853 - -		0	6

EDWARD DUNSTERVILLE, Master, R.N.

Hydrographic Office, Admiralty, February 22nd, 1854.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

APRIL, 1854.

On the Correction to be applied to Chronometric Determinations of Longitude, *during an Interval in which the Chronometer is supposed to have undergone an Uniform Change of Rate.—By George A. Bedford, Captain, R.N.*

If the rate of a chronometer be equable between the times of observations, then the difference of the errors divided by the number of days between the observations will give the actual rate for each day during the period.

But suppose that subsequent observations show that the chronometer has changed its rates, and that we have reason to believe, from an inspection of the daily comparisons with other chronometers, or from other reasons, that this change has been progressive, and tolerably steady; then, the best method of obtaining the correction for any period during this change seems to be, to consider it as a question of Uniform Accelerated or Retarded Motion. For although the best chronometers will rarely or never maintain a strictly equable, or an uniformly *altered* motion; yet they may, and frequently do, approximate so closely to either one or the other of these, as to give them a decided character: and where this is the case, it is manifestly more reasonable to treat these motions according to the laws which govern that class to which they are most closely allied, than to assume a fictitious rate, which only expresses their real motion in one particular part of the period.

The opinions on this subject are as various as have been the performances of the chronometers, each writer accommodating his ideas

to the several circumstances which have come under his notice. None but those who have the chronometers under their constant care and inspection, can give a right estimate of their merits: but to assert that no table of comparisons will afford such results as to justify the usage of any particular law, is to pass a sweeping condemnation on chronometers, for which we have no licence.

If it be admitted that temperature and local magnetism are efficient causes of variation in the rates of chronometers, we know that in the passage from some places to others, as also in the progress of the seasons, there is a continual change of intensity in these causes, which of themselves ought to produce corresponding alterations in the chronometers. Independent of these causes, there appear to be others also of a mechanical kind, something in the construction of the machinery which seems to require time in the adjustment of its various parts, in order to produce a state of comparative equilibrium among them. A remarkable instance of this description came under my notice in the Glass Balance Spring Chronometer, No. 790, invented by Messrs. Arnold and Dent, sent on board H.M. surveying vessel *Fairy* for trial, in May, 1834. Its rate at this time was very small indeed, but it progressively increased, and with such uniformity that no law could have expressed its motion so well as that which we are about to consider in its application to chronometric determinations. When I left the *Fairy* in December, 1835, the rate of this watch amounted to above fourteen seconds gaining, and my impression at this time is, that it had acquired that rate by a remarkable degree of uniformity throughout the whole period of nineteen months.

That there are cases then, in which the principles of uniform accelerated or retarded motion may be more successfully applied than others, in obtaining the errors of chronometers intermediate to the times of rating, seems to me to be clear; and surveyors of ability and long experience in the use of these machines, have been in the constant practice of introducing this method into their calculations.

The only published formula on this subject, that have come under my notice are founded on erroneous principles, and would produce results very wide from the truth if the change of rate were great. For this reason the following rules are offered; not with the view of recommending their indiscriminate use, but only under such circumstances as have been premised.

The leading principles on which these rules depend, are:—

1. The acquired rates are proportional to the times from the beginning of the change.
2. The accumulated errors are proportional to the squares of the times from the beginning of the change.
3. The error for any period is one half of the error which would result from the acquired rate.
4. The error is equal to that which would result from the mean between the rates at the beginning and end of the period.

On the supposition of uniform change of rate, that which is obtained by dividing the difference of the errors by the number of days between

the observations, is not the rate due to each of those days, but to the *middle time* of the interval. From this time, then, we begin to reckon the change; and at the end of each succeeding day the rate will be proportionally increased until it have acquired the rate due to the *middle time* of the second series of observations. The ratio, or daily difference of this change, is therefore obtained by dividing the difference of the two rates, by the number of days, (and parts of a day, if any,) between the middle times of the first and the last series (1): and *half* the ratio is the error accumulated at the end of the first day (3): and the amount of error due to any subsequent period is found by multiplying this quantity by the *square* of the time from the beginning of the change (2).

If, then, during a voyage, we have determined the longitude of intermediate stations, by using the error obtained by the last observation of the first series, and its rate; and that the second series at the end of the voyage shows that a change of rate has taken place; we must first determine the error due to the interval from the middle time to the last observation of the first series; which subtracted from that due to the interval from the same middle time to the time of the observation for the longitude, will give the required correction: that is, the difference of the squares of these intervals multiplied by the error for the first day from the commencement of the change, will be the error for the period. Now, the difference of the squares of two unequal lines is equal to the rectangle contained by their sum and difference, (Euclid Book ii, prop. 5, cor.) and hence we derive the following

Rule.

Multiply together the numbers expressing the intervals of time from the first and last observations of the first series for rate, to the observation for the longitude whose error is required; one-eighth of the product multiplied by the ratio of daily change of rate, will give the correction in minutes and parts of a minute of space; additive to the approximate longitude when the change of rate is accelerating and the longitude east, and subtractive when the longitude is west, and vice versâ. This will be made more clear by the following

Example.

Observations having been made at Portsmouth on the 1st and 8th June, 1835, the mean rate of the chronometer between noon and noon of those days was found to be 5·4s. gaining. The ship sails for Madeira, where observations for the longitude are obtained by equal altitudes of the sun, on the 20th; and the voyage is then continued to Santa Cruz, Teneriffe, at which place the vessel arrives on the morning of the 28th. On the same day, and a week after, observations are made, when the mean rate is found to have increased to 7·6s. From an inspection of the comparison book, there is reason to believe that this change has been progressive and steady: we may, therefore, proceed to subject the observations at Madeira, on the 20th, and those at Santa Cruz, on the 28th, (by which the longitude of those places had

been approximately determined,) to a correction resulting from an uniform acceleration of rate, according to the foregoing rule. The interval between the middle time of the first and second series for rates is twenty-seven days, and the difference of the rates is 2·2s.; therefore, $\frac{2\cdot2}{27} = 0\cdot08148$s. is the ratio of daily change. Then for the Madeira observations we have

$$\frac{19 \times 12}{8} \times 0\cdot08148\text{s.} = 2\cdot322' \text{ or } 2'\ 19\cdot32''$$

to be *subtracted* from the approximate longitude, because it is west and the change of rate accelerating. And for Teneriffe the correction is

$$\frac{27 \times 20}{8} \times 0\cdot08148\text{s.} = 5\cdot5' \text{ or } 5'\ 30''$$

likewise subtractive. The divisor (8) is composed of 2 (because the *ratio* is used instead of the error for one day) multiplied by 4 which converts seconds of time into minutes of space.

We have hitherto supposed that the second rate was obtained in the usual way by *two* observations at the end of the voyage. But if the longitude of the last station were well established with reference to the first station, then one observation would suffice to determine the rate at that time by comparing the longitude found by that observation with the established longitude, according to the following rule:—

In the previous example at Santa Cruz, suppose that on comparing the longitude deduced by observation on the 28th with the longitude which we will here consider to be well established, we found that it was in error 5′ 30″ too westerly. It must be manifest that the Greenwich time used in the computation was too great, or, in other words, a sufficient rate had not been applied to the error deduced from the Portsmouth observations on the 8th. The rate had, therefore, accelerated since its last determination; so that at the time of the observation on the 28th it had produced an error of 5′ 30″, or 22 seconds of time, *above* the quantity that had been allowed on the supposition that the chronometer still had the Portsmouth rate.

If we analyze the formula for Santa Cruz in the previous example, we find that the error in time is equal to the product of the two intervals of time from the first and last observations of the first series for rate to the observation on the 28th, multiplied by the error due to the first day from the commencement of the change, or to half the ratio: consequently, if we divide the error in time separately by these intervals, we shall obtain two quotients $(\frac{22}{27}\ \frac{22}{20})$ expressing, respectively, the products of each interval and the error of the first day. Now, the term we want to find is the product of the *ratio* and the interval from the *middle time* of the first series to the observation on the 28th; and one of the two terms used in the formulæ is as much greater than the required term as the other is less, and, therefore, the two quotients together, viz., $(\frac{22}{27} + \frac{22}{20})$ are double the product of that interval and half the ratio; that is, equal to the product of that interval and the

ratio, or to the rate acquired on the 28th = 1·915s. Hence we derive the following rule:—

Convert the error of longitude into seconds of time, and divide it separately by the intervals of time from the first and last observations for the first rate to the observations at the time for which the rate is required, the sum of the two quotients is the acquired change of rate, which, applied to the previous rate, with its proper sign, will give the rate at the time required. In the previous example this would be 5·4s. + 1·915s. = 7·315s.

This latter rule is particularly applicable to hydrographical operations when, having rated the chronometers at the first meridian, to which succeeding observations are to be referred, the vessel sails to determine astronomical positions at various stations, as in the present survey of the North Sea, or others where the stations to be fixed are so situate as to render it convenient to return to the first meridian. In such cases it is manifestly unnecessary to do anything more than obtain the errors as soon as possible after the vessel's return; which, compared with those resulting from the previous errors and rates, and subjecting the difference to the foregoing rules would afford the best means of correcting the longitudes obtained during the interval, on the supposition that the change of rate had been uniform, and we can test this supposition by comparing the results out and in. In these cases, also, by referring all determinations to one meridian, we obviate the almost unavoidable errors which result from using two or more, whose relative positions can seldom be rigidly fixed without a long series of observations.

From the principles of accelerated motion already given, it will appear obvious that if the interval from the middle time to the last observation for the first rate be equal to the interval from the first observation to the middle time for the second rate, as in the first example at Santa Cruz; then (4) the *whole* error of the chronometer from the 8th to the 28th could be found by using the mean between the two rates obtained directly by the observations, to be applied at once to the error at Portsmouth on the 8th. And, also, if the change of rate is supposed to commence from the last observation at the first place, then (3) the error resulting from the change, alone, at the second place, is equal to half the difference of the rates multiplied by the interval from the beginning of the change, or to the product of the *ratio* and half the square of the interval.

Since writing the preceding paper, I found in Galbraith's excellent *Book of Tables and Formulæ* a method of Dr. Tiark's, which he employed in finding the correction of a chronometer for a known change of rate, in a case which is not included in my rules, but which is adapted to the most favourable circumstances for chronometric determinations, viz., by using the sea rates only. For instance, if it be required to ascertain the meridian distance between a given place and one or more stations by a repetition of measurements, (as recommended by Captain Bayfield in a paper on this subject,) instead of

getting a harbour rate previous to sailing, and comparing it with the state of the chronometer on the return to the same place; the error, or mean time, should be obtained, if possible, immediately before the departure, again on the return, and also a third after repeating the measurements, or observing at other stations, intermediate to the second and third observations. There will thus be three comparisons with mean time at the starting place, which will show if a change of rate has taken place and furnish the means for finding the state of the chronometer at any time during the intervals employed; on the same principles as the foregoing rules, and by a shorter process than that given in Galbraith's work.

The following example is the same as will be found illustrative of Dr. Tiark's method in the above mentioned most useful publication, but where 22 logarithms are employed instead of 14, as below; but we will first give the

Practical Rule.

Take the interval *a* between the first and second given times, and the interval *b* between the second and third, and also half the sum of these intervals *c*. Find the mean rates corresponding to the respective intervals, and divide their difference by the half sum *c*; the quotient will be the ratio of daily change of rate. Find the mean *e* of the interval *d* between the time for which the error is required (which I call the required time) and the preceding given time, and the difference between it *e* and half the interval *f* in which the required time falls *g*. Multiply this difference *g* by the ratio, and apply the product to the mean rate corresponding to the interval, by addition when the rate is increasing (whether losing or gaining) and the required time is later than the time of the half interval *f*, and by subtraction when the required time is earlier; and the contrary when the rate is decreasing. The result will be the rate corresponding to the mean *e* which, multiplied by the interval *d*, will give the correction to be applied to the preceding given error, by addition or subtraction as the errors are increasing or decreasing.

Example.

August 9d. 5243 Chronometer slow 51m. 57·35s. Required the state of the
August 31 4146 54 10·33 chronometer on Au-
Sept. 4 9250 54 39·16 gust 17d. 4637.

9·5243 51 57·35
(a) 21·8903 *(f)* 10·9452 preced. time 9·5243 diff. 132·98
31·4146 54 10·33
(b) 4·5104 *(e)* 3·9697 reqrd. time 17·4637 diff. 28·83
35·9250 54 39·16
(c) 13·2004 *(g)* 6·9755 *(d)* 7·9394
(e) 3·9697

	132·98	log. 2·123787	
(a)	21·8903	log. 1·340252	
		0·783535 nat. n.	6·0748 mean rate at *(f)*
	28·83	log. 1·459845	
(b)	4·5104	log. 0·654214	
		0·805631 nat. n.	6·3919 mean rate
		1·501196 log.	0·3171 diff. of rates
(c)	13·2004	log. 1·120587	
		2·380609 log. ratio	
(g)	6·9755	log. 0·843575	
		n. n. 1·224184 nat. n.	0·1676 correction
			6·0748 mean rate for *(f)*
		0·771389 log.	5·9072 mean rate for *(d)*
		0·899783 log.	7·9394 *(d)*
+46·90	nat. n.	1·671172	
51 57·35	error at 9d. 5243		
52 44·25	chronometer slow at 17d. 4637		

The reason of the rule will be evident on considering it with reference to the leading principles laid down at the commencement of this subject. For the rates obtained are those corresponding to the middle times of the two given intervals, *a* and *b*, and their difference is the amount of change in the interval between those middle times *c*, and this difference divided by the interval *c* will give the quantity of daily change, or the ratio. Now, what we want is,—the rate corresponding to the middle of the period *d* between the time for which the state of the chronometer is required and the preceding given time and error, which is obtained according to principle (1); and this new rate multiplied by the period *d*, will give the error of the chronometer for that interval agreeably to principle (4).

Passage from Buenos Ayres to and up the River Parana.—*By Commander F. L. Barnard.*

From the Outer Roads of Buenos Ayres to the Mouth of the Parana, Guazu.

H.M. steam sloop *Vixen* having been ordered to accompany Sir Charles Hotham, K.C.B., Minister Plenipotentiary to the Argentine Confederation, up the River Parana, Mr. Joseph Funstone, an experienced pilot, was engaged; and the following directions have been drawn up from our own observations and information derived from him.

Between Buenos Ayres and Martin Garcia there is a continuous shelving flat, which may be crossed with any depth of water from about eight to twenty feet without variation, according to the draught of the ship.

Unless the river is tolerably high, a vessel drawing upwards of eighteen feet will probably not be able to cross the flats, which commence about fifteen miles below Martin Garcia; it will therefore be advisable to anchor off the Hornos Islands until the river rises.

When the Hornos Islands bore N.E.b.E. ½ E. three and a half miles, we had 3½ fathoms, and carried sixteen feet over the shoalest part of the flats.

The highest tide is generally about an hour after the setting of the moon.

On leaving the guard ship in the Outer Roads of Buenos Ayres with the river in a mean state, steer E.N.E., or keep along the edge of the flat in about 3¼ fathoms, until about three or four miles W.S.W. from the Hornos Islands; then steer N.W. until the water begins to shoal.

After this you must feel your way for about seven or eight miles, by standing N.E. and S.E. across and across whenever you shoal on a N.W. course, resuming the N.W. course when it again deepens. If the weather be fine a boat may be kept on each bow, showing the soundings with the oars.

When the water deepens to 3½ fathoms, with the centre mount of San Juan bearing N.E., you will have passed the shoalest part.

Whenever the water deepens whilst crossing the flats, it will be well to edge away to the westward as much as possible, to ensure being clear of the Santa Anna Bank.

The bottom on the flats consists of ridges of sand, and the soundings will be found to vary a few inches every cast of the lead.

Having crossed the flats, the Island of Martin Garcia will be just visible from the deck, and it must be brought to bear W.N.W. By steering W.N.W. you will be sure to shoal the water on the west bank of the channel; then keep in-shore until the water deepens, and resume the W.N.W. course when it again shoals. This, with great

attention to the lead, will ensure your not falling into the Canal de Tufierno between the Santa Anna Bank and the main, which has a foul and rock bottom, and no upper outlet for vessels drawing upwards of eight feet water.

Whenever the water shoals, the course must be altered at once four points, and she must be brought back quickly as soon as it deepens, for the current on the bow will soon shoot a ship across the channel.

About four miles below Martin Garcia there is a narrow pass not more than two cables' length wide, with only thirteen or fourteen feet near the west bank when the river is low: care must be taken to keep close to this, as the Santa Anna Bank on the east side is steep to. There is a stake on the edge of the Santa Anna Bank and a cask on the western bank. After getting through this pass the water will deepen gradually to 6 or 7 fathoms, and by keeping Martin Garcia about a point on the starboard bow, you may pass the island at a distance of three quarters of a mile in 6 or 7 fathoms water.

After passing the island you must steer W.N.W. until the water shoals to 3 fathoms; you will then be on the east side of the channel on the edge of a bank which extends off from Martin Garcia, and abreast of the first stake or remains of a beacon on the west bank. You must now keep off to the westward to deepen the water and follow the bank round, taking care not to get into less than 3 fathoms, hauling to the westward as the water shoals, and resuming the W.N.W. course as it deepens. The channel between the point of the east bank and the first beacon is not more than a quarter of a mile wide, with from 3 to 4½ fathoms.

We found that the courses between the first and second beacons varied from W.N.W. to N.W. and N.W.b.N.; the shoalest part being about midway with 3¼ fathoms; therefore, when the water does not shoal with a W.N.W. course, haul up until you can steer N.N.W. ½ W without shoaling. This will be the mid-channel course for about twelve miles after rounding the point of the bank. The channel as far as the second beacon is narrow, and great attention must be paid to the lead and course.

If from current, bad steerage, or otherwise, the water should be shoaled on either side, haul to the westward or northward, as the case may be, and then resume the N.N.W.½W. course as soon as you again drop into mid-channel, where you will have 5, 6, and 7 fathoms after passing the second beacon. It is always a safe plan to borrow on the eastern bank, which shoals more gradually than the western.

The second beacon is about two miles from the first, and the third three and a half miles from the second. Nearly opposite to the third is the branch of a tree, on the eastern bank, in a line with the Islands of Las Dos Hermanas. Here the channel is about three quarters of a mile wide. The beacons are the remains of stakes placed on the banks by order of Oribe, who had all the channels distinctly marked off. They were destroyed during the French blockade. They might be easily replaced.

When the mouth of the Parana Guazu becomes open, and the Island

of Solis bears N.E., edge down towards the islands, steering S.W. until you shoal to 4 fathoms; then keep the port shore on board with that water to avoid a bank running off from the starboard shore.

With the foregoing directions and a fair pilot a ship drawing fifteen feet may get over the flats when the river is in a mean state; but few of the river pilots know anything of the River Plate from the Hornos Islands to the Guazu, and an Officer will be frequently left to his own resources.

When once in the neighbourhood of the flats, the anchor should be dropped underfoot instantly, as soon as the water shoals to within a foot of what the ship draws, and the boats send to sound, if the weather will permit of it.

On one occasion the *Vixen* crossed from Buenos Ayres, steering E.N.E. with a remarkably low river, carrying only fifteen feet, from the Outer Roads to very near the opposite shore. That evening we anchored in sixteen feet water, with the island of Farallon just in sight; the inner Hornos Island S.E.b.E. ¾ E.; Saddle Hill of San Juan N. ¾ W.

The next morning at 11 a.m. we tripped and steamed slowly N.W.; at 11.15 we saw Martin Garcia from the fore-yard bearing N.W.b.W. about eighteen miles, and at 11.35 anchored in 14 feet 9 inches, and sent the boats to sound on each bow. We knew by the bearings of Martin Garcia that we were to the eastward of the usual channel; but the boat on the port bow found only 11 feet 6 inches, whilst that no the starboard bow to the northward had 18 feet. We continued all the afternoon slowly following the boats, steering from N.N.W. to north, and anchoring whenever the water shoaled, until by the N.E. bearing of San Juan we knew that we were above the shoalest part of the flats, when we anchored for the night in fifteen and a half feet. The centre of Martin Garcia bore W.N.W.½W. eight or nine miles; we were therefore to the eastward of the Santa Anna Bank.

The following morning I took the pilot and sounded across the Santa Anna Bank, and found that it gradually tapered off to a point to the south-eastward, deepening slowly. Keeping the boats on the starboard bow, steering from S.E.b.E. to E.S.E. in sixteen feet, we followed the edge of the bank round until 11 o'clock, when we again anchored, and I went with the pilot and found a passage to the westward with 14 feet 6 inches water, which took us into the regular channel above the flats. That same evening we were well up the Guazu. On passing Martin Garcia the rocks off the island were uncovered for a considerable distance farther off than we had observed them on former occasions.

I have entered into detail to show that in a case of necessity a passage, though very intricate, may be found with a very low river.

Directions for going down from the Parana Guazu to Buenos Ayres.

When leaving the mouth of the Guazu, pass within a quarter of a mile of the starboard shore, steering directly for the Island of Solis,

and when you lose soundings or fall into 9 or 10 fathoms, you will be in the waters of the Uruguay.

When the water begins to shoal from this, steer S.E. until you get 6 fathoms, then S.S.E. until it again deepens.

When it deepens, steer S.S.E.½E.; with this course you will shoal the water off the Islands of Las dos Hermanas; you must then haul to the westward until in 8 fathoms, and then resume the course S.S.E.½E.

With a S.S.E.½E. course you will shoal the water to 3½ or 4 fathoms on the point of the bank which runs off from Martin Garcia, the centre of which island should bear E.S.E. and Las dos Hermanas N.E.

You must now haul off at once to the south-westward across the channel, until the water deepens; then haul up and follow the bank round until you find that you can steer E.S.E. for Martin Garcia without shoaling the water.

This must be done to avoid two dangers: the one on the west bank consisting of a sack with deep water and no outlet; the other a channel leading to the point of Martin Chico, to the eastward of the bank off Martin Garcia.

Pass Martin Garcia at the distance of half to three quarters of a mile, and when it bears north about one mile, steer east until the water shoals to 3 fathoms or a little less on the edge of the Santa Anna Bank. The course will now be E.S.E.; but if the water does not deepen, steer S.E. until it does, when haul up again E.S.E.

With this E.S.E. course you will always shoal the water on the east side, and you must keep hauling off and resuming the E.S.E. course as the soundings alter, until you bring the Lower Mount of San Juan to bear N.E.; the island of Martin Garcia being nearly out of sight, when you will be close to the edge of the flats.

When the water begins to shoal, you will steer south and N.E. across and across, and where you find the deepest water steer S.E., which is the channel course over the flats. With the river rather above the mean height, the least water the *Vixen* had was fourteen and a half feet.

When the water deepens to 3 or 3½ fathoms, you can safely follow the bank round to Buenos Ayres, according to the draught of the ship and height of the river.

On one occasion, when the river was very low, I stood towards the flats, in accordance with the above directions, until in fifteen feet water; we then anchored, and I pulled across the flats with the pilot. There was 12 feet 6 inches in the shoalest part; the ship was drawing 13 feet 2 inches; and on the tide rising eighteen inches during the night, we steamed over with the greatest confidence. Of course due regard must be paid to the barometer and appearances of the weather on these occasions; bearing however in mind that the winds which produce a sea also cause the river to rise rapidly.

We have felt the way down also by anchoring whenever the water shoaled to sixteen feet, and sending the boats away to the eastward

and westward to sound. In this manner, unless the river is very low, a winding channel may generally be found to the *eastward* of the usual one. This is by far the safest method; the anchor merely requires to be underfoot, and may be hung by the slip each time until the dangers are past. You ascertain the direction of the current and frequently save hours or perhaps days of heavy work and anxiety.

Directions for ascending the Parana from the Boca del Guazu to Rosario.

To enter the Guazu, bring the Island of Solis on the oriental coast to bear N.E., then steer S.W., taking care not to get into less than 4 fathoms on the port or south side.

The channels generally take their shape from that of the shore, and the current seldom sets across a bank; therefore, when once in the Guazu, it merely requires a good memory and constant attention to take a ship of any draught of water as high as Rosario. As a general rule avoid rushes, ripples, and smooth patches. Whenever the river takes a sudden bend, open the reach before crossing, and keep nearer the upper than the lower bank.

From the mouth of the Guazu steer by the chart to the Mini. From the Mini shape a course towards the island on the starboard hand above some rushes, then cross over gradually and follow the coast on the port hand until opposite the point of an island; then steer to the starboard shore according to chart. Keep the starboard shore on board between it and the Island of Palomo, until close off the point of the Brazo de Gutierres, then edge over to the port shore, steering first for the eastern Plate Island, then follow the port shore as in chart.

Continue according to chart until round the Island of Botijas. From the point of the Botijas cross to the starboard shore, and keep along it until close in with some rushes. Then haul over to the port shore until off an island in the mouth of a creek. From this steer for a point of trees on the starboard shore, and follow it to the Ybucuy.

You will now discover on the port hand the Boca de San Pedro, which may be known by being between two points with trees on both; the channel is close to the starboard point, where a bank is marked in the chart; the bank is now on the port shore. After passing the point cross over to the port shore and follow the coast until you pass the upper part of the large Biscayan Island, when steer for a clump of trees on the starboard shore. Keep within one hundred yards of the shore until you open Long Reach. Long Reach being open, cross over for a clump of trees on the port shore, follow it to the Nine Turnings.

From the Nine Turnings steer for a clump of trees on the starboard shore, and follow a naked coast until you pass the second mouth of a river, then steer for the upper part of a clump of trees on the port shore, keeping at a moderate distance.

Follow the port shore until you arrive at a clump of trees, then steer for some large trees on the starboard shore. After passing the

large trees keep along the starboard shore until in sight of a bank recently formed in the Vuelta del Norte, covered with small willow-trees, which is not to be approached within half a mile. Then from the mouth of the second creek, after passing the bank cross over to the upper part of the trees on the port shore, and follow the coast to the Baradero below San Pedro. Cross over to the starboard shore and follow it round until you have passed the two Islands of San Pedro. When you come to the mouth of a creek on the starboard hand, shape a course for the high land of Obligado.

From the Barrancas of Obligado cross to the starboard shore and follow the coast until you arrive at a small grove of trees opposite the Creek del Soldado. After passing the Creek of Soldado cross over to the port shore and keep along a naked coast as far as the upper part of the same creek with trees.

From the upper part of the Creek of Soldado keep in mid-chanuel, steering for a point of trees on the starboard shore; follow a naked coast until opposite the second mouth of a small river, then haul over to the mainland. Follow the mainland to three trees on a cliff (Point Savedra). In this part for Tonnelero read Dos Hermanos in the chart.

From the three trees steer for a naked point on the starboard shore opposite Tonnelero, and follow the naked coast to a small clump of trees, then steer for the upper part of the woods on the port shore and follow the coast to the upper mouth of the Tonnelero. From the upper mouth of the Tonnelero steer for a clump of trees on the starboard shore, from which steer for Point Ramallo. Follow the mainland until you pass San Nicolas, then steer for the starboard shore, giving the island on the starboard hand a good berth. Follow the starboard shore until abreast a small island, then steer for the mainland, and keep along it to Point Piedras. From Point Piedras steer for a point of trees on the starboard shore or island, and follow the starboard shore to Laurel Creek in the Vuelta de Montiel.

From Laurel Creek steer for the port shore, and keep along the woody coast until you open the river on the starboard hand. There are now two channels. The Carbonel channel is along the mainland, which must be kept close on board. It is narrow, and the soundings are irregular, from sixteen to thirty feet. I do not recommend it, although we passed through in the *Vixen*.

The best channel is that through which Captain Hope passed between the two islands. After passing through the Vuelta de Montiel, and opening the river on the starboard hand, keep at a moderate distance from the starboard shore, until the channel between the islands is well open; then steer about mid-channel, edging away gradually to the port island, passing tolerably close to its upper point. A shoal runs off a considerable distance towards the mainland from this point, and care must be taken not to get the current on the starboard bow.

After passing the two islands, steer some distance towards the mainland and then to the starboard shore, above the upper island.

The channel is now along the starboard shore, and not along the mainland as marked in the chart. The islands, also, off the Rosario Creek seem to have altered.

You must keep along the starboard shore until nearly off the first island, then steer across to the port shore, leaving this island on the starboard hand. Follow the port shore, pass the Creek of Rosario, leave the second island on the starboard hand, cross over to the starboard shore, and proceed by the chart for Rosario. There is anchorage on the bank, near the point, on the starboard shore.

The channel is close to the town and the high steep cliffs, and great care is required in the steerage, as the current runs very strong. The soundings on passing Rosario are 6 or 7 fathoms, and afterwards, no bottom in the regular channel, although a little on either side you have 3¼ fathoms.

Rosario to La Paz.

Keep close along the high Barranca, after passing Rosario, until opposite the broken part of the cliff which shows like a green semicircular patch against the brown bank. The reach on the starboard hand will now be well open, and you must cross over for the mouth of the Marinos and keep the starboard shore on board as far as the Lake Imberinada.

From the Lake Imberinada cross over for about a mile above the highest part of the cliff on the port shore; follow the Barranca until nearly abreast the next point of the high cliff. From the upper point of the high cliff, steer for the starboard shore about half a mile above the creek; follow the shore, which is well wooded, until opposite a part with small bushes, then steer for the lower point of the Island of San Lorenzo. Keep the island at a moderate distance until you pass a creek near the upper point, then steer up for the Barrancas, and follow them round until you pass the second creek on the starboard shore; then steer over for the island on the starboard shore. The channel now continues along the starboard shore to within about two miles of the Vuelta de los Pajaros, and you must not cross over, as in the chart, to the Island of Carcaranal. You will get as little as 3 fathoms on passing the creek above the upper point of the island on the starboard shore. When abreast of a creek on the starboard shore, opposite to which, on the port shore, there is a red-looking sand-bank, cross over for this red mark until in 5 fathoms, then steer for a point of the same Island with trees on it. The channel here has entirely altered, an island having been washed away and another having formed. After passing the point with trees, keep the Island of Pajaros a little on the port bow until abreast of the new island which has formed below it, then edge close over to the starboard shore, which is steep to.

Follow the starboard shore close until you pass a creek; you must then keep off a moderate distance for about a mile, until abreast of some willow trees. After passing the willow trees steer for the upper

part of a sandy coast on the port shore. From this, steer for the point of the middle Island, which is not divided, as in the chart, following round the port shore until you pass a creek; then steer across for a number of large trees on the starboard shore and keep along it until you come to the point of an island. Steer across for a clump of trees on the port, a little above the mouth of a creek. A considerable portion of the port shore has been washed away, leaving a channel, about a mile wide, between it and the island on the starboard hand. Follow the port shore to the point, then keep in about mid-channel between the point and the island, until about half way along the island; then keep away to the westward until abreast a small island off the Wide Bank. After this steer for the upper point of the middle island on the port shore, above a large branch of the river.

When you open the Tacquani Reach steer for the starboard shore, keeping a moderate distance off the lower point. Follow the bend of the starboard shore until you open the reach, the upper side of the island; then cross over for a point of trees on Tacquani Island. Keep along the island to its point and cross over to the port shore. The current here sets strongly through the other branch, you must, therefore, get the ship's head to stream very quickly.

After keeping a short distance along the port shore steer for the upper part of Cow Island, a small portion of which only remains. From Cow Island steer for the lower point of the high cliffs and keep along the starboard shore until you pass the Point of Diamante.

When the reach is open on the port hand cross over. From the port shore cross for the island on the starboard hand about half a mile above the lower point, then follow the starboard shore until you pass the first mouth of a river on the port shore; then haul over to the port shore for a point of trees. From this point of trees follow the port shore for about half the distance to the second mouth of a river, then steer across, leaving a small clump of an island about quarter of a mile on the starboard hand. Keep along the starboard shore until near the upper point of the island, then shape a course to leave the Island of Solis a moderate distance on the port hand.

By the above it will be seen that this part has been greatly changed since the charts were constructed, but, on the whole, the channels have improved.

When abreast Solis steer for the point of island on port hand. Keep the port shore on board, passing over the spot where a shoal and small island are marked in the chart. This is the Palmas Pass, and the least water we had was 16 feet, off a small creek. Continue along the port shore until you come to a thicket of young trees, then haul over gradually for the mainland.

Off the cliff of Paracau, about a ship's length, there is said to be a dangerous rock a few feet under water.

Keep along the mainland until near the mouth of a creek, then haul over for the upper part of the woody shore, and follow the naked shore on the port side for about a mile. When past the mouth of the

Paracau, cross over to the starboard shore, steering for the mouth of a lake above the Paracau. Cross over from the starboard shore in an angling course to some distance above a river on the port shore and follow the coast to the point. Cross the branch of the river which was formerly the main channel, bringing the ship's head quickly to the stream. After following the port shore about a mile, steer over, gradually, for the starboard shore. Keep along the starboard shore, at a moderate distance, until you open the old channel on the starboard hand, then steer for the point of Bull Island. Follow Bull Island until near the upper point, then cross over to a point of trees on the port shore. Follow the port shore closer than is marked in the chart, the Banco de Paciencia having spread beyond the mouth of the Santa Fé river, leave the channel of Santa Fé on the port hand and hug the shore beyond it, tolerably close. Keep along the shore about a quarter of a mile, then cross over for the island on the starboard shore, carefully watching the lead. Keep along the island on the starboard hand until near the point, keep about quarter of a mile off the point, and steer for the point of Bajada Grande, allowing for a strong current setting through the Paracau. Round the point close and merely keep clear of the rocks in sight if you wish to anchor off Parana.

The anchorage is between a bank, with willows above water, and the shore, in from 3 to 4 fathoms. It is advisable to lay out a stream anchor astern to keep the ship from tailing on the rocks when the Pamperos blow up strongly against the stream.

From the Bajada to La Paz.

Above the Bajada the navigation becomes much more difficult, the channels being, for the most part, between sand banks, in broad parts of the river, which frequently shift; hands should, therefore, be constantly kept by the anchor, which should be hung by a slip or controller. Whenever there is the slightest doubt, drop the anchor under foot, and send away a light boat to sound. It must be borne in mind that the stream almost invariably follows the course of the channel; a vessel, therefore, in ascending ought always to be head to current, which may be generally ascertained by marks on the shore.

From abreast the middle lime kiln on Bajada Point haul gradually over to the port shore for a spot about a mile above the Boca Mini. A great portion of the sand bank marked in the chart has been washed away. Keep along the port shore for about two miles, then haul across for Point Santiago, a high cliff. Follow the mainland until you open the reach on the port hand, then steer across for the point of the island on the port shore, and follow it for about a mile.

Open out from the port shore, gradually steering for the Point of Conchillas, a high cliff. Follow the coast, without getting into the bay, as far as the upper point. From the point shape a course about mid-channel for the upper part of a river about three miles up the port shore. This is the Chapeton Pass. A part of the port shore has

been washed away and the channel is subject to change, and was always considered dangerous by the pilots. The *Vixen* touched on the port bank in going up, heeled 7° in an instant, and righted again with a sudden jerk. *Keep hands by the anchor and attend to the lead!*

After passing the river, follow the port shore for about a mile and then cross over for the Cerrito. Follow the mainland until off a small rivulet above Ana Maria Point. From the rivulet steer for a point of the island, leaving it about a quarter of a mile on the starboard hand, then haul over gradually for the upper part of the creek. The *Vixen* grounded on the middle bank in this pass from hauling over too quickly towards the port shore; she remained on shore thirty-six hours, and her bow was hove up to the stream by means of heavy purchases on the chain bower and stream cables.

After passing the first creek, follow the bay round; pass a second creek, and then steer for the lower part of a grove of trees below Antonio Thomas. Follow the mainland until you come to a large opening in the cliff, then steer across for a point of trees.

Follow the port shore to the second creek; above which, a new bank has formed with a snag sticking up. From the creek, steer for the willow trees below Punta Rosa (properly Piragua Perdida), and follow the point round until near an opening in the cliff. From this opening, steer over for the port shore, which may be followed until near a creek; then haul off from a quarter to half a mile, and steer so as to leave an island with trees, recently formed, on the starboard hand, then haul in for the port shore again.

This is a shifting channel, and the *Vixen* was anchored, in order to sound, before attempting it.

Follow the port shore until abreast of the mouth of a river; then haul across gradually for the lower part of the cliffs of Punta Hernandaria.

There is good anchorage round this point. Supplies of all kinds may be purchased: wood, both for fuel, boat's knees, and timbers may be cut. There is, also, abundance of game.

Follow the mainland to an opening in the cliff and, when the reach is open, steer across and follow the port shore until you arrive at a thicket of trees. Here, again, the channel is changed. From the thicket of trees, steer across about N.N.E. for the island on the starboard hand. The channels and forms of the islands are entirely changed, but the starboard shore must be followed, passing all the openings, from point to point, until half a mile above the second large mouth; then steer for that part of the port shore which has high trees.

We now come to the Feliciana Pass, which has entirely changed: what was formerly the deep channel has become a bank, and where the bank was there is now a deep channel.

Follow the port shore until a little above the upper part of an island on the starboard hand; then steer across at once for a break in the barrancas of the mainland. Follow the mainland until near the rocks

of Juan Gomez, which may always be distinguished by a break or tide ripple. Pass the Juan Gomez Rocks at a prudent distance and edge over gradually to the port shore. Follow the port shore to the mouth of a small river; then cross over for a high cliff below the Arroyo Colorado (marked Avroyo Hondo in the chart). Follow the mainland for two miles and cross over for the point of the island on the port shore. Follow the port shore until you pass the mouth of a river.

Haul over between two sandbanks, which generally show, for the cliffs, attending well to the lead. Follow the mainland, hauling into the Bay of Arroyo Seco, quite close.

When off the point of Caballo Quartier (marked Piragua Perdida in the chart) you may stand in and anchor at a moderate distance from the barranca. When the town of La Paz was open with the barranca, we found the bottom rocky, and had some difficulty in getting our anchor up.

Supplies of cattle and wood are abundant.

The *Vixen* did not go higher than La Paz, but I am preparing a compilation of useful information from pilots.

Although the above directions may greatly facilitate the navigation of the rivers, a ship will sometimes get on shore with the most experienced pilot; there is little danger, however, of serious damage.

When steaming or sailing up against the stream, should you observe, by the land, that you suddenly get out of the current and pass the land at a more rapid rate, you may be sure that you are out of the channel.

If you are in doubt as to which side of the channel you are on, it will always be safer to sheer towards the upper bank, as being the most easy to get off from.

Should you ground on a lower bank and the current get on the bow, let go the anchor at once; the ship will then be brought head to stream, and the sand will wash from under her. Anchors may then be laid out in the proper direction for heaving off; a steamer will generally be able to steam off.

If a ship is allowed to get broadside on to a bank, the sand will wash underneath her and form a bank under her lee. In this case, a bower anchor must be laid out to heave the ship up to the current, a work of labour and time, as you can only get link by link as the sand washes under the ship and leaves a few inches clear to windward.

As the current is very rapid and the water too shoal on these occasions to sling an anchor under a boat, I have always found it convenient to lash two boats together with spars and sling the anchor between them. This will also enable them to carry the chain cable. A small line should be laid out in the first instance in a light boat well up the stream; by this a kedge or stream, and, lastly, the bower. Chain will be found to stand the short nip round the bows better than hemp. All ships navigating these rivers should be provided with a light fast-pulling whale boat, heavy purchases, warped strops, and good stoppers. On no account attempt to lighten the ship until the

anchors are laid out in the proper direction, and the cables have all the strain they can bear.

A ship should anchor at night, looking out for some broad part of the river, where the banks are more shelving than in the narrower parts where the water is deep and the current strong. Care must be taken to bring the ship as near head to current as possible before letting go the anchor, otherwise you are apt to snap the cable. In hauling in for an anchorage care must be taken not to get the current too much on the bow.

The above hints are intended for men-of-war or substantial merchant ships; I have not, therefore, mentioned the dangers to which smaller vessels are subject.

Small vessels in ballast or otherwise crank must avoid anchoring in any of the reaches lying north and south, as the pamperos coming up strong against the current will capsize them. Seven and eight at a time have been known to founder in this way in one squall.

Should a vessel anchor in an exposed part of the river, from a scant wind or otherwise, she should, on the slightest indication of a Pampero, heave in to short stay apeak, and have her staysail ready, so that when the squall strikes her, she may trip her anchor and run before the wind to a sheltered reach. In almost all the reaches which are sheltered from the prevailing winds there is either good anchorage, or a vessel may make fast to a tree.

In descending the river no loaded ship should attempt to run at night, excepting in very fine weather; but look out in time for an anchorage sheltered from south winds.

When a vessel makes fast to the shore, care must be taken to keep her head towards the current, and the stern must be well secured to keep her from swinging across the stream, which would inevitably capsize her. Numbers of vessels with deck loads from Paraguay have been lost in this manner with all their crews.

At all times the Parano is dangerous for light vessels; and on one occasion, only one vessel out of nine escaped on their passage towards Corrientes, after taking troops to the Chaco.

Now and then a vessel may be anchored in an open reach, and be unwilling to lose any of the ground gained with so much labour and trouble; but on the least sign of an approaching Pampero, she should trip her anchor without delay, and drop down with the current to a sheltered spot.

In coming down the river it is always necessary to take your departure from above the point or mark and steer for the upper part of the lower mark, according to the speed of the vessel.

With a very high river the current in some places will set strongly over a bank; therefore, in a sailing vessel, with light winds, every exertion by towing, &c., must be made to get into the Travesia in good time. The same will apply also when approaching the mouth of a false river, or the point of an island on which the current frequently directly sets.

Whenever in doubt anchor if possible.

NARRATIVE OF THE VOYAGE OF H.M.S. SERPENT, *L. U. Hammet, Esq., Commander, from Hong Kong to Sydney, touching at the Bashees, Port Lloyd, Pescadores, Strong Island, McAskill, Wellington, and Solomon Islands, Timor, Port Essington, and Swan River. Between November 9th, 1852, and June 20th, 1853.*

(Concluded from page 130.)

Baffling winds with frequent calms and heavy rains, attended us, the flows prevailing from the eastward with a constant westerly current of from half a mile to a mile per hour; the weather being very hot and close, and the sick list averaging from eighteen to twenty-five, until the 28th. But in lat. about 11° 40′ S., and long. 126° E., we met a fresh easterly wind, varying a little to the northward, and on the 29th, at 4 a.m., passed eight miles to the northward of Cartier Island, by observation. We now found the steady S.E. trade, with gloomy, rainy weather, and the coolness of the atmosphere produced a material improvement in the health of the ship's company, our sick list decreasing to ten and eleven.

At noon on the 3rd May, being in lat. 19° 30′ S., and long. 111° 45′ E., we passed close to one of the supposed positions of the Tryal Rocks, but saw nothing of them. This evening we observed a small comet near the constellation of Orion, having, apparently, a rising motion directly towards the zenith.

The wind now began to veer to the southward with a heavy swell from that quarter, and we also experienced a northerly current of about ten miles a day, but kept the S.E. trade, varying in strength, until the 16th, when, in lat. 31° 14′ S., long. 108° 49′ E., we got a westerly wind, which gradually freshened to a brisk gale with beautiful weather.

On the 18th, at seven in the evening, the light on Rottnest Island was discovered ahead. As the barometer was falling and appearances promised a heavy gale of wind, it was considered best to run in and anchor under shelter of Rottnest Island for the night. Therefore, shaping our course by the light, we came to under the lee of the island at 9 p.m. The light is about 250 feet above the level of the sea, revolving, showing for seven seconds every minute, and, in clear weather can be seen fifteen miles off. We saw it about eight miles off, the weather being thick.

On the morning of the 19th, seeing no signs of a pilot, the Commander went into Freemantle for one, and to visit the Governor, as upon his answer depended where we should anchor. But, after he had left the ship, a pilot went on board from Rottnest Island, and so strongly recommended that the ship should be moved to Owen anchorage, that the commanding officer felt himself justified in tripping. While shortening in, owing to a heavy head sea having got up, the cable parted and the anchor was lost with a fathom and a half of chain

on it. This was an unfortunate loss, and as, in the hurry of anchoring at night time in a gale of wind, there was no buoy on the anchor, it appeared irrecoverable; but exact bearings were taken, and we determined to use every exertion to regain it before leaving. The ship was then moved in safety to Owen anchorage.

The anchorage off Freemantle, however convenient in the summer, when a ship could anchor in Gage Roads, close to the town, is very inconvenient and not safe in the winter, when a ship is compelled to go to Owen anchorage or to Cockburn Sound, and during the westerly gales which prevail at this season communication with the shore might be cut off for several days.

On the 2nd of June we received mails on board for Albany, for the English mail steamer, and sailed. Running through Lambert Channel, worked up to Rottnest Island and anchored in our former berth.

The afternoon of the 2nd was devoted to a search for the anchor, but, owing to the bad weather, all our efforts were useless, and, from the opinion of Mr. James Harding, Harbour-Master, prolonging our search would be useless at this time of the year; we, therefore, sailed at seven in the evening.

On the night of the 7th, we arrived off King George Sound, and, lying to for the morning with a strong S.W. gale, ran in at daylight of the 8th. The wind being foul for entering Princess Royal Harbour, we anchored in Frenchman Bay, which is the last sandy bay in the S.W. corner of the sound. Here we found a small stream of excellent water; whereby, using our engine and sixty yards of hose, the ship was watered easily.

King George Sound is a magificent anchorage and well sheltered; the depth averaging from 6 to 12 fathoms all over it, clear of hidden danger, with the exception of a sunken rock in the northern part of it. Princess Royal Harbour is completely land locked, and although, from the narrowness of the entrance, sailing ships require a fair wind for entering or leaving it, it forms an excellent port for steamers to call at for coals and water; other supplies we found very scarce and dear. There is said to be very little good land about Albany. Fire-wood is in plenty, but no trees near the port fit for spars or ship building.

For the first two or three days after leaving King George Sound, on the afternoon of the 9th, we experienced a strong northerly wind, which gradually veered round to west and S.W., the aneroid falling considerably. The wind gradually freshened to a gale, and by the evening of the 17th we saw the magnificent revolving light on Cape Otway. While passing through Bass Strait, as there was a very heavy sea running, to avoid a break on board we ran close along by the Sugar Loaf Rock, the Devil Tower, and Hogan Islands, but observed no shoal water or signs of hidden danger; the high sea rolling on without breaking, but occasionally topping with the force of the wind. Keeping the S.W. wind along the east coast, we found ourselves at Sydney in the afternoon of the 20th, and moored the ship in Farm Cove.

A Statement of the taking of the Brig "Inga," of New Bedford, Captain Barnes, December 4th, 1852, off Pleasant Island.

I, John F. Sylva, went aboard of the brig to trade my fowls and pigs, as is my custom, for tobacco. I asked the Captain if he wanted any pigs. He said no, as he had just come from Ascension and had plenty; but he would take the fowls. He wanted to know my price. I told him two heads. He thought it was too much, and said he would give me one. "Well," says I. I then asked him if he had any essence of peppermint. He said he had some mixed with water; which I said I would take. I gave him two dollars, and he asked one dollar fifty cents for the peppermint; he looked for change and could not find any. I said I would take it in tobacco. I went in the cabin for my tobacco, and the skipper said he did not like "beach-combers" to come aboard of his ship. "Yes," says I, I will go ashore as soon as I get my tobacco. I came on deck, when he followed me as far as the companion way; he instantly returned to the cabin, and came on deck again with a pair of pistols stuck in his side and cutlass in his hand. He then came behind me and said, "You beach-comber, go ashore or I will cut your head off." I called my canoe alongside and got in, and called my native. He said, wait a few minutes. I shoved my canoe about a ship's length off, when I seen two kanakers fall overboard cut in two. I heard an uproar in the ship. After the tumult was over, the natives told me to come aboard and work the ship in. I said, "No." They said, "Suppose you no come me kill you." I went to save my life. The current and head wind being so strong, she could not be brought in. After a while they undertook to scuttle her; in which they did not succeed. They then abandoned her to her fate. At the time of the tumult there were no white men belonging ashore near the scene of action, except myself and a man answering to the name of George; but, after a while, another, answering to the name of Charley, came. He and myself, along with the crew, worked the ship. George did not, but sat in his canoe.

Signed by me, JOHN F. SYLVA.
Witnessed by me, JOHN WILLIAM JAQUES, + his mark.
GEORGE F. HYATT, + his mark.

I, John W. Jaques, went aboard of the said brig to trade. I got alongside after the scene of action. I went on board when the kanakers were plundering her; they told me to work the ship in or they would kill me. I did so to save my life. I seen one man sitting on the work bench, horribly stabbed. I seen John F. Sylva working the ship, and a white man named George sitting in his canoe. The current and head wind being so strong, we could not work her in. After a while, my native told me to get in my canoe along with a black man named White belonging to the said brig. I seen the na-

tives throw the man that was sitting on the work bench overboard. After I had pulled my canoe from the ship, they called me back again. I went alongside but did not go aboard as they undertook to scuttle her, but did not succeed. I started for the shore. When I had got some distance from the ship, I perceived she was on fire. After a while, I again looked and it was quenched.

Signed by me, JOHN W. JAQUES.
Witnessed by me, GEORGE F. HYATT, + his mark.
JOHN F. SYLVA, + his mark.

I, George F. Hyatt, shipped in the said brig at Sydney. At the time of action I was below. I came up on deck and went aft. I see the Captain, with a pair of pistols in his side and cutlass in his hand, leaning on the companion way. As I came for'ard, I seen John going in his canoe. I went below, and soon heard the tumult. Presently, one of the natives came to the hatchway, and sung out, "Come on deck, you no fight, I no kill you." I came on deck and seen them robbing the ship. One of the kanakers belonging to the ship came to me and told me that the Captain commenced the row; how the natives wanted to trade with him. He told them to leave the ship. They did not instantly do so; when he attacked them; which this person saw. I came ashore in a canoe and was treated very cordially. I do not think the natives are to blame.

Signed by me, GEORGE F. HYATT, + his mark.
Witnessed by me, JOHN W. JAQUES.
JOHN F. SYLVA, + his mark.

Missing: Captain Barnes. Mate, left in Ascension. 2nd Mate, Austin. Steward, John Rose, put in at Ascension. Cabin boy, left Pitt Island. Boat steerers: Samuel Blake; Frank ——; William ——; Old Lewe (coloured), Forward: John Cron; William Smith; Isaac ——; Nuggit, a native of New Byron; Geate, native of New Byron.

Came ashore at Pleasant Island: George F. Hyatt, New York; White, Isle of Pines; Monday, Kanaker; Mainyard, Simpson Island; Susan, Woahoo; Old Woahoo, Woahoo; Jimmy, New Byron.

This evidence was copied by me from a copy given to me by Mr. Prince W. Ewer, Master of the *Emily Morgan*. It is word for word, except that the stops are put in. It was confirmed verbally to me by Jaques and another man, on board the *Emily Morgan*, who had witnessed the affray.

L. U. HAMMET, Acting Commander.

The following description of the Caroline Archipelago, beginning with the eastern one, and proceeding in a westerly direction, was obtained from the Missionaries.

Oulan or Strong Island. This is the easternmost of the Caroline Islands, and was discovered in 1804 by Captain Crozier, commanding an American ship, who gave it the name of Strong, after the Governor of Massachusetts. A notice of the discovery subsequently appeared in the *Moniteur*, February 1st; but it was not then placed on the charts. M. Buaché communicated the notice to Captain Duperrey, at the time of his voyage, and the navigator sought for and found it in June, 1824; proving that Captain Crozier's position was very exact. He passed ten days here, and made a minute survey of it. "The Island of Oulan, lying in the track of vessels going from Australia to China," says Captain Duperrey, "may, at some future time, become of great importance. It offers good ports for careenage, abundance of water, and refreshments of different sorts." The island was visited, also, by Captain D'Urville and Captain Lutke, the latter giving the following account of it:—"Oulan is twenty-four miles in circumference. It is of volcanic formation. A break between two masses of mountains, which extends across the island from west to east, divides it into two irregular parts; the southern portion being more than double the extent of the northern." On this northern portion is Mount Buaché, so named by Duperrey; which is 1,944 feet, according to him, or 2,060 feet, according to Lutke, above the level of the sea. From its rounded summit it falls gradually on all sides. On the southern portion, Mount Crozier, 2,152 feet above the level of the sea, is named after the discoverer of the island. Its crest extends from N.W. to S.E.; the north flank is very steep, and rugged at its summit. In general this portion of the island has many peaks, both isolated and coupled in the form of ass's ears. One of these peaks, more remarkable for its regular conical summit and by its position in front of Coquille Harbour, was named Martin Mountain by Lutke, from his lamented naturalist. The northern part of the island is surrounded by a coral reef; which, opening before the break between the mountains, forms a port on each side of the island. That to the westward is what Lutke used; that to the eastward is what the islanders call Nin-molchon, and Captain Duperrey, Lelé, from the name of the small island found in it. The southern part is surrounded by a chain of coral islets connected by reefs and forming on the side towards the island a shallow lagoon, through which this part of the island may be traversed. This chain is broken towards the southern part of the island forming a small port, named by the French Port Sothin. The shore, sheltered by the reef from the violence of the waves, is surrounded by a broad belt of mangroves and other shrubs, forming a thick wall of verdure; which, at first, pleases by its singularity; but the monotony of which soon fatigues the sight. This belt also hiding the real shore renders it difficult to determine the exact limits of the island, and also by its nature renders it constantly liable to change. In general, the whole island, from the sea to the mountain tops, with

the exception of the highest and most peaked summits, is covered with a thick and almost impassable forest. In the neighbourhood of the houses, the wood consists of bread-fruit, cocoa-nut, banana, and other fruit trees. The break or valley between the two ports is the only part by which you can pass from one side to the other. The distance is only two and a half miles (we were told it was about six), but the road is unpleasant, from the marshy pools, especially after rain. Rivulets and water courses are met with at every step, and the richness of the vegetation attests the humidity of the climate, unusual in these latitudes; it did not, however, appear to be unhealthy. The villages are chiefly placed along the beaches, but are not much seen from the seaward as they are hidden by the coral islets and mangroves. They are all surrounded by stone walls, separating the properties. The number of inhabitants in the fifty small villages enumerated by Lutke amounted to 409 men and 301 women. Their manners, habits, and appearances are aptly described by Lutke and Duperrey: to whose works the reader is referred. Port Lelé, or Pané Bay of the natives, is where the Chief and major part of the population reside. It is the most spacious; but, as it is on the eastern side of the island and the prevalent winds are from the eastern quarter, it is not easy to leave it, the more so because there are no soundings in the entrance. This is the harbour usually resorted to by the American whalers. The Coquille Harbour, where Duperrey's vessel anchored, is on the western side of the Island, which gives it a great advantage over Port Lelé. The sea is here as calm and tranquil as a mill pond. The anchorage is excellent and very tenacious, on a bottom of black mud, near to two small islets lying in the bottom of the harbour.

The Island of Oulan will serve for an excellent place for refreshment, and particularly for the whalers or vessels proceeding to China by the eastern route. A tranquil harbour, fine climate, an abundance of fresh water and fruits are great advantages;—all to be enjoyed here (*Nautical Magazine*, Nov., 1848, page 578). An abundance of sea provisions must not be expected here; but there is no fear of want for daily consumption.

The position of the N.E. islet in Coquille Harbour is lat. 5° 21′ 20″ N., long. 163° 1′ E. Captain Lutke makes the centre of the island in lat. 5° 19′ N., long. 163° 6′ E.

MacAskill Island. According to Arrowsmith's chart, Captain Musgrave, in the *Sugar-cane*, discovered some small islands in 1793; they were placed in lat. 6° 12′ N., long. 159° 15′ E. According to Horsburgh, Captain MacAskill, of the ship *Lady Barlow*, on her passage from Port Jackson to China, discovered, October 29th, 1809, two islands, covered with trees, extending about three leagues S.E. and N.W. By good observations, the centre was found to be in lat. 6° 12′ 50″ N., long. 160° 41′ 20″ E. The two islands are called Iakay and Pelelep, and are, together, two and a half miles in extent. Cocoa-nut, coral. Lagoon inside. Good ship passage on the west side. Group fifteen miles in circumference; well inhabited by a light-

complexioned race, not to be trusted. Live on fish and cocoa-nuts. Produce: bèche de mer.

Duperrey Isles. Discovered in *La Coquille*, June 18th, 1824, and named after her commander. The three islands are named Origia, Aoura, and Mongoul. The N.E. point of Aoura is in lat. 6° 41′ 45″ N., long. 159° 50′ E. Less than ten miles in extent; nearly north and south. In *Nautical Magazine*, November, 1848, page 578, called Wellington Isles. Passage to lagoon on S.W. side (I could find none). Thickly populated. Bèche de mer and cocoa-nuts. Huntington, October 6th, 1852, said, eighty-seven inhabitants; men, women, and children.

Departure of the Baltic Fleet.

[The extraordinary interest attending the very novel event of the departure of a powerful fleet for the Baltic, the extraordinary dispatch with which that fleet has sailed, and the great events which it must bring about, form, altogether, a matter of such grave importance in the history of Europe, that we must not omit to preserve a fair account of it consistently with the legitimate object of this journal,—the diffusion of correct hydrographical information. We have already preserved notices of the preparation of those splendid ships—vessels of war such as the world has never yet seen—and the following lines from the *Daily News* will be found to convey a spirited detail of their departure from Spithead on Saturday the 11th of March, led by the Sovereign of these Isles.]

Spithead has within the last few months been the scene of two great naval pageants, both of interest sufficient to concentrate upon them for the time the observation of the whole nation, but still, widely different in their character, in their importance, and in the real results which might be expected to follow the ceremonial. The naval review of last summer was a great national holiday, with the people in their holiday clothes and the ships in their holiday colours. The Sovereign came out in her gay little yacht to participate in the spectacle, and to admire those wonders of naval architecture which modern science had just then added to the formidable array of "Castles on the deep," in which the people of these islands rest their great hope of national security. But Saturday's proceedings had no holiday air about them. Boats passed from ship to shore incessantly, weeping female faces might frequently be met, as fathers, sons, or brothers sped away to join their ships; and even the people who came in thousands from all parts of the country to see the fleet off wore an earnest and thoughtful expression of countenance, and seemed fully alive to the importance of the coming struggle in which Admiral Napier and his brave men are

to play so conspicuous a part. The popular demonstrations in favour of that distinguished officer were, on the day of his departure, of the most enthusiastic and unequivocal character. His hotel was crowded all the morning with troops of friends, and his progress to the Town Hall and thence to the water side was one continued ovation.

Under ordinary circumstances, it would not, perhaps, be necessary to dwell so much on these points; but so systematic and persevering have been the endeavours of certain parties to blast the reputation, both moral and professional, of Admiral Napier, that the people of Portsmouth, amongst whom he has long lived and is well known, felt called upon to mark in the most emphatic way their opinion of such calumnies, by giving to the object of them such a farewell as has never been equalled in this country since the days of Nelson.

After his reception of and reply to the address of the corporation (given at page 202), a procession was formed from the Town Hall to the Victoria-pier, Admiral Napier being accompanied by the Mayor and the other members of the corporation clad in their civic scarlet and miniver. The crowds in the High-street rendered the progress a very slow one, and when the procession arrived at the pier so densely were the people packed that the gallant Admiral was obliged to pause and consider, as he might be supposed to do if about to attack Cronstadt or Aland. Every one wanted to shake hands with him; but as he, unfortunately, had only two of those appendages, the process was a tedious one, and could only be achieved by the front ranks of the crowd.

Of the arrangements of the pier company to meet the exigencies of so important an event as the formal embarkation of the Admiral of the Baltic Fleet, very little can be said in commendation. There were no police to keep order or to restrain the admiring crowd, the excursion steamers were allowed to block up the jetty, and the pier commissioners themselves blocked up the steps, so that it was with the greatest difficulty the Admiral and the ladies of his family could make their way to the water's edge. One unconscionable old burgess seized his hand at the top of the stairs, and held it while he favoured him with an oration of nearly half-an-hour's duration, all of which was borne with the most commendable patience and resignation. In the meantime the captain of the *Paris*, excursion steamer, coolly laid his vessel alongside the jetty, in order that his two or three hundred passengers might have a good stare, no matter what might be the inconvenience inflicted on the great object of public curiosity. However, the cheering was tremendous, the Admiral was all smiles and acknowledgements, and the band of the 42nd Highlanders kept up such a musical din overhead as completely to drown any attempt at grumbling had there been any disposition to indulge in that national pastime.

The *Sprightly*, government steamer, lay off the landing-place to take the Admiral and friends on board the flag-ship; but here again came another instance of bad arrangements. It was found that the Admiralty barge had not been sent round from the dockyard, and the

conqueror of Sidon and of Acre was obliged to take water in one of the small boats of the *Sprightly*. But these preliminary difficulties were soon overcome, the steam was up, and the vessel above-mentioned made a praiseworthy attempt to justify her appellation by threading her way with all possible velocity through the innumerable vessels with which the harbour was filled, and directed her course at once to the great Duke.

Through the kindness of Admiral Napier the representatives of the London papers were favoured with a passage in this vessel, and also accompanied the Admiral on board his flag-ship, remaining on board until she was actually under way. The parties chiefly interested take this opportunity of making their acknowledgements to the gallant Admiral, who, in all the hurry of departure, amid weeping friends and relatives, and almost overwhelmed with the duties of the crisis, found time to attend to a direct application to himself, and to meet it with a promptitude of assent which proved how fully he appreciated the importance of giving the public authentic intelligence of the movements of the Baltic Fleet, and the necessity there was of giving every facility to those whose duty it was to represent the absent public on so interesting an occasion.

The *Duke of Wellington* was, as usual, the most conspicuous figure in the picture, and was surrounded with what looked like a Dyack flotilla, but which was in reality a perfect fleet of shore boats, that clung like barnacles to her water line, and were filled with the friends of the sailors, as might be expected an unusually numerous body, seeing that the ship had been paid down only the night before. The wages then distributed amounted to several thousand pounds, and occupied about seven hours in payment. The *Royal George* lay close at hand and another three-decker had been added in the *Neptune*, which, with all her beauty of form, had found it necessary to call on a rather contemptible-looking steam tug to get her out of harbour in the morning. The superiority of science over bulk could hardly have been better illustrated than in this case of the *Neptune*. Here was one of the finest line-of-battle ships in the world lying sluggishly at the mercy of the reluctant breeze, when, lo! a little black magician appears that would fit in the *Neptune's* long-boat, and, taking the huge Leviathan by the fin, coolly places her in her place in the proper order of departure.

It is quite clear that sailing line-of-battle ships will soon be matters of history in this country, unless we keep a few of the Russians by way of curiosity. But even here Jack sees his way to a difficulty. A group of sailors were assembled on the "Hard" on Saturday evening, discussing the past and the future, when one of them burst out with, "The people of England are very kind to us going to the Baltic, but they will be much kinder when we come back with the Russian fleet in tow; but," he added with an air of mild resignation, "I'm afraid they'll be disappointed, as we'll have to knock 'em all to pieces over their anchors."

While passing through all these fine ships, the Admiral paced the deck of the *Sprightly* in deep thought, talking rapidly to himself, and occasionally casting a critical glance at the various vessels of his noble fleet. The *St. Jean D'Acre* was crowded with a fashionable company, friends of the Captain, and was also conspicuous from the absence of a pennant—a form of bunting to which it appears her commander has an insuperable objection. The fine frigate *Imperieuse*, by her perfect trim, justified the high reputation of her commander, Captain Watson, and the squadron of paddle steamers were slowly simmering up their steam, to be ready for the signal to 'way anchor. Near at hand, in a dark and sullen cluster, lay the block ships, *Blenheim*, *Hogue*, *Ajax*, and *Edinburgh*, painted with one white stripe, like frigates, but containing in the obscurity of their black lower hulls, a row of 84-pounders, destined some day to give a terrible surprise to whatever enemy may be simple enough to take them by their appearance. The other ships were grouped in their prescribed order, marshalled as regularly as grenadiers, and the picture was filled up with the vast pleasure fleet of steamers, yachts, pilot boats, and shore boats laden to the water's edge, and some of them floating with their masts or chimnies at a perilous angle to the perpendicular. But no matter, their happy human freights seemed to care nothing for the danger, but crowded paddle-boxes and every other "coign of vantage," giving perpetual rounds of cheers and "one cheer more" for the Admiral, for the *Duke*, and for themselves when they had nothing more particular to cheer about.

At this moment the weather was delightful, with a bright sun, a clear sky, and a merry breeze that curled up a white foam round everything afloat. Even sea sickness seemed to be forgotten on that particular occasion. As the little steamer that contained "Cæsar and his fortunes" approached the huge vessel that was to be his home for some months to come, the great *Atrato* hove in sight, filled with Directors and their friends, and afforded a fruitful theme of comparison with the more grim looking giant, whose stupendous size she fairly emulated. Her graceful lines, delicate form, and total absence of armament, contrasted vividly with the lofty black hulls of the war ships, but did not prevent her being as much the "cynosure of neighbouring eyes" as any of the latter.

But we were now approaching the flag-ship, and speaking-trumpets were plied, with all the vigour that distinguishes Captain Allen and his officers, to disperse the fleet of Portsmouth dyaks before alluded to. However, the more they were warned, the more determined was their truly British scorn of flight, while the *Sprightly*, whose steam had been stopped, kept slowly surging broadside on towards the larger vessel, in obedience to the laws of attraction and the action of the tide, until at last she fairly jammed, between the huge *Wellington* and herself, an open wherry containing at least fifty women and children. The scene that followed may be easily imagined. An awful crunch was heard, the women set up a dreadful scream, and their destruction

seemed for a moment to be inevitable. But the prompt and instructed humanity of men-of-war's men soon came to the rescue. The boats were lowered as if by magic, and Captain Gordon, who stood at the gangway to receive the Admiral, with admirable presence of mind, called out, "Open the lower deck ports and haul in the women." This happy thought gave at once a ludicrous turn to what had just a minute before promised to be a sad and tragical misadventure. The ports were opened, and, quick as thought, about fifty sailor's wives, daughters, and sweethearts, were darting, like so many harlequins, through the open ports, totally reckless of the stupendous effect their performance was producing on the outside spectators.

As soon as the excitement caused by this little episode had subsided, the Admiral was received on board with all due ceremonial, his part of it being a hearty shake of the hand with the officers, and the party proceeded to explore the wonders of England's largest battle ship. The lower deck, which is just above the water line, looked, on first entering, like a town, sweeping, as it did, the whole length of the vessel, and being studded with the various appliances of war. Upwards of 1,000 men were waiting for their dinner, but there was no crowding, the detached groups in which they sat or stood taking up only a small portion of the immense deck. The galley was in full operation, roasting, boiling, and stewing for the various messes, and behind it an immense fountain ran fragrant soup into a large cauldron, over which a dispensing deity presided, and, with a list in one hand and a huge ladle in the other, distributed the nourishing beverage without noise, trouble, or confusion.

Down below, in the deep abyss of the hold, the steel bars of the engines gleamed fitfully, as grim stokers flitted backwards and forwards through the gloom, some of them being provided with dim lamps that served only to make darkness the more visible. Everything had a Titanic appearance, the huge boilers being fitly matched by the tremendous screw, with its immense fan, so powerful and yet so delicate in its proportions as to be sensitive to even the slightest accident or derangement. It was satisfactory to learn, while groping about in this marine Inferno, at a temperature which gave a tolerable foretaste of what the heat would be during the generation of steam, that the cause of the late flaw in the machinery had been discovered and completely remedied, having merely arisen from the accidental dropping of water into a portion of the moving machinery where steam alone should have entered.

On ascending to the main deck, we found the men busy laying down scarlet cloth for the reception of her Majesty, and the various officers giving hurried orders anticipatory of the royal visit. Had circumstances so permitted, the Queen could scarcely have found a more fitting presence-chamber for the Sovereign of the Seas than the main deck of the *Duke of Wellington*. Being clear of the various obstructions with which the lower deck was crowded, it looked like a large saloon, until one glanced round at the heavy guns ranged so regularly

on either side. The breeze that came through the ports furnished a most refreshing atmosphere, and everything felt and looked pleasant, the little "Middies" included—the latter looking full of the important part they filled in the spectacle of the day. The upper deck, the last stage in our progress of inspection, looked like the top of a great tower, upon which a company of soldiers (marines) marched and countermarched, and manœuvred with as much freedom as if they were in St. James's Park; and, when one peeped over the high bulwark, the resemblance to a tower became more striking from the immense height of this part of the vessel out of the water. The Admiral was on the poop, wearing his regulation cocked hat with a painful air of discomfort, and directing his telescope every moment towards the Isle of Wight in search of the signals for her Majesty's departure. The Queen had originally intended to visit the fleet at ten in the morning, but the Corporation of Portsmouth, with that modesty which is everywhere the offspring of municipal institutions, requested her, through Sir James Graham, to postpone her inspection in order that Sir Charles might receive their address in the Town Hall. Her Majesty showed her usual readiness to consult the convenience or wishes of her subjects, and finally fixed one o'clock for the visit.

At a quarter to one the *Fairy* was seen to leave the island, and punctually at one she was among the fleet, and within saluting distance. The whole of the fleet saluted with twenty-one guns each, firing from each side alternately, sending forth flash after flash in quick succession, while the breeze prevented that dense accumulation of smoke in which the best points in reviews, whether military or naval, so frequently disappear. The *Fairy* was followed by the *Fire Queen*, *Black Eagle* (having on board Lady Graham and the Duchess of Sutherland), *Elfin*, and a whole fleet of pleasure boats and steamers, the people cheering, while the men-of-war saluted. In a few minutes the *Fairy* hove-to to leeward, and the signal was made that the Queen would receive the Admiral and his principal officers on board her own vessel.

The visit of state was but of few moments' duration, and immediately on its termination the important signal to 'way anchor was passed through the fleet. The *Royal George* was the first to be ready. Her sails were set and her anchor at the bow in about ten minutes, when she wore round like a cutter, and sailed away steadily with a pleasant S.W. breeze, amid the cheers of thousands of spectators.

The spectacle now visible from the quarter deck of the *Wellington* became one of intense interest. The Admiral stood, glass in hand, giving orders to the ships to 'way in succession, and immediately the signals were run up with magical celerity, and answered by the ships addressed in a moment. The shrill sound of the boatswain's call came faintly over the air, and the sailors were seen to crowd aloft like bees, and spread themselves along the yards. Soon the great sails were shaken out, swelling majestically in the breeze, and the ships indicated, by uneasy movements at their anchorage, the presence of a

newly applied momentum. The capstans could be heard at work to the sound of the fife, and soon the great anchors were seen dangling from the bows, and the ships creeping slowly away. The *St. Jean D'Acre* and *Tribune* were soon on their way under single-reefed topsails, and the *Imperieuse*, *Blenheim*, *Amphion*, *Princess Royal*, *Edinburgh*, *Ajax*, *Arrogant*, and *Hogue*, followed in quick succession. The *Royal George* was now making away for St. Helen's rapidly, and as the sun filled the hollows of her sails it would be hard to imagine a more perfect type than she presented of beauty, symmetry, and power. The paddle ships, *Leopard*, *Valorous*, and *Dragon*, came next, rushing on under steam, and affording in their plashy, fussy movements a striking contrast to the stealthy pace of the screws.

The first division of the fleet being now fairly started, the signal was given for the "Great Ammiral" herself to 'way and make sail; both of which operations were performed with the celerity and precision which might be expected from the numbers and aptitude of the crew, and the skill and experience of the commander. Every rope was hauled "home" in a moment, by the silent but simultaneous effort of a hundred men; the rigging was soon literally black with sailors, and while the eye detected everywhere the greatest energy and activity, to the ear there was no sound perceptible but the boatswain's call and an occasional command from an officer, short, sharp, and decisive. The *Fairy* now shot by, receiving a cheer as she passed, and the landsmen bade farewell to the *Duke of Wellington*, and returned to their first quarters in the *Sprightly*. The ladies of Admiral Napier's family were put on board this vessel, and were accompanied by Admiral Berkeley and Sir Baldwin Walker. Both of these great naval authorities seemed never to tire of gazing at the flagship, but ordered the Captain of the *Sprightly* to keep close company in order that they might watch and enjoy her appearance under canvas. It would require the skilled eye of a naval man fully to appreciate the qualities she now developed, but the magnificence of the spectacle came home to every one, and once seen could never be forgotten. By this time the *Fairy* headed the fleet, her Majesty literally leading them out to sea, standing on deck all the time, and watching every movement with an interest that never tired. When did ever British sailors have such incentives to deeds of daring, led thus almost into action by the foremost lady in the world, to be the defenders at once of her woman's helplessness and her royal honour? "Truth is strange, stranger than fiction," and never did poet or dramatist imagine so fine a situation as that afforded by the stern realities of the departure of the Baltic Fleet.

The vessels first under way hove to when they arrived at St. Helens, waiting there until the Admiral had arrived in his flag-ship, when the whole bore up and sailed merrily away for the Downs. Her Majesty accompanied the fleet in the *Fairy* as far as the Nab, and then returned to Osborne, receiving from the ships she passed on her return a succession of hearty cheers.

The total fleet, of which the first division had so prosperous a start on Saturday, will consist of about forty-four vessels, including three three-deckers, and twenty line-of-battle ships, in all the total number of guns being 2,200, of men 22,000, and of horse-power 16,000. The sailing ships will be rendered nearly as available as the screws by the assistance of the paddle fleet, and the whole will form the most powerful armament that ever left the shores of England. They will soon be joined by two 90-gun screw ships, the *Algiers* and *Hannibal*, while the state of activity perceptible in all the dockyards would seem to indicate that a more overwhelming strength still will shortly be added.

There is much speculation, of course, in naval circles as to the probable plan of operations. The more ardent of the gossips speak boldly of the bombardment of Cronstadt, and point to the large quantity of Moorsom's shells shipped as a proof that serious mischief is meant. It appears that the construction and materials of this terrible projectile is a Government secret; and so important is it deemed that each ship's supply is numbered and registered in a book, and whenever one is used the why, the when, and the place is carefully noted down, and the details forwarded to the Admiralty. This, it is said, looks like bombardment, but the more cautious shake their heads and say that to attack Cronstadt with its 800 guns would be sheer madness. Others, again, speak of blockade; and a third hint at the capture and occupation of the Island of Aland, as commanding the Gulf of Finland, and at once settling the doubtful neutrality of Sweden. In support of this hypothesis, it is alleged that sappers and miners go out, and that the ships take out a supply of scaling ladders and other siege accessories. A few months will put to rest all these speculations, and perhaps add another to Professor Creasy's list of the decisive battles of the world.

We annex the following list of the Baltic Fleet from the *Naval and Military Gazette*.

	Guns.	Tons.	Crew.	H.P.
Duke of Wellington, Captain of the Fleet Michael Seymour, Flag Captain G. T. Gordon, bearing the flag of Vice-Admiral Sir Charles Napier, K.C.B., G.C.T.S., K.M.T, K.S.G., K.R.E.	131	3700	1100	780
Neptune, Captain Hutton, flag of Rear-Admiral of the White, A. L. Corry	120	2705	990	
Edinburgh, Capt. Hewlett, flag of Rear-Admiral Chads, C.B.	58	1772	660	450
Leopard, Capt Giffard, flag of Rear-Admiral of the Blue, J. H. Plumridge	18	1412	280	560
Princess Royal, Capt. Lord Clarence Paget	91	3129	850	400
Royal George, Capt. Codrington, C.B.	121	2616	990	400
St. Jean d'Acre, Capt. Hon. Henry Keppel	101	3400	900	650
Prince Regent	90	2613	821	
Cressy, Capt N. L. Warren	81	2537	750	400
Boscawen, Capt. Glanville	70	2212	650	

	Guns.	Tons.	Crew.	H.P.
Hogue, Capt. W. Ramsay	60	1750	660	450
Ajax, Capt. Warden	60	1761	500	450
Blenheim, Capt. Hon. F. T. Pelham	60	1747	600	450
Imperieuse, Capt. Watson, C.B.	51	2347	530	360
Arrogant, Capt. Yelverton	47	1872	450	360
Amphion, Capt. A. C. Key	34	1474	320	300
Tribune, Capt. Hon. S. T. Carnegie	30	1570	300	300
Dauntless, Capt. Ryder	33	1490	300	580
Valorous, Capt. C. H. M. Buckle	16	1255	220	400
Dragon, Capt. Willcox	6	1270	200	560
Bulldog, Capt. W. C. Hall	6	1123	160	500
Frolic, Commander Nolloth	16	511	120	

This splendid and matchless armament has been victualled and stored for six months' war service. It is complete in every arrangement as to *materiel*, and, we may safely add, nobly officered and efficiently manned. To join these we have the following preparing with all expedition at the several ports:

	Guns.	Tons.	Crew.	H.P.
Waterloo, Capt. Lord F. H. Kerr	120	2718	990	
St. George, Capt. Eyres, C.B.	120	2719	970	
St. Vincent, Capt. E. H. Scott	102	2612	900	
James Watt, Capt George Elliot	91	3083	820	600
Nile, Commodore H. B. Martin, C.B.	91	2598	820	500
Cæsar, Capt. Robb	91	2761	850	400
Monarch, Capt. Erskine	84	2286	750	
Majestic, Capt. James Hope, C.B.	81	2589	750	400
Euryalus, Capt. S. Ramsey	51	2271	530	400
Mœander, Capt. Talbot (ordered from the Cape)	44	1215	450	
Odin, Capt. F. Scott	16	1310	270	500
Magicienne, Capt. Fisher	16	1258	260	400
Vulture, Capt. Glasse	6	1190	200	470
Desperate, Capt. Chambers	8	1100	175	400
Miranda, Capt. E. M. Lyons	14	1039	170	250
Archer, Capt. Edmund Heathcote	14	973	170	200
Conflict, Capt. J. Foote	8	1013	175	400
Lightning, Capt Sulivan	3	296	50	100
Cruizer, Commander Hon. G. Douglas	14	750	160	60
Driver, Commander Hon. A. Cochrane	6	1056	160	280
Gorgon, Commander Cumming	6	1111	160	320
Rosamond, Commander Wodehouse	6	1059	160	286
Prometheus, Commander Rice	5	800	100	220
Alban, Commander Otter	3	405	50	100
Basilisk, Commander Hon. F. Egerton	6	980	160	400

Besides hospital ships, store ships, coal ships, and all the other essentials of a well equipped fleet.

Whilst the above mentioned are being got to sea with all dispatch, others are being advanced for service of all classes.

Presentation of the Address to Sir Charles Napier.

At a quarter past ten Sir Charles Napier arrived at the Hall, accompanied by several friends, among whom were some ladies, his daughters.

Sir Charles Napier having taken his seat on the bench, the Mayor, addressing him, said—It becomes my duty, as Mayor of this ancient borough,

to announce to you, Sir Charles, that the Council, at a special meeting yesterday, determined to present to you an address on your embarkation from this port on the important service to which you have been ordered by your Sovereign, to lead our fleet to, we hope, victory, and to results that may, we pray to God, have such an effect on the mind of the Sovereign who has plunged Europe into war as shall induce him to forego the unjust claims he has set up, and to allow the world to again enjoy the blessings of peace and quiet. (Hear, hear.) Should you, Sir Charles, by the operations which you are now to direct, produce results such as these, then indeed the country will regard you as one of its greatest men and benefactors. We pray that you may be enabled to achieve these great objects.

The Town Clerk then read the following address to the gallant Admiral:—

To Vice-Admiral Sir Charles Napier, K.C.B.

"Sir Charles,—We, the Mayor, Aldermen, and Burgesses of the ancient Borough of Portsmouth, having learned that you were about to embark from our port to take command of the powerful fleet destined for the Baltic Sea (to which distinguished position you have been appointed by the favour of our most gracious Sovereign), are anxious, ere you leave the British shores for the probable scene of actual conflict with that power, which has been fitly characterised the common enemy of Europe, in defence of the just and honourable cause which this nation (in conjunction with its allies) has espoused, to express our earnest hope that you will be enabled, if the necessity arise, to lead the mighty armaments of which you have the command to some great and glorious victory, and thus compel the autocrat, who has so wantonly disturbed the peace of the world, to appreciate the courage and resources of England and France united, which he has, hitherto, dared to set so completely at defiance. Great indeed is the responsibility which rests on you, and great are the expectations and anxieties with which the British people will be filled while you are engaged in the difficult and, perhaps, perilous duties to which your Queen and country call you. In those duties may the God of Battles aid and prosper you; and may the combined forces under your control, fighting in cordial union in a righteous cause, succeed in materially assisting to bring this warfare to a speedy and decisive issue. You and the equally brave and gallant men who will rally around you will have the earnest aspirations, not only of the inhabitants of this borough, but of the people of the United Kingdom. We wish you God speed, and pray that the war which has been thus needlessly forced upon Europe may, eventually, result in a still more lasting peace, check the barbarous policy of aggression, and promote the civilization of the world.

Sir Charles Napier, who seemed much moved by the terms of the address, and the cheering with which it and himself were received, said—I thank you, Mr. Mayor and Gentlemen, for the terms in which you have addressed me, and when I tell you I had only twenty-four hours to prepare to go afloat, you will not be surprised at my not being able to address you at any length. I must be off to sea, and cannot, therefore, address you at any length; but I beg to thank you most sincerely for the address you have presented to me. Perhaps it is not usual for a man in going abroad to receive such an address, but I can only say that I will do the best I can to prevent the British flag from being tarnished. (Loud applause.) I know much is expected from this fleet, and I think it will be able to do something, but gentlemen must not expect too much from it. We are going to meet no common enemy; we are going to meet one well prepared. I am sure every officer and man in the fleet will do his duty well and thoroughly; but, at the same time, you must not expect too much. It is well equipped, and efficient, but it is newly formed, and such changes have taken place in nautical matters that it is im-

possible to say how much or how little may be achieved. The system of warfare is entirely new, and the introduction of steam also materially alters the tactics of war. I can, however, assure you that I will—and I know the officers and crews with me will—do everything in my power to uphold the honour of the country and its navy. We will do our duty to the best of our ability, and I am sure I shall ever remember the kindness of the people of Portsmouth. (Loud cheers.)

Sir Charles Napier then left the Hall, amid the renewed plaudits of those present.

Becher's Mercurial Marine Artificial Horizon.

H.M. Surveying vessel *Fairy*, at Woolwich,
November, 26th, 1834.

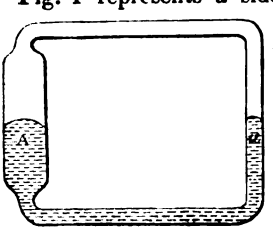
Sir,—My Lords Commissioners of the Admiralty having been pleased, by your letter of the 2nd September last, to direct me to give a trial to a Marine Artificial Horizon invented by Lieut. A. B. Becher, I beg, herewith, to forward the following report thereof for their lordships' information.

The contrivance proposed by Lieut. Becher for a Marine Artificial Horizon consists of a rectangular shaped tube of glass containing a small quantity of mercury, and it is by means of the two surfaces of this mercury in the opposite parts of the tube, to which there is an uninterrupted communication, that Lieut. Becher finds the place of the horizon.

The principle which Lieut. Becher has adopted, namely, that a fluid when unobstructed will always find its own level, is a well known law in hydraulics; but there are certain conditions to be observed in its application to the sextant, as a substitute for the horizon, that his experience in the use of that instrument has not failed to suggest to him; and, although, I am informed, the same principle has before been applied to the same instrument for the same purpose, it is due to Lieut. Becher to state that it has not been treated with the same judgement, and, therefore, not with equal success.

The annexed sketches of the instrument proposed by Lieut. Becher will assist in its description.

Fig. 1 represents a side view of the tube, the lines A and *a* the surfaces of the mercury in the lower part of the tube. The passage of the mercury to all parts of the tube being unobstructed, it is evident that the surfaces A and *a* will be on the same level whatever may be the position of the tube, and *in theory* the plane of these two surfaces must be assumed as horizontal. In its application to the sextant, it is required to place the eye in this



plane at the moment of observation; or, in other words, to ascertian when the surface *a* is on the same level as the surface A, and at the same instant to observe the altitude.

Fig. 2. is a diagonal representation of the tube, and shows the manner in which the opposite extremities of it are shaped so as to arrive at the condition necessary for observation. The part A of the tube is widened so that the surface of the mercury may be extended across the plane at right angles to the line of sight; and the opposite part *a*, nearest to the eye, is divided into two lesser ones, but each forming a portion of the same rectangular one, as represented in the sketch. By this arrangement the condition above mentioned is obtained.

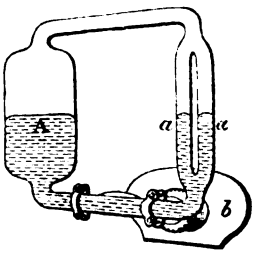


Fig. 2.

The plane of the surfaces is readily found by their being seen in contact, as shown in fig. 3., and, at the same time, this judicious distribution of the various parts of the tube is such as not to interfere with the observation.

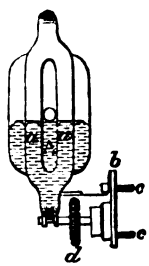


Fig. 3.

Such being the general arrangement of the tube for the purpose of forming an artificial horizon, Lieut. Becher has attached it to the sextant (fig. 4.) so that the horizon glass comes between the enlarged part A and the smaller parts *a a*, (the latter being nearest the eye,) and its plane parallel to the plane of the sextant. And, also, while the sextant is held in the vertical position for observation, the two surfaces of the mercury A, *a a*, are as near as possible in the axis of the observing tube of the sextant. The tube forming the artificial horizon is fitted to a metal collar *b*, figs. 2 and 3, with feet *c c*, fig. 3, which are received in sockets in the frame of the sextant, and is readily secured in its place by means of a small screw *d*, fig. 3, by which arrangement it can be attached or detached in three or four seconds of time and does not interfere in any manner with the adjustments of the instrument.

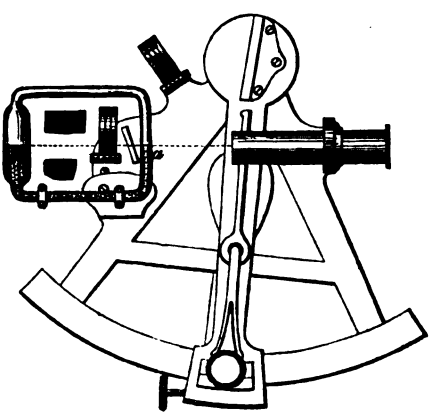


Fig. 4.

The sextant, with its marine artificial horizon, being thus prepared for observation, the business of the observer is to hold it so that the two surfaces of the mercury shall be exactly in the line of sight from

the eye end of the observing tube of the sextant. The sun, when brought down in the usual way, passes from the index glass between the smaller tubes *a a*, and is seen again reflected in the horizon glass at ⊙, fig. 3, while the farther surface of the mercury A is seen beyond it. The two surfaces of the mercury and the sun's limb must necessarily be in contact at the same instant of time to insure a correct observation.

In measuring the altitude of a heavenly body above the horizon by any reflecting instrument, it is necessary that the plane of reflection should be at right angles to the plane of the horizon. This is found in practice with the natural horizon by the observer turning his instrument a little right and left, the axis of the telescope being that of motion, and it is only when the horizon forms a tangent to the arc which the above named movements cause the deflected image of the sun to describe that a true observation can be made. The same will be found with the marine artificial horizon under consideration. If the plane be not at right angles to the plane of the horizon at the instant of bringing down the sun's limb the observed altitude will be always in excess, and will be shown to be so by the reflected image dipping, on giving the instrument the above-mentioned movement on the axis of the telescope.

It may now be proper to observe that although the plane of the surfaces of the mercury in the tubes has been assumed as horizontal, yet that in practice it is not so. This arises from the capillary depression of the small tubes, and produces an error varying according to their diameters. This error in the particular instrument now reported upon was found to be $+3°$ nearly, and was readily found by comparing a series of simultaneous observations with it and the common artificial horizon, on terra firma; but as it is a constant quantity in the same instrument, this circumstance does not in any way militate against the efficiency of the invention.

In the course of the numerous observations which I have made with Lieut. Becher's horizon in the North Sea, and under the various circumstances of violent and gentle motion, I have invariably found it more sensitive than seems necessary to this motion. In other words, the rising and falling of the mercury in the smaller tubes, owing to the difficulty on the part of the observer to obviate this effect of the motion of the vessel on the mercury, renders it difficult in great motion to preserve the level of the two surfaces in the line of sight. This may arise from the disproportion between the capacity of the two small tubes *a a* and the opposite enlarged part A of the horizon; or it may partly arise from the peculiar form and diameter of the lower and connecting part of the tube, the latter being perhaps larger than is necessary for its purpose.

Hence, the sensitiveness of the horizon, which was found to operate against an observation in proportion to the motions of the vessel, might be remedied by the inventor, by increasing the capacity of the small tubes *a a*, so that they may contain together a quantity of mercury equal to that contained in the larger tube A. Also, by contract-

ing the diameter of the lower and connecting tube, and gently curving it at the same time, so as to obtain a free and uninterrupted and, at the same time, smooth and regular movement.

Whether the whole or a portion of these suggestions be adopted by Lieut. Becher, the principle on which he has proceeded remains the same. The mercury, under any circumstances has always fair and easy access to any part of the tube, and will be in no way affected by the small portion of atmospheric air in the upper part of it. Some of the above-mentioned observations have agreed with those taken with the natural horizon at the same instant of time; the former with the error of the instrument applied, the latter divested of dip. Others have differed several minutes of a degree,—in some instances as far as fifteen,—but this seems to depend on the quantity of motion.

Considering Lieut. Becher's marine artificial horizon in its present condition, there are circumstances in which the seaman is sometimes placed when it would not only be very desirable, but might, perhaps, prove the means of saving him from shipwreck. It frequently happens that, owing to fog and haze, the horizon of the sea is not visible when an observation at noon could be obtained if it were so; and, in the knowledge of seamen there are many instances in which a ship homeward bound has been unable to run for the English Channel, because, owing to fog, she has been unable to obtain an observation for latitude. And there can be no doubt, but on some such occasions, the means afforded by Lieut. Becher's horizon would have produced a latitude within such limits as would have allowed the ship, by a timely notice of the errors in her dead reckoning, not only to shape a Channel course, but perhaps save her from destruction. On the coasts and neighbourhood of Nova Scotia and Newfoundland, where the prevalence of fogs is so great, and the action of the currents so uncertain, there can be equally no doubt that frequent occasion would present itself for the employment of Lieut. Becher's horizon with great advantage.

During my survey of the North Sea, I have experienced very many instances of fog, when the stem was not visible from the stern of the vessel; at the same time, on account of the thinness of the stratum of fog, the sun was perfectly well defined, and the approach of vessels to each other was discoverable only from their respective mast-heads. It is on such occasions as those above enumerated in which this horizon would prove eminently useful.

The invention of Lieut. Becher, although expressly intended as a marine artificial horizon, is also available to the traveller, to whose baggage it would prove a far less cumbrous appendage than the artificial horizon commonly in use. The results obtained from it on shore, freed as it would be from the motion of the ship, would perhaps be sufficiently near the truth to determine the positions of places; in addition to which it would come into use when the common artificial horizon, in consequence of the required angle to be observed being double the altitude, would be entirely useless, by surpassing the limits of the sextant. Such instances would commonly occur in tropical

climates and in places where the altitude to be observed should much exceed 60°.

Having, in the foregoing statement, shown that the invention of Lieut. Becher is available for the purposes of observation under the circumstances and within the limits mentioned, which limits will also depend as to their minuteness on the skill and expertness of the observer, as all observations must do; and having also shown that for the purposes of the traveller by land the instrument may be used with a still greater degree of precision, it remains only for me to add that such an invention is well worthy the high patronage and support of their lordships, and that to Lieut. Becher may justly be ascribed the honour of having first placed in the hands of his brother seamen an instrument which, even in its present unimproved condition, may be considered as comprehending the nearest approximation to that long acknowledged and great desideratum in navigation, a "Marine Artificial Horizon."

I have the honour to be, &c.,

WM. HEWETT, Commander.

The Secretary of the Admiralty, London.

Should any portions of the above report appear imperfect to their lordships, I beg to add that both the inventor and the instrument being in their Lordships' hydrographical office, their presence can be commanded by their lordships on the instant.

[The foregoing report seems to have been lying by, in some measure owing to the greater success which attended the Pendulum Horizon invented immediately afterwards, and an account of observations with which have appeared in these volumes since 1838 and its description in that of 1841;—an instrument which is now in use among those of our seamen who, as Captain Beechey observes, "have a quick eye and an expert hand."* With reference to the late Captain Hewett's remark on that before us, he readily acknowledged afterwards the advantage of always having the larger body of mercury in the further part of the tube, as it gives the observer the advantage of commanding always a *steady* well defined edge, to which he has to bring the level of the mercury in the two little tubes nearer to him to complete his horizon for observation, and thus has only one part of his horizon to attend to instead of two. Good mercury (not always to be had) and clean tubes for a fair flow, a tolerably steady hand, and a moderate sea are all that are necessary in using this instrument, which is now introduced into the *Nautical Magazine* with the view of establishing that claim to it on the part of the inventor which belongs to him alone. It has been made at different periods since its invention and its manufacture is now followed up very successfully by Mr. Whitbread of Grenada Terrace, Commercial Road, while the Pendulum Horizon is made by Carey, Dennis, and several other opticians.]

* *Description of the Pendulum Artificial Horizon for Day or Night invented by A. B. Becher*, p. 18.—Potter, Poultry.

Account of the Plunder of the "Susan Sturges," *American schooner, burnt at Queen Charlotte Islands.*

The *Susan Sturges*, 150 tons, left San Francisco August 31st, 1852, for the purpose of trading fish at the various harbours in Queen Charlotte Islands, (her owners Gray and Easterly of San Francisco,) under American colours. Mathew Rooney being a British subject could not command an American vessel, so John Caulfield, one of the seamen, passed as Flag Captain, who, with Robert Laing, mate and carpenter, and four other seamen, formed her crew.

Having touched at Edensaw's village, Chief of the North Island tribe, and finding him absent the *Susan Sturges* left for Skidegates, where she remained a few days trading fish, and received on board Edensaw, his wife, and child, whom he had known on a previous visit to Gold Harbour; and on the 23rd September last left for his harbour, North Island. While at Skidegates her defenceless state was observed by the Indians of that place, and Rooney was advised by the chief Nestekenna not to stay so long as he intended, as the Indians were talking bad; or to tell them he was going to sail on a certain day and leave earlier. When he did sail they perhaps communicated with the Masset people overland, and advised them of her easy capture.

On the 25th she rounded Point Rose, when a Masset canoe came alongside and communicated with the vessel. Here the statements of the different parties examined differ so materially, that it is impossible to give a correct opinion of what took place; and this appears to be the most important feature in the whole transaction. The Indians all declare Edensaw advised them of the defenceless state of the *Susan Sturges*; and said he should capture her as soon as she arrived at his harbour, then distant only a few miles. Rooney and others cannot clear up this point, not understanding the Indian language; and Edensaw himself gives a very satisfactory answer to the question put to him. What did you say to the canoe which first came alongside? She contained his wife's son and some of his own relations, and he told them what articles of barter to bring alongside!

The next day, 26th, she lay becalmed off the western point of the harbour and several canoes came alongside bartering with dried fish, all armed, with their faces blackened (a signal for war), and without their women, a most unusual event as all barter is carried on by them. It appears Rooney was not put on his guard even by this circumstance, though he states "he counted twenty-five canoes alongside," but continued trading. A large canoe, however, being of the number, in which were several chiefs, one of the indians, Weho's brother, attempted to get over the boarding netting into the vessel; which, from the height of the canoe and the bad fittings of the netting, he could easily do. Here, again, the two statements differ materially. The Indians declaring one of their number was cut down by one of the

crew, which caused them to rush on board to have their revenge. Rooney and the others declaring they boarded simultaneously and overpowered them immediately. However, this is certain the work of plunder and destruction went rapidly on, and in a very short time the crew were all stripped naked, taken prisoners, and the vessel a complete wreck, burnt.

It is curious to trace, by the certificates given to Edensaw and other circumstances, how completely Rooney was deceived, even after his arrival at Fort Simpson, as to the conduct of Edensaw, if he was the guilty person. No doubt he, with his men, assisted in the plunder and was greatly enriched by his share of it; but, at the same time, he knows too well the power white men possess of punishing such crimes to be guilty of this himself. He was on board during both our visits, the first time for a week, the second for five days, and he is decidedly the most advanced Indian to be met with on the coast: quick, cunning, ambitious, crafty, and, above all, anxious to obtain the good opinion of the white men.

From all accounts, the *Susan Sturges* was well found in everything, with a trading cargo of blankets, calico, tobacco, &c., besides about 2,000 dollars in cash, contained in an iron safe; also a brass six-pounder (which the Indians threw overboard the first thing) and two swivels. In the evening, when the plunder was finished, the crew were dragged on deck from the after cabin, (Rooney having been taken on shore previous to this by Scowell, chief of the Chatsina tribe,) put into different canoes, landed in various parts of Masset Harbour, and finally were taken to Fort Simpson, where they were released by the Hudson Bay Company's chief trader in charge of that fort.

Statement of Edensaw, Chief of North Island.

Went on board the *Susan Sturges* at Skidegates and, with his wife and child, came off Massett Harbour in Rooney's Cabin. Wished Rooney to remain longer at Skidegates before he came to the northward that he might get a stronger party of his men, telling Captain Rooney he had a very weak crew. When off Massett Harbour, the *Susan Sturges* got into light and baffling winds and was drifting about the entrance of the harbour. Several canoes came alongside and commenced trading for dried fish. The crew were variously engaged on one side of the vessel. All at once his wife called out to him one of the crew had struck an Indian; he ran forward and saw that all the Indians from that canoe had boarded the vessel. Rooney and Laing got down into the cabin and shut themselves up for some time, he (Edensaw) doing all he could to prevent the Indians from entering the cabin. Seuki was the first to push by him and was the first man to plunder,—taking the Captain's spyglass. Sternwelli, another chief, and Seuki proposed to murder the crew. To prevent which Edensaw proposed to them to save their lives but to plunder the vessel. During the time, Edensaw received from Sternwelli a slight cut in the face from a push of his gun. The Indians plundering the vessel. When he received the certificate from Captain Rooney, dated 26th September, 1852, he was guarding the door of the cabin; and it was given to him then, Captain Rooney not knowing how long he had to live, as the Indians were threatening to kill him. States Captain Rooney told him Scowell was

the first to cut open the deck by which an opening was made into his sleeping cabin. Acknowledges he cut away the anchors to prevent the vessel from drifting on shore, which if she had done he thinks all the crew and himself would have been murdered. In answer to what he said to the canoe which first came alongside, she contained Duncan's son and some of his own relations, who came to inquire what articles of trade they should bring alongside, and he told them to bring salmon and dried fish, which they would exchange for barter. They met the large Massett canoe with Seuki and he proposed to them at once to go and take the vessel. They had a report overland from Skidegates that she was very weakly manned, and when Captain Rooney left the vessel there were only three men on board. After the small canoe met the large one, most of the chiefs went into the latter to proceed to the *Susan Sturges*; viz.: Weha and his brother, Sternwelli, Seuki, and Sertortallat. the latter did not join in the plunder when on board, except taking the large boat; but afterwards, when on shore, took the safe which held the gold from Steeltac. Does not know who set fire to the vessel; but after she was plundered they all left, night coming on, and the next morning saw her on fire a long way out to sea. Scowell was not on board when the plunder first commenced, but when he came found four or five barrels of powder in the lockers of the after cabin, which he took, also the carpenter's chest of tools. Edensaw made several attempts, by giving the Indians tobacco, cotton, and powder, to get them away without plundering the vessel, but could not succeed. States also there were no women in the canoes which first came off, but latterly they came from the shore and joined in the plunder.

Statement of Scowell, Chief of Chatsina Tribe, taken at Fort Simpson, June 18th, 1853.

Was on a visit at Massett, trading potatoes, with a large and small canoe, about fifteen men in all. Had been there four days when the *Susan Sturges* arrived off the harbour. A small canoe communicated with her, and, from the chief Edensaw, they heard they had only seven men on board, and he was doubtful whether he would take possession of her or not. This message was delivered to the Masset people generally, and the canoes went off, as stated by Captain Rooney, without their women and children, and armed with muskets, knives, and pistols. When they came alongside the next morning, Edensaw suggested to Captain Rooney not to allow more than two or three to come on board at the time. Rooney told him to do so; when one of them forced himself over the boarding netting and received a wound in the face with an axe from one of the men (James Carnden). The Indians said one of our number is killed, and made a rush on board and commenced the plunder. Scowell, by his own statement, was not then on board; but, seeing from the shore the *Susan Sturges* drifting about and sails flapping, he went off to see what was the matter. When he got there he found them all in an uproar plundering the vessel. While they were busy, he got hold of Captain Rooney, secreted him, and having him in his own canoe while the plunder was going on, managed to slip on shore, when there he felt pretty secure. The next day Edensaw came and made a demand for them, but he said, "Yesterday you were not so anxious about their safety, you were looking after blankets and plunder, and would not give them up." During the night he managed to slip out of the harbour and brought them to Fort Simpson. When he first got on board he asked the reason why they intended to take the vessel; it was not good for them to take her when she was not a wreck. Rooney said take the goods and property in her and allow the crew and vessel to go away. He was opposed by the Massett Indians and thinks Edensaw

was at the bottom of it. He had no voice in the matter as it was not in his his lands. Shortly after this Edensaw cut the lashing of the anchors and let them both run out to the clinch. After the anchors were dropped they called out to the remainder of the Indians to come on board. It was then they began to cut the sails adrift and destroy the vessel, and finally burnt her. A man of the name of Natthoon, of the Masset tribe, set fire to her. Does not know the number of Indians engaged in the plunder; he thinks a great number, perhaps 400. Three tribes of Masset and Edensaw men; Kingoni, six men; Chatsina, fifteen men.

Statement of John Winnets, Skidegates Indian, taken at Fort Simpson, June 19th, 1853.

On the 25th of September, 1852, a canoe with five men came alongside when off Point Rose. Did not hear what conversation passed between Edensaw and this canoe, but learnt afterwards from the Masset Indians he had said, "I am only pretending to be kind to Captain Rooney now, when I get him to Naiden (Edensaw's Harbour) I will try and take her." The Masset people then, to be beforehand with him, attacked the *Susan Sturges* the following day. Weha (Masset chief) was the owner of the large canoe which the indians boarded from; his brother was the first to get over the netting, and then he received a cut over the head from him. The next Indian who followed exclaimed, "Let us take the vessel and steal the property," when all made a rush and overpowered the crew. Edensaw did not offer to prevent them. Scowell came alongside whilst the vessel was being plundered and succeeded in getting possession of Rooney and the Mate, and took them on shore. Weha being the first possessor of the latter, but on Scowell offering four blankets he was given up to him. Seven blankets for Rooney and Laing were afterwards given by the Hudson Bay Company. The name of the man who stole the safe with the gold, &c., is Steeltac; the man who took it from him on shore is Tatoulat.

The Indian (John Winnet) was taken to San Francisco by Captain Rooney, and formed one of the crew of the *Susan Sturges*.

The Darien Exploring Expedition.

A gentleman writing from "Off Carthagena, New Granada," gives the following account of the expedition of the exploring party under Commander Prevost, of the steam sloop *Virago*:—"Commander Prevost visited me at Lima; the first sight of him was sufficient to show how poignantly he felt the loss of his four gallant fellows who had fallen a sacrifice to the murderous treachery of the Indians, and the misrepresentations of others in regard to the character of these savages. The poor fellows had been his constant companions, and were the best men of the ship. The party pulled twenty-two and a half miles up the river Savanna, until the boats could get up no further. They then cut through almost impenetrable forests, and passed over a swamp. They were tormented by swarms of mosquitoes and other venomous insects. They passed twenty-six measured miles, and encountered ravines and mountain ridges. They came to a rapid and large river flowing north-east, but with a very tortuous course. They measured one fall of 600 feet, and found an inclination of 45° to 60°. This, alone, would give 600 feet perpendicular elevation above the sea. They went on as far as their means would admit, but although they were on a mountain, and ascended a high tree, their view towards the Atlantic

was intercepted by other mountains and ranges. On my arrival at the city of Aspinwall (Navy Bay) I found that some of the officers of the United States man-of-war *Cyane* had arrived from Escoce. The whole party appeared to be most indignant. Finally, on arriving at Carthagena, a French sloop of war came in, accompanied by the Imperial French steamer *Chimere*. The *Chimere* was the French part of the expedition, and they had left much disgusted. I passed from Panama to Aspinwall in six hours and a half, including thirty-two miles of railway in two hours. The whole line from wharf in the Pacific to wharf in the Atlantic will be open in July next, and the entire transit two hours and a half."

The *Aspinwall Courier* contains a letter from one of the United States' officers sent out on the joint exploring expedition. The letter is dated, "United States ship *Cyane*, Caledonia Bay, New Grenada, Jan. 27th." The writer says:—"We arrived here on the 18th. Captain Hollins held a grand 'pow-wow' with some fifteen or sixteen chiefs. At first they were very averse to our landing on the isthmus, and absolutely refused to give their consent; they at length, however, consented that we should land, but only for the purpose of reconnoitering the proposed route of the ship canal. On the 19th, a party of twenty-eight men and officers, principally from this ship, well armed, and provisioned for ten days, landed under the command of Lieutenant Strain. On the 24th, four of the party returned, having penetrated a distance of twenty miles into the interior. These latter started next morning, with a reinforcement of ten men and extra provisions. The report of the said returned party is not at all favourable to the prospects for a ship canal—for they estimated, on a fair calculation, that the elevation of the lowest points over which they passed is about 1,090 feet in height. They followed the Caledonia river, and you can judge the size of the stream, when the party walked up the bed of the river all the way. The English brig of war *Espiegle* arrived on the 19th, having on board Mr. Gisborne, Dr. Cullen, and a party of English Engineers detached to survey a route for the proposed ship canal. On the 20th, the English survey schooner *Scorpion* and the French steamer *Chimere* arrived, the steamer having on board a party for the canal route survey, and the schooner being intended for the survey of this harbour. The English and French party, combined, started on the 24th. On that day a party of five, detached from Strain's party, returned to the ship, and reported the obstacles and hardships which they had encountered. They stated they had left Strain and his party in the mountains, eighteen miles distant. They left the ship again with a reinforcement of ten men and ten days' extra provisions, under charge of Lieutenant Fauntleroy. While I write I see detachments of the French and English party returning to their vessels, and am informed they have come after provisions. A glance at the letter of Lieutenant Fauntleroy, who overtook the English party the day after he left, fully indicates that their own conclusion upon the premises acquired thus far is that the route is impracticable."

The Emperor Nicholas and the Russians.

The following is a letter from Memel, dated the 4th inst.:—"I have just arrived here. I quitted St. Petersburg on the 27th ult. Along the road from Narva to Riga, and from Riga to Mittau, in Esthonia, Livonia, and Courland, I observed a considerable movement of troops. At St. Petersburg the departure of the Imperial Guard was spoken of, but without any precise date being fixed. An extraordinary activity pervaded all the navy officers, those of the War Department, the Foreign Affairs, as also the private Chancellerie of the Emperor. A service of special estafettes was organised for the province of Baltic Russia,

with which an uninterrupted exchange of couriers is kept up. The garrisons of Helsingfors, Sveaborg, Frederikshau, Rotschensalm have been greatly augmented. That of Sveaborg, which the Russians are wont to call the Gibraltar of the Baltic, has been reinforced to the amount of 10,000 men. Within the last few days an aide-de-camp of the Emperor, a general officer, has been dispatched with orders to inspect all the coasts on this side of the Gulf of Finland. He first proceeds to Reval, where a part of the Russian fleet has been laid up for the winter, and he is charged with the duty of providing the promptest and the surest means of placing it in safety from a *coup de main* of the Anglo-French squadron. Other general officers of the engineers and artillery have also received the mission to urge on the completion of the works of the military ports, and the fortresses of the coast. These are not the only measures of defence that the Russian government adopts. It does everything to excite the national pride and the fanaticism of the nation. All their efforts tend to give to the impending struggle a character of religious ardour which is not that of 1812. Thus the Greek Cross appears everywhere as the sanctifying symbol of the present war, and on every side we hear the words repeated of 'Orthodox faith,' 'Holy confidence,' 'Holy Russia,' &c. Texts from the Holy Scripture have come to be mingled with the jargon of the fashionable saloons. The Emperor himself adopts them in conversation of the most ordinary kind, and in all his public addresses, and he appears struck with the *monomanie* of preaching and haranguing to all about him in a manner that is truly ridiculous. Very recently, and in presence of his whole court, he delivered a sort of sermon, which terminated nearly with the following words:—'Russia, whose destinies God has especially entrusted to me, is menaced. But wo, wo, wo to those who menace us. We shall know how to defend the honour of the Russian name, and the inviolability of our frontier. Following in the path of my predecessors, like them, to the Orthodox Faith—after having invoked, like them, the aid of Almighty God—we shall await our enemies with a firm foot, from what side soever they come, persuaded that our ancient device, the Faith, the Czar, and the Country, will open to us, as it has ever done, the path of Victory. *Nobiscum Deus! Audite populi, et vincimini; quia vobiscum Deus!*' The Imperial Court was astounded; it never suspected that the Czar possessed this biblical erudition, and could scarcely contain its astonishment. It never suspected that his Majesty was so profoundly versed in scripture, or in the Latin fathers. It is certain that for some time past most people are convinced that something extraordinary is the matter with the Emperor, for while his memory appears not to have failed him, his other mental faculties appear to have been seriously affected. He has become sombre and morose to an intolerable degree. Whether it be the effect of years, or of the annoyances and embarrassments in which he sees himself placed, I know not, but such is the fact. Perhaps all combine to produce this effect. The result is a state of exasperation which he can scarcely keep within bounds, even in presence of the foreign ministers. One day last month, when speaking with the Austrian Ambassador, on the subject of some articles very hostile to Russia—which appeared in the Vienna journals—he burst into the bitterest reproaches against the Austrian government, who tolerated such attacks, and thereby approved of them. 'What do you mean by such provoking and irritating attacks?' he cried. 'If the intention is to repudiate the Russian alliance, tell us so frankly and boldly. I prefer a precise and intelligible policy; but when the day of revolutionary danger comes, you must not be astonished to see Russia limit herself to keep away from all contact, and refuse to shed the blood of her children, and expend her treasure to save her neighbours!' Such, as I am assured in an official quarter, were the observations addressed by the Emperor to the Ambassador. They were, I am assured, faithfully reported, for some days after the editor of one of the most widely circulated journals of Vienna was severely reprimanded."

Navigation of the Baltic.

The followiug particulars, from the *Daily News*, relative to the Baltic navigation, will not be uninteresting at a time when our men of war are proceeding to the spot:

The Kattegat may be considered as consisting of two different channels, one to the eastward and one to the westward of the range of islands and sandbanks which divide the Kattegat longitudinally from north to south, and are named accordingly the East and West Channels. Each of these channels has a sufficient depth of water for ships of any burden, but until of late the western channel has only been used by ships bound to the Belts or to the harbours in Jutland, the great majority of vessels always passing through the eastern channel. Although the navigation of the eastern channel has of late been rendered much more safe, owing to the lightvessels at Trindelen and Knoben (the eastern end of the Anholt Reef), by which these two dangers are changed into directing points, still it would be advisable under certain circumstances to take the western channel. The current in this channel usually runs with greater strength than in the eastern channel, and as it sets to the northward for three quarters of the year, it is obviously the most advantageous one for ships bound to the northward.

Being caught on a lee shore on this part of the Swedish coast, no other refuge is to be found, in case of it being impossible to weather the land, than the fiord of Konsbacks, behind Nidingen or Hallando Wadero, the channel having too great a depth of water to bring up. With westerly gales ships ought rather to take the Skagen pretty close, and then beat up in smooth water, until they can fetch the Hirtsholm light, where a pilot may be had for the Læso or western channel, and from whence, hugging the windward shore if required, a fair course may be shaped for the Sound. This track has the further advantage that with a westerly wind there is comparatively smooth water all along the coast of Jutland; so that vessels provided with good anchors and chains may safely ride out a gale there,-the holding ground everywhere consisting of sand with clay underneath, and in a moderate depth of from five to nine fathoms water. Indeed, the whole western side of the Kattegat may be considered as a capacious roadstead, in which, from the shoal water and extensive flats in the Bay of Aalborg, no high sea can arise, even with easterly winds, although short rippling waves may occur when the current sets strongly to the northward. In the long channel between Læso and Jutland, from the North Ronner to Sild Ron, the island and surrounding banks afford shelter from easterly winds, and it is only northerly and southerly winds that can produce any sea in this channel.

Anchorage for the fleet may be found in the neighbourhood of Vinga, a rock near the entrance to Gotheborg and at Rifo Fiord.

Vinga Sound, between Buskar and Botto, has good holding ground, in 15 or 16 fathoms water; as a stopping place, this roadstead is very commodious, partly for vessels outward bound, with N.W. or W. winds, and partly for those going to Gotheborg and meeting contrary winds in the narrows between the rocks. A heavy sea, however, sets in there with a S.W. gale. But in the fiord of Rifo, four miles to the eastward of Buskar, in the inlet to Gotheborg, *ships may ride sheltered in all winds, and this roadstead is spacious enough for the largest fleet, in 8 fathoms water, and on good holding ground.*

The depth decreases farther in, towards the fortress of Elsborg, to 4 fathoms, but ships of any size will find sufficient water, until abreast of the newly-established navy-yard, two miles from Gotheborg, where they may run aground in the mud if they are to unload. Farther up there is a bank named Spanbanken, lying across the inlet, and carrying only 14 feet water, and with this draught

ships may proceed to the old navy-yard. Vessels drawing less than 14 feet may go up alongside the quays of Gotheborg; and those drawing less than 8 feet may proceed into the canals cut through the town, as also farther up the Gotha Elf. If not too large to be admitted into the locks, they may even proceed, past Trolhættan, through the lakes and canals of Sweden, and so into the Baltic. These locks are spacious enough to admit vessels 120 feet long, 24 feet wide, 10 feet deep, and the least depth of water in the river and canals is 9 feet.

The city of Gotheborg, owing to the communication with the interior, is a considerable mercantile place, where ships may find every kind of assistance.

In the S.W. corner of Kiel Bay, the fiord of that name stretching to the westward forms a harbour nearly without a parallel. In coming from the northward, the most conspicuous object will be the high land of Nienhof, but when coming from the eastward, the yet higher land at Hohwacht, and in either case, on a nearer approach, the wood, the point, and the lighthouse of Bulk will appear as the fiord opens.

The flat of the Stoller Ground may be crossed on its eastern side by the lead, as well as the Colberger Flat, which gradually shoals until abreast of the village of Stein, where it is too steep to be safely approached by soundings. Between these two banks there is a wide open passage with a depth of 9 to 10 fathoms, and sleek bottom.

The fixed light of Bulk stands on a tower of 33 feet in height, and 55 feet above the sea, and serves to lead into the mouth of the fiord at night. To the eastward of the light, the shallow is gradual, and therefore it ought to be a general rule, in making this fiord at night, to keep on the western, or the Bulk side, for the bank between the Stein and Labo is steep to, with a white sandy bottom. In daylight you may stand in by keeping Keil church steeple in one with the eastern edge of Dusternbrook Wood, which is some distance to the N.E. of the town of Kiel; and by keeping the steeple in one with the tower in Friedrichsort you will pass along the edge of the western shallow in 3½ fathoms. Ships of the line ought not to bring the steeple inside of the south angle of the ramparts of Friedrichsort before Nienhof is run behind the low point of Bulk, when you may stand nearer the western shore.

The peculiarities of the navigation in the neighbourhood of Kronstat are as follows:—

The channel to Kronstat, leads at two miles south of Tolboukin Lighthouse E.S.E. to Kron Castle, leaving on the port hand a red flag, marking a shoal in 13 or 14 feet water, one mile and a half S.b.E. from the lighthouse; and on starboard a lightvessel, from which are shown three lights, placed triangularly, viz., one at the mast-head, and one at each yard arm, and lies at the northern extremity of the London shoals, two and five-eight miles S.S.W. from the Tolboukin Light, and two and a half miles from the south coast, i.e., the mainland. There are flags on either side of the channel all the way up to the anchorage in Kronstat Great Road; and in mid-channel the depth is 6 to 5 fathoms. At the Risbank Battery, abreast of, and to the southward of the anchorage in the Great Road, three lights placed horizontally are suspended from a yard 47 feet above the sea, and which are visible at the distance of six miles. The island of Kronstat must not be approached within a mile, or into a less depth than 4 fathoms, until past the red flag, six or seven cables' length west of Peter I. Fort. After that there is a clear channel all the way up to the Little Road. At the N.W. corner of Kron Castle there are flags on a small reef, to which, in passing, you must give rather a wide berth, leaving it to starboard. The channel has a depth of 22 to 27 feet all the way up to Man-of-war Harbour.

There is a lighthouse, 28 feet in height, on the S.E. angle of Man-of-war Harbour, from which, at an elevation of 38 feet above the sea, a fixed light is

exhibited, visible at the distance of six miles. A bell is sounded during foggy weather.

The following lights are also placed between the entrance of the Kronstat Channel and St. Petersburg.

1. At Oranienbarm, on the western pier, a fixed light, placed on a staff 45 feet above the sea, visible six miles, and serves as a mark into the canal.

2. At Peterhoff, on the extremity of the pier, two fixed lights on two pillars, 34 feet above the sea, visible six miles, which shows the roadstead and leads into the entrance of the Galley Canal.

3. From the Yelaguin Lightvessel, at the entrance of the North Channel to St. Petersburg, 175 fathoms outside its mouth, a lantern is shown from the gaff end 16 feet above the sea, visible five miles.

4. From the Neva Lightvessel, at the entrance of the Ship Channel to St. Petersburg, 150 fathoms from its mouth, a lantern is carried at the mast-head, 57 feet above the sea, visible six miles.

THE GULF OF BOTHNIA.

Abo Biorneborg, the westernmost circle of Finland, includes the islands of Aland in the Gulf of Bothnia. Its capital is Abo on the south-western coast of Finland. The town is situated in N. lat. 60° 27′, and E. long. 22° 13′, 330 miles S.b.W. from Tornea, and 235 miles W.N.W. of St. Petersburg, with a population of about 14,000. Large vessels anchor some distance off the town, and at the entrance of the River Aurajoki. On a hill is the fort Abo-Slot or Abo-Huus. The history of this town, according to Clarke, has been "nothing but a catalogue of disasters, conflagrations, and catastrophes of every description." In 1775, it suffered much from a great fire, but in November 1827, a fearful conflagration consumed nearly the whole city, including the University and its valuable library and other public buildings. The fire raged for two whole days, and was not extinguished until seven hundred and eighty-six houses out of eleven hundred were a mass of blackened ruins. When the town was rebuilt, the public edifices as well as the houses were placed at a considerable distance from each other, and the town now covers as much ground as Dresden, though its inhabitants do not exceed more than 14,000, which, from being spread over so large a surface, do not give the idea of amounting even to that number.

Abo is the most ancient city in Finland:—its history being co-existant with the reign of Eric the Saint, that is, from 1150-1160, the period at which Christianity was first introduced into this wild and cold region. The castle is as ancient as the town, and arrested more than once the onward march of the Russian armies. It was in the dungeons of this building that Eric the Fourteenth was imprisoned previous to his death, which took place some time afterwards at Orebyhuus. The castle is now used as a prison, and is garrisoned by half a battalion of infantry. The Cathedral of Abo, built in 1300, and which almost miraculously survived the various disasters which have fallen upon the city, is 300 feet in length, 127 feet in breadth, and 150 feet in height, and is also highly interesting, not, however, on account of its external appearance, which is coarse and heavy, but for the architectural structure of its interior, which is of three epochs. But this cathedral is more particularly worthy of interest from its having been the cradle of Christianity in Finland: here the first episcopal chair was instituted, and here for centuries the first families were buried. The vaults of the chapels are filled with their remains, and some of their monuments are not unworthy of attention. On one of them is an epitaph to Caroline Morssan, a girl taken from the ranks of the people by Eric the Fourteenth; and who, after having worn the Swedish diadem, returned to Finland and died in obscurity, while her royal husband, as has been above stated, ended his days in prison. In the same chapel, and at the end of it, are two

statues in white marble, the size of life, kneeling on a sarcophagus, supported by columns of black marble: these are the wealthy and powerful Class Tott, grandson of Eric the Fourteenth, and his wife. In another chapel is the monument of Stalhandske, one of the heroes of the Thirty Years' War. Gustavus Adolphus founded here, in 1626, a college, which was subsequently elevated by Queen Christina into a University in 1640; and Clarke says "its men of letters would have done honour to any seat of science." In 1824 it had forty professors and 500 students. The buildings occupied a beautiful site, and contained a library of 40,000 volumes, a collection of philosophical instruments, a cabinet of natural history; and on a height above the remnants of its massy old castle, that braved for centuries the assaults of time and the elements, was seen the far-famed observatory, now untenanted. But the glory of Abo has departed since the erection of Helsingfors into the capital of Russian Finland, and the translation of the University to that place, nearer to St. Petersburg.

Abo is distinguished by the treaty of the 17th of August, 1743, in which Sweden, besides formally renewing her cession of Ingria, Livonia, and Esthonia, ceded to Russia the province of Kymmenegard, with the cities and fortresses of Fredriksham and Wilmanstrand, and the city and port of Nyslot. From that time the River Kymmene formed the boundary against Russia until 1809, when the latter power obtained the whole of Finland. Here, too, Alexander and Bernadotte concluded that treaty which arrayed Sweden against France, and placed the Swedish monarch, a Frenchman, in the anomalous position of fighting against his own contrymen.

The entire ditsance across the Gulf of Bothnia, from Abo to Stockholm, with the exception of one short interval of open sea, is little more than a succession of islands, thronging one on the other so closely as to give the sea the appearance of a succession of small lakes, from which you can frequently discover no issue until within a few yards of the rocky boundary before you; when another lake, similar to that you have already traversed, opens out, hemmed in on all sides with its own encircling islands: some bare, and bleak, and desolate; and others, close beside, green and smiling, with trees, gardens and cottages. These islands form a small archipelago, named by the Fins Advenamnae, at the entrance of the Gulf of Bothnia, about twenty miles long and thirty broad. The group, which is divided into three oblong clusters, consists of sixty inhabited islands, apparently of granite formation, surrounded by 200 desert and stony islets, and having a total superficies of about 470 square miles. It is separated from the coast of Sweden by the Alandshaff, a channel twenty-four miles in breadth; and from Finland by the Wattuskiftet, which is fourteen miles across at its greatest width. The population, according to recent writers, is from 12,000 to 15,000, chiefly employed in fishing and in rearing cattle. The Alandars are daring seamen and expert fishermen.

The surface of these islands is gently undulated, full of rocks, intersected by numerous bays, sounds, and inlets of the sea, which, as above mentioned, often present the appearance of lakes, and covered in part with thin low forests. The soil is stony, and the earth so light that the crops seldom come to maturity. The pine, the beech, the alder, the hazel, and the birch are the only trees which flourish. Besides grain, potatoes, flax, and kitchen vegetables are grown; and pasturage is found for about 14,000 small cattle, and as many sheep. Horses and goats are also reared, and a considerable quantity of cheese is made. The exports are, dry and pickled fish, butter, cheese, hides, skins, salt beef, and firewood. The principal island, Aland, from which the group is named, is situated in 60° 15′ N. lat., and 20° E. long. Its area is about 250 square miles, and its population amounts to about one half of the whole group. The coast presents several good harbours, among others that of Ytternas, a safe and deep harbour on the west side,—supposed to be capable of containing the whole

Russian fleet, and the vast citadel Bomarsund, which is said, with its far extent of ramparts, to afford space for 60,000 men—not a very agreeable neighbour for Sweden, the nearest point of the easternmost coast of which is only twenty-five miles distant. The most remarkable place on this island is Castelholm, situated on an insular rock of red granite at the extremity of a tongue of land, the chateau in which Eric the Fourteenth, son and successor of Gustavus Vasa, was imprisoned in 1751, and which was the residence of the governor of Aland until 1634. A very narrow passage separates it from Ekeroe, the most westerly of the group, where a convent was founded before the Reformation. Near Ekeroe, and surrounded by rocks, is a little isle named Signilskæer, upon which there is a telegraph and a pilot-station. The other important isles are Lemland, Lumparland, Foegloe, Kumlinge, Broendoe, Vordoe, and Hamnoe. The island of Aland was governed by kings of its own prior to its dependency upon Finland, when it came under the domination of Sweden, and had its particular governors. In 1634 it was added to the captainship of Biorneborg, and composed a district and provost's court, including eight pastorates or parishes. In 1809 the entire archipelago was ceded to Russia, and re-united to the Government of Abo-Biorneborg, from which it had been separated; and the line of their coast forms the frontier of the Russian empire on this side. These islands afford safe and commodious harbours to the Russian fleet, which from thence can watch the vessels in the Lake of Mælar, and the Swedish coasting trade along the west of the Gulf of Bothnia.

It was near the largest island of the Aland group that Peter the Great, in 1714, gained that victory over the Swedes which first made Russia known as a naval power. It must, however, be borne in mind that this first Russian naval victory was gained by an overwhelming superiority of force over the Swedes, who were dispirited at the long absence of their king, a prisoner in Turkey after the disaster of Pultava, and while attacked, besides by Russia, also by Prussia and Denmark, each desirous of obtaining a portion of the Swedish dominions during the absence of her heroic king,—Prussia, with her eyes on Swedish Pomerania, and Denmark on Holstein and Slesvig, in the possession of which Duchies the King of Denmark was, curiously enough, guaranteed by Great Britain. For this guaranty the German King of England obtained for his dearly beloved Hanover the addition of the Bishoprics of Bremen and Verden, which during the war had been wrested from Sweden by the King of Denmark.

Twenty-eight miles E.N.E. of Helsingfors lies Borga, which is a seaport with a bad harbour, and a population of about 3,000, nearly all of whom are Swedes.

Lovisa, to the N.E. of Borga, is situated in an arid district on the Gulf of Finland, about 140 miles W.N.W. of St. Petersburg, and contains about 3,500 inhabitants. It was once a frontier post of the Swedes, but its importance ceased when these provinces were ceded to Russia. Some remains of its former defences are yet to be seen; and two or three massive walls with their embrasures, even now almost perfect, seem at a distance to command the road which approaches to the town.

The circle Tavastehuus, north of Nyland, has for its capital the town of the same name, lying on a lake, with a strong castle, a church, and about 2,000 inhabitants.

The town of Biorneborg lies on a sandy tongue of land, at the mouth of the Kurno, in the Gulf of Bothnia, about 70 miles N.N.W. of Abo, in lat. 61° 29′. It has some ship-building, and exports some timber, pitch, tar, and fish. The States of Sweden met here in 1602. Population about 4,570.

Nystad is a seaport 38 miles N.W. of Abo, with a population of about 2,000. Here was signed the treaty by which Sweden surrendered her Baltic provinces and part of Finland to Russia in 1727.

In the north of the last circle is Vasa, with its capital of the same name, on the Gulf of Bothnia, a regularly built town with a handsome church, schools, an infirmary, and a population of about 4,000 inhabitants. The width of the Gulf of Bothnia here does not exceed 60 miles, and the entire channel is thickly set with islands, and is very shallow in places.

South of Vasa lies Christinestad, on the peninsula of Coppa, with a good port. The harbour is safe, and has a considerable trade.

The circle of Uleaborg is the most northern of the Grand Duchy, and contains Uleaborg, its capital, a well built town on the Ulea, with a town-hall, two market-places, a hospital, and several churches, with a population of about 4,500.

Tornea, on the river of that name at the northern extremity of the Gulf of Bothnia, is a neat town with two churches, and about 800 inhabitants. This place is the centre of the Lapland trade, and deals in salt-fish, reindeer-skins, butter, &c. The route from Abo to Tornea runs almost entirely within view of the waters of the Gulf of Bothnia, which stretch to the distant horizon until you reach Christinestad, from which place both shores converge; and, after passing to Vasa, the islands projecting from the Finnish and Swedish coasts leave an interval of only about 30 English miles; while the shallow and sunken rocks in this strait have the appearance of having, in former ages, formed a barrier between the northern portions of this gulf and the waters of the Baltic, of which it now forms a portion. For a considerable distance along the coast the country is low and flat, and the road sandy, but on approaching the more northern provinces a greater resemblance to Sweden and Norway prevails; the rocks that line the indented coast become bolder in their outline, and the Fiord of Uleaborg abounds in scenery of the wildest character.

Vexed as the Swedes—a proud and martial people—must be to see some of their finest provinces torn from them and transferred to their more powerful neighbour, the separation was to the full as keenly felt by the Fins. Not only from forming an influential and integral part of a kingdom, were they at once reduced to a petty province of a boundless empire, but their ancient ties of friendship and affection were torn asunder: they have no sympathy with Russia —no fellowship in her glory—no anxiety for her distant conquests. But with Sweden it was far different. The steel-clad Fins formed, under the mighty Adolphus, a part of that unconquered army that humbled to the dust the Imperial pride of Austria; and, in later days, they shared under Charles the Twelfth the glories of Narva,—and their stubborn valour retrieved for a moment the waning fortunes of the fatal day of Pultava.

The very people are the same:—the kindness, the open-hearted frankness of manner, the unwearied civility, and the scrupulous honesty of the Swede, are alike to be met with throughout the whole of the western provinces of Finland. The traveller, during his wanderings, will hardly meet with a people so attaching, and with whom he will so soon find himself on terms of intimacy, as the Swedes and Fins.

PROVISIONS FOR THE WAR IN THE EAST.—We perceive that among other articles provided by the Commissariat for our troops, 50,000lbs. of Edwards' Patent Preserved Potatoes are supplied, which having been found so beneficial for our seamen, will doubtless prove equally so to our soldiers in the East as it has been to our troops at the Cape of Good Hope. We understand that it has recently been tried, and highly approved, as might be expected, at Head Quarters, Horse Guards. As the contract price stated, viz., 5d. per pound, may appear high to the uninformed, it may be explained by the fact, that one pound of the preserved potato is equivalent to four or five of the ordinary potato, and that it is cooked in about ten minutes by the mere addition of a little boiling water in the basin or dish containing it at table.

Nautical Notices.

Course Indicator.

18, Salthouse Dock, Liverpool, 27th Feb. 1854.

Sir,—Daily we hear of serious errors in steering, arising from mistaking the course while giving or receiving orders at the time of changing the man at the wheel, or from forgetfulness of the helmsman while at his post.

I beg to offer to your notice a very simple remedy for this in my Course Indicator,—The form of which is the same as a pocket compass, with glass above and below, and transparent card, which is not actuated by a magnetic needle, but merely suspended on an axis which is turned by a key; this being set (by the officer of the watch) to the course, the helsman has always before his eyes the point he has to steer shown on the lubber line of the Indicator.

In binnacles such as are generally used in steamers and large sailing craft, I propose its being fixed in the dome of the top; but when such is not applicable, a very simple arrangement can be made by which the Indicator may be so affixed that the card can be illuminated by the lamp of the binnacle and the lubber line visible to the man at the wheel.

Since introducing this I am told our neighbours the Dutch have long used a circular board with pegs to show the course and act as a mnemonic for their dead reckoning; but I have never heard of an English vessel using any such contrivance.

Fully trusting this simple arrangement may be of service to the nautical world, I avail myself of the medium of your valuable columns that those interested may benefit by its insertion.

I am, &c.

Robert J. Keen.
Late of the firm Gray and Keen.

To the Editor of the Nautical Magazine.

The Telemaque.—The old story of the existence of this shoal has been again revived. It was long ago doubted and lost sight of, but by the following report was seen in fine clear weather on the morning of the 17th January, 1853, by the ship *Marion*, on her voyage from Greenock to Bombay, its position being correctly determined in 37° 26′ S., and 26° 55′ E.

"It is reported by the *Marion* as an oblong reef, on which the sea was continually breaking, and which to about 200 yards from it was surrounded by discoloured water, beyond which the usual colour of the deep sea water appeared.

"The *Marion*, from unexpectedly seeing the bank under sail, did not stop to sound, from the southern of which she passed about 80 yards distant."

The foregoing is dated from the office of the East India Company's Marine at Bombay, dated 19th April, 1853.

New Books.

Records of Travels in Turkey, Greece, etc., and of a Cruise in the Black Sea with the Capitan Pacha.—*By Captain Adolphus Slade, R.N., F.R.A.S., Admiral in the Turkish Navy (Muchaver Pacha).* Saunders & Otley.

An acceptable edition, at the present crisis, of a work highly creditable to its distinguished author. We shall make the most of our limited space by pre-

serving the following extract for our readers. On the occasion of visiting Sebastopol, in H.M.S. *Blonde*, in 183–, he gives the following account of it. We hope hereafter to find more space for further extracts from this very interesting work. The *Blonde* having entered Sebastopol:—

The outer ship bid us anchor and not pass her. We complied, next came an officer, plumed and booted, and buttoned, alongside to know what was the ship, whence she came, what her cargo, with similar sapient questions, as though her ensign and pennant, with other obvious signs, were not admissable evidence of her nation and quality. He was answered in general terms, that the frigate being on a cruise for the health of her crew, her Captain did not deem it complimentary to the Admiral to pass the port without entering. Admiral Greig, the Commander-in-chief, was not there, having gone a few days previous to Nicolaef on the Bog, but at the mizen of a first-rate was the flag of a Rear-Admiral. The Rear-Admiral would rather have dispensed with the compliment. He scarcely knew what to do; he could not turn us away, yet Sebastopol was forbidden water to strange ships. Our story he did not credit, the compliment involved a plot to him; and he considered it an absurd pretence—a frigate cruising in the Black Sea in the winter for the health of the crew, an exercise in his opinion (Russian as he was) well calculated to kill one half and give the other half rheumatism. He arrived at the conclusion that she came for the purpose of surveying Sebastopol, and he thought to frustrate it by surrounding us with the barriers of quarantine. It was with difficulty that permission was granted us to row up the harbour, and then in a way that evinced distrust, for it specified that one boat only should go, with not more than two sitters in the stern sheets, and it should be accompanied by the Admiral's Aide-de camp in another boat. This was mortifying, considering that no spying intention existed on our part—simply rational curiosity. However, we got over the difficulty about sitters, weathered the Admiral, and gratified ourselves by dressing as Jacks, and taking the oars of the gig.

We rowed about the harbour under a sharp snowstorm, during two or three hours, to the impatience of the Aide-de-camp, who must have thought us a very ill-disciplined boat's crew, and on excellent speaking terms with our Captain; at the same time he was civil, and told us all that he knew.

The great harbour is a fine sheet of water, three and a half miles by one, due east and west, with good bottom all over from 12 to 4 fathoms. The northern shore is broken into bays, separated by three abrupt points formed by loose stones, each fortified by batteries pointing seawards, respectively eighteen, twenty one, and seven guns. A low beach confines it to the east, intersected by a rivulet, and backed by a range of high hills. On the southern shore are two creeks, which tend to render Sebastopol one of the finest harbours of the world. The inner creek penetrates considerably inland, by three quarters of a mile wide, with depth for first-rates. On one side of it is the dockyard, extensive but ill-supplied, from the system of peculation carried on by the naval officers. It has no docks, the other creek, between it and the harbour's mouth, serves for the repairs of small craft.

A small hill separates these creeks, on which the town is loosely scattered—a few, good government houses, with green roofs, the remainder huts. At its sea-base are two lines of batteries, mounting thirty-four guns; near the small creek is another of seventeen guns; and on the rocky points forming the entrance, are also batteries of thirty-three and twenty-six guns, making on the whole two hundred and four pieces of cannon that could bear successively on ships entering Sebastopol. But when we saw them they were in a bad state, and chiefly mounted *en barbette*, which affords a poor chance against ships' broadsides. Indeed, everything in this great depot—second in Russia—indicated its distance from the capital, a circumstance, in countries where the press is not free, which singularly assists the depredations of *employés*.

Admiral Greig's want of energy during the Turkish war had not preconceived us in his favour, and the sight of his fleet completely removed any idea we might have had of his professional talents. His fleet was bad, even after the Turkish fleet. Could a stranger have seen the two fleets together (without their colours), he would have decided that the Russian fleet was the Turkish, and *vice versa*. The ships were of an old construction, filthy, shamefully rigged, and scarcely fit for service.

We gathered an idea of their interior discipline from the chief medical officer of the naval department. He asked the *Blonde's* surgeon how many sick he had on board. "One," was the reply. "One!" repeated the Russian, with astonishment. "By what miracle do you manage, cruising, too, in the worst season of the year (November)? Our fleet never leaves harbour but for six weeks in the summer, then goes no further than sixty miles, but it returns, having lost several men, with a full sick list."

The condition of the Russian sailors on the Euxine is too shameful to be easily credited. When I say that they are abandoned when ill like dogs, I do not express their misery, unless the dogs of Constantinople are to be understood. At the quarantine ground we observed several holes cut in the earth, communicating with caves, seven feet by three; the snow falling thick at the time, they were nearly filled. Their regularity denoted that they were not there by accident, or kept open for no purpose. What could they be for? we thought. One said they were to keep sails in; another, to keep oars; a third, rope; but we agreed, on consideration, that any article of that kind would spoil in them, and therefore they could only be for grapnels, or such like articles. Soft-hearted Britons! Reader, those holes, or caves, as you will, lined with damp earth, floored with damp earth, ceiled with damp earth, were for the reception of isolated cases of plague among the sailors. Wrapped in sailcloth, the wretch is laid there to feel—what must he feel? To curse—can he do otherwise?—his masters. Food is given to him twice a day, till he miraculously recover or speedily die. From such a life death must be welcome.

The following summer, 1830, the sailors of the fleet at Sebastopol avenged in part their trampled on humanity. They rose and murdered their brutal surgeons; at least, so it was currently reported. Contrast their victims with the surgeons of the British navy, for whom the tars would almost cut their own throats.

JOURNAL OF A RESIDENCE IN THE DANUBIAN PRINCIPALITIES IN THE AUTUMN AND WINTER OF 1853.—*By Patrick O'Brien.* Bentley.

At the present moment this is another well timed publication, from which we derive the following important information on the Sulina mouth of the Danube, that at least informs us how the Russian care of it for the benefit of navigation has been managed.

"Sulina belongs to Russia. It is composed of a double row of one-storied wooden houses, straggling along the river-side, with a dreary marsh behind them. Most of the houses are built upon piles, in the midst of pools of putrid water, which oozes out from the neighbouring marsh. The place is reeking with fevers in the summer months, and is almost uninhabitable from the cold in winter Pilots, fishermen, tavern-keepers, and lightermen, with a few Russian soldiers and a Greek priest or two, form the population of the town of Sulina. I counted more than two hundred vessels of different sizes at anchor in the river. Some had been there for three months, unable to get over the bar! Almost every attempt to get to sea had proved fatal since the beginning of the month of June; and all efforts to cut a channel through the

bar appear to have been abandoned. A Russian dredging-vessel was lying idle at the mouth of the river, and, judging from the mud with which it was encrusted and its otherwise filthy and neglected appearance, it must have been unemployed for a long time. Close to the dredging-vessel was a Russian gun-boat. The only person on her deck was a long marine, in a mud-coloured great coat, hanging over the bulwark, and dropping bits of straw into the tide.

According to the treaty of Adrianople, the Island of St. George, on which Sulina is built, as well as the other islands of the Danube, ought to be uninhabited. The Russians, however, built a quarantine station at the south-eastern point of Lati Island, and shortly after they raised the little town of Sulina, of which they constituted themselves the masters. At the opposite point of St. George's Island, at the entrance of the channel, the Russians have also built a quarantine station. The rest of the island of St. George is a desolate swamp.

Independent of other causes, the lowness of the water over the bar at the mouth of the Danube since last June would have been sufficient to stagnate the commerce of Ibraila and Galatz. And yet it seems to me, that, with a little good will on all sides, nothing would be easier than to keep a passage open through the bar, of from fourteen to sixteen feet deep. It will be seen from the hard pull which we had from the steamer to Sulina, that the current must have been very strong; it must have been running at least five knots an hour. All, therefore, that is required, would be to rake up the sand, of which the bar is composed, and the force of the current would carry it away. A dredging-vessel constructed with rakes, and not buckets, would easily effect this. Driving piles on either side would, of course, keep the channel permanently open; but, without going to this expense, the dredging-vessel, properly worked, could make a safe passage for ships, drawing even twelve feet of water during the summer months.

There is no country more deeply interested in rendering the Danube navigable at its mouth than England, and it is England alone that has shown a sincere and constant desire to effect that object. In 1851, the exports from Ibraila by sea amounted to £778,157, and its imports up the Danube to £334,078. The exports from Galatz by sea in the same year amounted to £496,368, and the imports up the Danube to £374,283; making in all a sum for imports and exports of £1,982,836. British subjects and British ships have the principal share in this trade; it is, therefore, the duty of her Majesty's government to exert its influence to remove, as far as possible, all obstructions to the free navigation of the entrance of the Danube."

NEW CHARTS.

Published by the Hydrographic Office, Admiralty, and Sold by J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

BALTIC, Index Charts	2	6
,, St. Petersburg, Russian Survey	1	6
,, Dvina Mouth to Riga, M. Clesneur, 1787	1	0
WEST INDIES, St. Domingo Road and Harbour, by the Officers of H.M.S. *Hound*, 1849	0	6

EDWARD DUNSTERVILLE, Master, R.N.

Hydrographic Office, Admiralty, March 21st, 1854.

By Royal  Letters Patent.

EDWARDS' PRESERVED POTATO,

This Economical and Pure Vegetable Diet keeps good in all Climates, and is an invaluable Anti-scorbutic with Salt Provisions.

The Patentees of the PRESERVED POTATO solicit particular attention to the annexed PROFESSORS' CERTIFICATES, GOVERNMENT SPECIAL REPORTS, &c., showing the important advantages of the Potato in a preserved state for Ship or Military Stores, for general domestic use, or for exportation to climates and situations where that most desirable and nutritious Vegetable (the Potato) is not obtainable, or only of an inferior growth or deteriorated state. EDWARDS' PATENT PRESERVED POTATO *possesses the inestimable property of keeping*, unimpaired by time or climate, (and its cooking is effected in about ten minutes,) proving an immense advantage over Potatoes in their natural state; which, on being stowed in bulk, incipient vegetation almost immediately ensues; causing a rapid loss in weight, and quickly rendering this valuable root positively unwholesome and unfit for food.

This PRESERVED POTATO is prepared from the finest Potatoes, and contains all the flavour and wholesome properties of the vegetable when in its best state; this is authenticated by the Certificates of Professors Brande, Daniell, Dr. Paris, &c.; more particularly by the following chemical Analysis of Dr. Ure, Professor of Chemistry, &c.

"*I hereby certify that Messrs. Edwards' Patent Preserved Potato contains by Chemical Analysis the whole nutritious principle of that root in a pure concentrated state, that it contains*

60 *parts in the hundred at least of starch; nearly*
30 *of a soluble fibrine of demulcent antiscorbutic quality*
5 *of a vegetable albumine of the nature somewhat of the white of egg, and*
5 *of a lubricating gum.*

The fibrine and albumine render it more light of digestion, and the gum more demulcent to the stomach than wheat flour, with which, also, it may be regarded as nearly equally nutricio s, and more so than peas, beans, sago, or arrow-root.

ANDREW URE, M.D., F.R.S.

The value of Edwards' Patent Preserved Potato is proved in its adoption on the various scales of Victualling in the Royal Navy, Transport Services, &c. by H.M. Land and Emigration Commissioners, at Greenwich Hospital, the Hon. East India Company, and the Mercantile Marine generally.

The great economy of Edwards' Patent Potato as a general ship's store *(as well as comfort and essential to the health of the men), is established by the scale of victualling for Troops, &c. The equivalent of ½lb. of the cooked vegetable being supplied three times a week, in rations, for* 20 *weeks, at a cost of about* 3*s. for each man.*

Confining the merits of the Patent Preserved Potato merely to cheapness, no article of stores is less in price; and when its antiscorbutic and other valuable properties are considered, the advantages attending its use will be found to surpass every other description of provisions. Under the conviction of an extensive general demand, the Patentees offer the Preserved Potato to the public at a price (delivered in London FOR CASH) that makes the vegetable, when cooked, as cheap as Potatoes in the ordinary state.

This Patent Preserved Potato is cooked and ready for use in TEN MINUTES by the mere addition of BOILING WATER in a basin or other vessel, produces a dish of excellent Mashed Potatoes ready for table. If mixed with the liquor in which the meat is boiled, it makes an excellent cheap and relishing soup.

FOR MAKING A VALUABLE LIGHT PUDDING WITHOUT SUET OR EGGS.

To ½lb. Preserved Potato add 1½ Pints of BOILING WATER, *let it stand for* 12 *minutes, then add* 1*lb. of Flour and a large tea-spoonful of Salt, mixing the whole quickly together. tie in a Cloth, and boil for* 2 *hours.*

[N.B. FOR CASH on delivery.]

D. & H. EDWARDS & Co., *Sole Patentees.*

From Professor Brande, F.R.S., Royal Institution.

I have examined Messrs. Edwards and Company's Patent Preserved Potato, and am of opinion that it is a convenient and unexceptionable article, and consists only of the pure vegetable, without any foreign admixture or colouring matter; that with common precaution it may be kept for any length of time, without liability to decay or change; and that its comparative nutritive powers are to those of the fresh Potato as about four to one; one pound of Preserved Potato being the equivalent of about four pounds of the best fresh Potatoes.

WILLIAM THOMAS BRANDE.

From Dr. Ure, F.R.S., Professor of Chemistry.

Messrs. Edwards' process for concentrating the nutritious powers of Potatoes, and preserving their qualities unimpaired for any length of time, and in any climate, is, in my opinion, the best hitherto devised for that purpose, and, chemically considered, the best possible.

I find that one pound of their Patent Potato, when cooked with about three pounds of water, affords a dish equal to a mash of fresh mealy Potatoes. Edwards' Patent Potato will be found an invaluable preparation, not only in sea voyages and tropical countries, but at home in the after part of the season, because it continues uniformlywholesome and agreeable, whereas by this time our Potatoes have become unsound from frost, growth, &c. It also possesses all the antiscorbutic properties of the fresh Potato.

ANDREW URE, M.D.

From Professor Daniel, F.R.S., King's College.

Gentlemen,—I have carefully examined the several specimens of your Patent Preserved Potato which you left with me, and have also read and considered the specification of your Patent, and have not the least hesitation in certifying, that it is a wholesome and agreeable preparation of the nutritious parts of the root, not distinguishable in flavour from fresh and well boiled mealy potatoes. I found no difference between the old and new samples.

If the directions of your specification are carefully followed, I have no doubt that the preparation will preserve its flavour and nutritious properties, in dry packages, for any length of time. When cooked as you direct, I find that the grains swell very much, and when of the usual consistence of well mashed Potatoes, that they have increased in weight from 1lb. to 4½lbs.

Messrs. Edwards & Co. J. F. DANIELL.

From Dr. Paris, F.R.S., President of the Royal College of Physicians, Author of the celebrated Treatise on Diet, &c.

I have cooked some of the Patent Potato of Messrs. Edwards, and I consider it a very good substitute for the fresh root.

J. A. PARIS.

From A. S. Taylor, Esq., Lecturer on Chemistry, Guy's Hospital.

I have examined the Patent Preserved Potato sent to me by Messrs. Edwards, and beg to certify that it contains all the nutritious properties of that vegetable, and that, in my opinion, it is well adapted as an article of food.

ALFRED S. TAYLOR.

MEMO.—The Patent Preserved Potato having been tested and analysed at Sydney, after the voyage from England, by the celebrated Dr. Bennett, he certifies that its nutritious and antiscorbutic qualities correspond in every respect with the analysis made by Dr. Ure.

N.B.—By Analysis Edwards' Patent Potato is prepared only from the best quality and selected sound Potatoes.

Special Reports as required by, and made to, Her Majesty's Government, etc., etc.

Special Report on the Patent Preserved Potato, requierd by Dr. Gordon's letter, May 20, 1842, for the Army Medical Department.

The Preserved Potato, of Edwards and Co., was this day treated according to the printed directions contained in each bag, and was then tasted by each of the undersigned, as well as by many other persons, (Medical Officers and patients in the hospitals,) and all were of opinion, that the preparation, as far as they could discover, retained all the virtues of fresh potatoes, and was not less palatable.

The Board, therefore, consider the preparation as affording a most valuable article of diet, and are of opinion that it might be advantageously adopted as a portion of the ration of Soldiers proceeding on board ship to foreign stations.

In the event of its not being considered necessary by the Authorities to adopt it generally, they would particularly recommend that a quantity of it should be regularly put on board ships conveying troops, in order to be issued to such sick, as the Medical Officers in charge might consider it better adapted than the articles of diet which it has hitherto been customary to substitute for salt provisions.

(Signed) Andrew Smith, M.D., P.M.O.
J. Kinnis, M.D., Staff Surgeon.
R. Dowse, Staff Surgeon, 2nd Cl.

General Hospital, Fort Pitt, 5th June, 1842.

(From the Right Hon. the Lords Commissioners of the Admiralty.)

Extract of Special Report on the Patent Preserved Potato from Dr. Wilson, Inspector of Hospitals, &c., dated on board H.M. Hospital ship Minden, at Chusan, 17th April, 1843, and addressed to Vice-Admiral Sir W. Parker, Commander-in-Chief in China and the East Indies.

Respecting their general merits as an article of ration, I express the opinion so far as I have had the means of judging, that they possess valuable qualities, they have the general characteristic of containing a large portion of nutriment, are easily cooked, and which is of as much consequence as an article of diet, are palatable.

Extract of Special Report to Sir Jas. McGrigor, Director-General Army Medical Department, London, dated Barbados, 19th April, 1843.

Sir,—I have tasted the Potato, and I agree with the certificates sent, that the preparation is wholesome and pleasant to the taste, and I have ascertained by frequent inquiry in the hospitals, that the patients prefer this preparation to sweet potatoes, and to the yams they usually receive; and I am of opinion that, for sea stock for the troops serving in this command, and for use in hospitals when vegetables are scarce and dear, it would be useful and acceptable in this command.

(Signed) H. Bone, M.D.,
Inspector General of Hospitals.

Extract from Report on Edwards' Patent Preserved Potato and Rice, by Dr. Pereira, author of the celebrated Treatise on Food, &c.

Having been requested to give my opinion of the relative merits of Edwards' Preserved Potato and of rice as antiscorbtic articles of food, I beg to say that I consider potatoes to possess valuable antiscorbutic properties, and rice to be devoid of them.

A few years ago when in consequence of the potato disease, the potato and other antiscorbutic vegetables became scarce and dear, Rice, Indian corn, and other kinds of grain were substituted by the poorer classes, and in pauper establishments, for the potato; the consequence was, the appearance of scurvy in a very aggravated form in many parts of England, Scotland, and Ireland.

The facts that were at that time brought to light, satisfied me that *rice* is incapable of preventing the appearance of *scurvy*, and that the potato is a most useful and valuable antiscorbutic.

I believe Edwards' Patent Preserved Potato is a wholesome and nutritious food, and is especially adapted for general use and an antiscorbutic at sea.

(Signed) Jno. Pereira, M.D., F.R.S.
London, July 30th, 1851 *Fellow of the Royal College of Physicians, &c.*

Letter from Sir William Burnett, K.C.H., F.R.S., Director-General of the Medical Department of the Navy.

I have to acknowledge the receipt of your letter, enclosing testimonials from the Army Medical Department, as also from Naval Surgeons, of the highly beneficial effects of your Patent Preserved Potato as a Vegetable Diet, and in reply acquaint you, that I AM PERFECTLY SATISFIED THAT YOUR PREPARED POTATO FORMS A DESIRABLE ADDITION TO THE USUAL DIET AT SEA.

(Signed) WILLIAM BURNETT,

To Messrs. D. and H. Edwards and Co. *Director General, &c.*

ARCTIC EXPEDITION.

Her Majesty's Ships Resolute and Assistance, Pioneer and Intrepid, Steam Tenders, in search of Sir John Franklin, &c., 1850 *and* 1851.

We the Commanders and Officers employed in the Arctic Expedition under Captain Horatio Thomas Austin, C.B., feel bound to record our favourable testimony to the excellent properties of Edwards' Patent Preserved Potato. In fact, we can scarcely speak too highly of it as a vegetable; being able to use it in various ways, it retained all the virtue, and much of the flavour of fresh mashed potato, during the whole voyage out and home, a period of eighteen months; and that remaining is as good and serviceable as ever. The men having been perfectly free from scurvy, we are induced to entertain a high opinion of its antiscorbutic properties. The whole of the people appeared to relish the Preserved Potato more with their salt meat than with anything else, and infinitely to prefer it to *rice*, or the mixed vegetable or carrots, with which these ships were supplied.

Signed by the Officers and Surgeons of H.M.S.

Resolute, Assistance, Pioneer, Intrepid.

From Admiral Sir John Ross.

I have much satisfaction in joining with other officers employed in the late Arctic Expedition, in the expression of the most unqualified and universal opinion of the excellent properties of Edwards' Preserved Potato, especially as an antiscorbutic, which has been fully established in the different ships and vessels lately employed in that trying climate, and I can have no hesitation in giving my strongest recommendation that it should be liberally supplied to every ship employed on Foreign service. (Signed) JOHN ROSS.

CAPE OF GOOD HOPE.

Extracts from Special Reports made to H.M. Government.

Dr. Murtagh's Report of the eligibility of this article for Hospital use, I have the honour to enclose, and I beg to add that from my own daily observation of its use in the Hospitals, I perfectly concur in what he has stated; I had an opportunity of testing the article at His Excellency Sir Harry Smith's table, and was much pleased with its sweetness and perfect resemblance to the fresh vegetable, as, indeed, was every one else who was present at the Governor's table on that occasion. There happened to be a dish of fresh potatoes at dinner the same day, and all gave a preference to the preserved over the fresh vegetable. I am of opinion the virtues of the recent potato are well preserved in the Patent Preparation, and I think it would be of the greatest importance as an article of diet, both for sick and well, at such posts as Fort Cox and Fort White, &c., where the garrisons have been kept for many months isolated, and almost in a state of siege, and when fresh vegetables cannot be procured. JOHN HALL, M D.

King William's Town Cape of Good Hope. *Inspector General of Hospitals.*

From John Breaks, Esq., Store Keeper, Her Majesty's Victualling Yard, Deptford.

I beg to state that Edwards' Preserved Potato, with which I was furnished in August, 1845, for use during my passage out to the Cape of Good Hope, not having been required during the voyage, I kept it by me while residing in that colony for a period of six years, and on my return to England in a merchant ship, I had occasion to use it in August, 1851, when it was daily served at table in excellent condition and much approved. I consider it to be a most desirable and useful article of food, especially on long voyages, and therefore strongly recommend it as invaluable for such purpose. (Signed) JOHN BREAKS,

Late Agent Victualler Navy at the Cape of Good Hope.

Extracted from the Nautical Magazine, May, 1852.

EDWARDS' PATENT PRESERVED POTATO.—*Arctic Expedition.*

From the very favourable reports made in the previous expeditions upon the excellent qualities and use of Edwards' Patent Preserved Potato. and of its valuable *antiscorbutic* properties, we are glad to find a large quantity of this imperishable vegetable diet has been supplied for the ships in Sir Edward Belcher's expedition, and from the extreme portability, and facility in cooking this vegetable, by merely adding boiling water, it is ready for use in a few minutes, and a great desideratum for the Arctic voyagers.

We subjoin a letter from Captain M. De Courcy, of H.M.S. *Helena*, bearing testimony of the keeping and antiscorbutic properties of Edwards' Preserved Potato in the tropics, and being eminently desirable for issue with salt meat.

"Having lately been paid off from Her Majesty's sloop *Helena*, which vessel I commanded for upwards of three years, on the West India station, I bear willing testimony to the good quality of Edwards' Preserved Potato; it always proved good and nutritious, easily cooked, and independent of its being so useful as an antiscorbutic, it is admirably adapted for detached or boat service, and is very accommodating for stowage in small vessels, and above all, was decidedly a never-failing favourite with the ship's company, and was in marked contrast to the preserved meats. The Preserved Potato is eminently desirable for occasional issue *with salt meat*, and I found it most valuable as a dietary for the sick, and the crew upon fresh beef.

"MICHAEL DE COURCY, *Commander, R.N.,*
"*Late of H.M.S. Helena.*"

Mr. Simpson, also, late Surgeon of the *Plover*, gives the same favourable opinion of it. He says:—

H.M.S. Plover, Behring Straits.

It gives me great pleasure to bear further testimony in favour of Edwards' Preserved Potato, in regard to its wholesome and nutritious qualities, and its beneficial effects as an article of diet in the prevention and cure of scurvy. The *Plover* was supplied with a very large quantity in metal cases, which passing twice through the tropics in the outward passage, and being on board more than three years, on being opened were found to have kept the Potato in a perfect state of preservation, and as good as when recently prepared.

JOHN SIMPSON, *Surgeon, &c.*

From George Nicholls, Esq., late Paymaster and Purser H.M. ship Queen, Mediterranean.

In return to your letter of the 27th ultimo, requesting my opinion of the Patent Preserved Potato supplied by you for use in the British Navy, I acquaint you, that as far as my practical knowledge extends, it has always been found most excellent in quality, and has kept well during the time. I was last serving at sea in H.M.S *Queen*, from June, 1849, to the end of December, 1850, we issued large quantities to the ship's company, and although much of the Preserved Meat was from time to time condemned, not a single ounce of the potato. Officers and men all most highly approved of it, the best proof of which is that none was ever left behind to be paid for as savings, the great difficulty (at sea) was to prevent the officers' messes from taking *more* than the established allowance. I am surprised that the Government do not give direction for it to be issued as part of the rations of flour and peas, with the salt meat, when at sea, as an antiscorbutic.

(Signed) GEORGE NICHOLLS,
.M.S. Excellent, Portsmouth,
Messrs. Edwards & Co., London. 1*st May.* 1852.

Extract of Report from John Ward, Esq., Paymaster, R.N.

I beg to observe, that during the period I was paymaster of H.M. ship *Asia*, employed on the west coast of South America, from 1847 to 1851, I had great opportunities of testing the qualities of Edwards' Preserved Potato. I consider them to keep well in all climates, and were of excellent quality, none were condemned or objected to during the above time, although the change of climate from extreme cold to heat was frequent, nor do I recollect of any being condemned in the squadron.

The officers and ship's company at all times gladly availed themselves of taking up their full allowance, and I had frequent applications for an extra quantity had I been allowed to issue it. I am of opinion that my Lords Commissioners of the Admiralty would be conducing much to the health and comfort of the crews of Her Majesty's ships upon foreign stations were they to reduce the oatmeal and peas, (of which there is more than is required,) and issue a proportion of the Preserved Potatoes in lieu on each salt beef day.

(Signed) JOHN WARD, R.N.,
Late Paymaster of H.M. ship Asia.

Portsmouth, 6th May, 1852.

H.M.S. Arethusa, Spithead, 8th May, 1852.

In reply to your letter of the 4th inst., requesting my opinion of your Preserved Potato, in consequence of its being likely to be confounded with the condemnations of Preserved Meat with which it was issued.

I beg to inform you, that up to the present time 2644 pounds have been issued on board the *Arethusa*, and that it has not been found necessary to condemn a single pound. As an article of diet it has always been held in high estimation, and from its great portability and healthy properties, I should think it would be of great service if part were substituted for an equal portion of flour in her Majesty's Navy.

(Signed) JOHN HENRY GREAVES,
Paymaster and Purser, R.N., late H.M.S. Arethusa.

Royal Clarence Victualling Yard, Gosport, 12th May, 1852.

In reply to your favour of the 8th instant, I beg to state, that so far as anything has come within my knowledge, your Prepared Potato appears to be a valuable article, but I have had no practical experience of its use. The very few instances in which when returned from ships it has been condemned, have been owing to causes quite independent of the quality of the article.

To Messrs. Edwards and Co., London. (Signed) JOHN DAVIES.

H.M.S. Superb, Spithead, May 1st, 1852.

Gentlemen,—The opinion I gave of Mr. Edwards' Preserved Potato, I have no hesitation in repeating, viz.,—"That during the two years' trial of it on board the *Superb*, in the Mediterranean, it was much approved of, no condemnation of a single ounce in that time, and that I considered it to be a most desirable article of nutritious food, if issued in sufficient quantity, *i.e.*, in double proportion to the present ration when with salt provisions, beef, &c."

(Signed) GEO. V. OUGHTON,
Paymaster and Purser.

From Sir W. Burnett, K.C.H., F.R.S., Director General, Medical Department, Navy.

I have received your letter of the 4th instant, and have to thank you for the communication, and to inform you that I have long been satisfied with the great value of the Preserved Potato as a beneficial article of diet on many occasions, especially on sea voyages.

(Signed) WM. BURNETT,
Director General, &c.

Admiralty, 5th *Oct.*, 1852.

General Testimonial, *Liverpool.*

We the undersigned having during our late voyages used Edwards' Patent Preserved Potato for the cabins, and occasionally for the crews, are desirous of expressing our entire satisfaction of that article, which we consider both *economical* and useful. We feel ourselves gratified in recommending them in the strongest manner, particularly in long voyages, where their *antiscorbutic* qualities have been fully tested by—W. T. Vale, ship "Moslem," St. Domingo voyage; A. Adam, "Malabar," Calcutta, two voyages; W. Whiteway, "Undaunted," Cape Horn, coast Chili, and Peru; H. H. O'Bryan, "Iron Queen," Brazil; James Watt, "John Munro," Quebec; H. B. Fell, "Rothschild," St. Thomas and Apalechecola; T. Tilson, "Argentina," Rio, Valparaiso, &c.

From Captain M. M. Keane, ship Emperor, from China.

Gentlemen,—It is with the greatest pleasure that I am enabled to state *most unequivocally* that the Preserved Potato I bought of you eighteen months ago, (having during that space of time been kept with only a common bung in the hole of the case containing them,) are at this moment as fresh and good as ever, although exposed to four distinct changes of climate, from heat to cold. Their principal advantage is their cheapness, for I am fully convinced that if instead of shipping potatoes in bulk for ships' crews, owners would use your Preserved ones, they would save money by the act, for when the great waste which the raw Potato is liable to is taken into consideration, both from decay and neglect on board ship, there can be no doubt about the matter.

As a very essential addition to the comforts of a cabin table, nothing further need be said, than to try it once at sea, and then *try* to do *without* it.

From Dr. Wm. Moir, Surgeon Superintendent of Emigrant ship Emily *May 16th*, 1850.

I have much pleasure in adding my testimony to the many you have already received, to the valuable discovery you have made, and the great boon you have conferred on seafaring people, in the shape of your Preserved Potato, which I had full opportunity of proving during a voyage to Port Adelaide with emigrants, and from Bombay to England with troops. During both voyages I found that as an article of diet it was most nutritious, and contained all the flavour of the recent vegetable, combining with these requisites the additional advantages of facility of stowage, and its capability of preservation for any length of time and in all varieties of climate.

From Capt. D. Mainland, ship Sultana from Australia, &c.

Having had Edwards's Patent Preserved Potato on different voyages for the use of troops and emigrants, in the ships Thetis and Sultana, and also given it to my crew, I consider it a valuable store, and can fully certify that it afforded general satisfaction to the troops, and highly approved of by myself and crew. Edwards' Preserved Potato shipped per Sultana last April was in use the whole voyage out and home, which was found to be equally good on the homeward as on the outward voyage. I intend to take it for myself and crew on my present voyage to Port Adelaide. (Signed) David Mainland.

Extract of a Letter from George Farr, Esq., Surgeon, Ordnance Medical Department, dated St. George's, Bermuda, Feb. 4th, 1852.

A box containing some canisters of the Preserved Potato, forwarded from the Messrs. Edwards' establishment, was received by me on the 8th of December, 1851, with a request that it should be tried in this hospital. The whole has been carefully prepared and used up for the patients, and the result is perfectly satisfactory, for the patients themselves prefer it to so much bread, as they have been accustomed to receive in lieu of potatoes. The cooking is easy, the preparation retains its goodness, and the nutrient qualities of it are sufficiently evident to a common observer. As an article of diet, therefore, in tropical climates, where a sufficient quantity of fresh vegetables cannot be procured, (and which is the case here,) I am of opinion that it may be used in the diet of the sick with manifest advantage.

The Preparations for War.

To the Editor of the Times.

Sir,—With reference to the publication in this day's *Times* of the Treasury minute authorizing the Commissariat to supply certain articles for the troops proceeding to the East, among which are named 50,000lb. of Preserved Potato, at 5d. per lb., as this rate of charge may appear high if not explained, we, the Patentees, who supplied the article alluded to, beg leave to state that our preserved potato, being concentrated, 1lb. becomes, from its increasing properties when cooked (which is effected in a few minutes by the mere absorption of boiling water), from 4lb. to 5lb. of the mashed potato, and is therefore as cheap as the common potato.

We have the honour to be, your very obedient servants,

1, Bishopsgate-street, March 22. D. & H. EDWARDS & Co., Patentees.

Report from D. D. M. C. McDonald, Esq., Surgeon.

"I have tasted the Preserved Potato prepared by Messrs. Edwards and Co. of London, and consider it a most wholesome article of diet, grateful in taste, and not so likely to cause flatulency as the fresh potato. It is easily cooked: and as a Medical comfort in Hospitals or the Field, I consider it as most desirable, as it possesses *all the antiscorbutic properties* of the fresh potato.

King William's Town, August 13, 1851. (Signed) D. D. M. C. McDONALD.
Surgeon 73rd Regiment."

LETTER FROM SIR WILLIAM BURNETT, K.C.H., F.R.S., DIRECTOR GENERAL OF THE MEDICAL DEPARTMENT OF THE NAVY.

Gentlemen,—I have to acknowledge the receipt of your letter dated the 29th Nov., 1849, enclosing a testimonial from Capt. Sir James Ross, and other Officers of the late Expedition to the Arctic Regions, as to the beneficial qualities of your Patent Preserved Potato, and in reply acquaint you, that I am very glad to see so satisfactory a testimony in favour of the article in question, as forming part of the diet of ships of war on long voyages or cruizes; and as far as I can I shall be happy to promote its more extensive use in the Royal Naval service.

(Signed) W. BURNETT, *Director General, &c.*

From Dr. James L. Clarke, Surgeon, R.N.

It gives me much pleasure to add my unqualified approval of your Preserved Potato, I can only repeat what has been already said of it, viz., that it is an excellent *Antiscorbutic*, is *Economical*, easily cooked, and capable of remaining good in any clime. I could wish to see it *entirely supersede that crude and flatulent article of Diet the Pea.* (Signed) JAMES L. CLARKE, M.D., *Surgeon, R.N.*

UNITED STATES NAVY, AMERICA.

From Wm. Sinclair, Esq., Chief of Bureau of Provisions, &c.

Navy Department, Washington.

It gives me pleasure to inform you that I have recently received from the Captain and Officers of the United States ship *San Sucinti* most favourable reports in relation of your Preserved Potato, put on board that vessel December, 1851.

(Signed) WM. SINCLAIR.

Messrs. D. & H. Edwards & Co., London. July 6, 1853.

Edwards' Patent Preserved Potato is packed in 1 cwt. Metal Cases, of convenient stowage, containing, from its concentrated state, the equivalent of about 5 cwt of that vegetable, (and, there being no waste, is as cheap as common potatoes.)

a ration sufficient for one person costing about a halfpenny.

This Preserved Potato is prepared by merely adding Boiling Water, when, *in a few minutes*, a dish of excellent mashed potatoes is produced ready for table.

Supplied, in cases containing 112lb, 56lb., 28lb., and 14lb., by all PROVISION MERCHANTS, SHIPS' STORE DEALERS, &c., in the United Kingdom, also, in the East and West Indies, Colonies, &c., &c.

D. and H. EDWARDS and Co., *Sole Patentees.*
1, Bishopsgate Street and Wapping Wall London.

N.B. Particular attention is requested to the Directions for use.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

MAY, 1854.

Notes on Certain Discoloured Appearances met with on the Surface of the Sea in Warm Latitudes.—*By Dr. G. Buist, Bombay.*

It is one of the numberless agreeable results to which the pursuit of physical science has led us that it has, to a considerable extent, dispelled the unpleasant impressions which long prevailed as to the credibility of the writers of ancient times when treating of unusual natural appearances. The flames seen to tip the helmets and spears of warriors, the contests visible in the clouds, the showers of fire and showers of blood, the statues of the deities which descended from heaven, the seas of milk and seas of flame,—all, at one time, supposed creatures of the imagination and proofs of the mendacity or credulity of those who described them,—are now recognized as perfectly authentic and intelligible things, the only matter untrue in the writings of antiquity regarding them being the theory of their origin.

The descriptions so long contemned as fabulous are now found, in most cases, to be remarkable for their fidelity, and a wise man, instead of throwing aside, as formerly would have been done, a statement as incredible, merely because it was old or extraordinary, will assume at the outset that it is in all likelihood substantially true, and endeavour to discover its explanation or find a parallel to it in modern times. If, in the present age, we avoid the errors of the ancients of ascribing marvellous phenomena to special interpositions or miraculous causes, we are some-

times given to accept a singular fact as established without making any attempt to ascertain its cause at all; and in nothing is this more remarkably the case than in reference to the luminous appearances and the extraordinary discolourations so frequently to be met with in certain regions of the sea. These are all allowed to be of animal origin: in some cases they are supposed to be caused by the spawn of fishes, and others by that of moluscous animals, and in the majority by animalcules. But when we have got thus far in our explanations we have hitherto rested contented; no inquiry has been made and no explanation attempted to be offered of what may be the nature or origin of the spawn or form of the animalcules, and our various manuals of observation or instructions for inquirers when they call attention to most other things seem to ignore these as unworthy of notice.

I am not, at present, prepared to do anything to illuminate the pervading darkness. I have very frequently met with discoloured portions of the ocean, such as those referred to, in my voyages betwixt Bombay and Suez and back again, and the following notices which I have made or collected on the subject may probably be of interest. As I expect, some months hence, again to sail on the eastern waters, I shall take care to prepare myself better hereafter than heretofore I have been prepared to take advantage of anything remarkable of this sort that may fall in my way.

The best of all observations are those made on the spot, on sea water fresh drawn and with the objects to be examined still alive, were it not that it rarely happens that instruments of sufficient power are available for the purpose on a voyage, and the flutter and confusion of a passenger ship are eminently unfavourable for study of any description, especially where quietness and tranquillity are required.* There are besides many persons competent to collect and preserve specimens altogether unqualified to examine or describe them, and if the first of these tasks is performed by them carefully the second may be left to the hands of others. I have provided myself with a tin box, three inch cube, with a culender bottom, on which a piece of paper may be placed for the filtration of the sea water to be examined. This being filled a sufficient number of times to supply an abundance of specimens may, after being well washed, be forwarded by letter to any one desiring to examine it. Of course this will only preserve vegetable matters or animalcules with siliceous crusts or which can sustain desiccation or moderate compression. For general purposes I have had a set of test tubes some two inches in length and a quarter of an inch in internal diameter drawn out into miniature bottles with apertures just wide enough to admit the largest sized object that may be met with; into these should be introduced a small quantity of arsenical solution, they should be then filled with the sea water to be examined

* The vibration occasioned by the motion of a steamer can easily be got rid of by placing the microscope on a cushion or on the folds of a mat so that there is no difficulty worth naming required in this particular department to be surmounted.

and warmed moderately, say to 120° or so, and then hermetically sealed by a lamp. So prepared, the bottle may be inclosed in a tin tube, and thus sent through the post office, or by any other means of conveyance, to any party desirous of examining its contents.

The region in which these singular appearances, as will be seen from the subjoined extracts, are mostly to be met with is the lower part of the Red Sea, but more especially off the mouth of the Persian Gulf, betwixt the 55th and 60th meridians and the 10th and 15th parallels.

In sailing over a sea of the deepest azure few things are more striking to a stranger than to find the ship, which just before had been rushing through the profoundest blue, traversing what seems a sheet of blood; for, in most cases, nothing can surpass the intensity of the redness of the water, and the margins of the coloured space are well defined—sharp and abrupt. In cases where the colour is very intense I have seldom seen it extend over an area of more than a few hundred yards in diameter, but the occasions on which I have met with it at all have not been numerous. In general, the red tint is very much diluted, and I have seen the sea, in and around Bombay Harbour, for miles together faintly tinged with red. The following description of the creature by which this is brought to pass, when seen by the microscope is given by Dr. Carter of Bombay.

"They are subglobular, compressed vertically, convex above, convave beneath and consist of a transparent coriaceous envelope, within which there is a mass of blood red and transparent granules, suspended in a greenish coloured gelatinous substance and divided crucially into four compartments by transparent interstices terminating at the circumference in notches which are deepest at the sides. The blood red granules are disposed around the centre in a circular form, within which is a transparent area, so that under a low magnifying power they appear like a central nucleus. In progression this *infusorium* becomes slightly elongated or lozenge shaped, obtuse posteriorly and most deeply notched at the side. It has no appearance of celia; its movements through the water are rapid and waddling, frequently turniug over and momentarily altering its shape, wheeling about in circles or advancing in straight lines, never retrograde, in length it is the 860th part of an inch, and the diameter of its transparent and red granules does not exceed the 18,000th part of an inch. When dead, it assumes a subglobular shape and turns green."

In most cases the tint of discolouration is milk white, yellowish white, brownish yellow, or yellowish brown, and in this condition I have seen it extend for ten, twenty, or thirty miles; wherever it prevails the sea seems to become suddenly smooth, all spray and ripple disappearing, even should a brisk breeze be blowing. For the most part, however, the discolourations are met with in thick, dull, muggy weather, when there is scarcely any wind;—such, at least, are the conditions under which it has been my fortune to meet with them.

The following extract is taken from the *Colombo Observer*, in reference to these singular appearances in the sea, observed off the shores of Ceylon in 1844 and again in 1851:—

"Those who frequent the Galle Face may have, of late, perceived at different places, a few yards from shore, large patches floating of an oily brown appearance which exhale a disagreeable odour to the passing breeze. They always appear about the beginning or middle of the S.W. monsoon. On the coast of India the accumulation of this substance is so great that for a long distance to seaward the ocean appears to be covered with a huge expanse of oil, and the smell becomes so putrescent as to lead to the supposition that the carcases of dead whales or the dead spawn of myriads of fish had caused it. This is, however, a mistake, as it is nothing other than a vegetable production called conferva, a vegetable filamentary body, which makes its appearance on fresh and salt water at certain periods. The following note from a valuable work on the vegetable kingdom extracted from the former *Ceylon Herald* of the 14th May, 1844, shows that the appearance of these confervas is not unusual in Ceylon.

"'The sea to the southward of Colombo and, more lately, opposite the fort itself, has presented a very uncommon appearance for some days past. Instead of its usual brightness, the surface has been, to a considerable extent covered with what appears to the naked eye a sort of nasty froth or scum emiting a fetid smell. In the morning, when it has been usually calm, this scum has presented itself in broad belts and fields, and by the afternoon, after being exposed to the sea breeze, it is broken down into streaks lying in the direction of the wind, which, if it blow pretty fresh, disperses it altogether. We have examined some of this unusual substance in a tumbler of salt water, and were not a little surprised to find that, while it floated on the surface in the form of a scum, some parts of a yellowish green and some of a purplish brown colour, it tinged the whole water of a beautiful violet. We afterwards found that the whole water in the bucket in which it was brought from the sea had acquired the same colour; and, indeed, it appeared to us the other day, when it was very abundant, as if the sea itself had been stained of this beautiful tint. We found, on minute inspection that it consisted of an infinite multitude of small spindle-shaped bodies, each of which in its turn was a bundle of small threads jointed but unbranched and, seemingly, very brittle. We have no doubt but it is a vegetable production in the sea something similar to the green substance which covers stagnant pools of fresh water. The most remarkable and unpleasant feature is its fetid odour. When we read in voyages, however, of ships sailing for so many hours through seas of a blood colour and similar wonders, we are apt to suppose the author is taking the liberty of a traveller, but witnessing such a phenomenon as this is calculated to prepare us for giving them more credit. We are also glad to think that we have now an accomplished and indeed a most distinguished botanist in office in the island, who will, no doubt, be able to inform us accurately respecting the nature of such productions and on botanical matters generally. It says not a little for the interest of our island in the eyes of European botanists, that a situation at present so indifferent as Superintendent of the garden at Peradenia should have attracted such an accomplished traveller and

discoverer of new plants as Professor Gardner, to whom we alluded in our last issue.'—May 14th, 1844.

"These confervas have, at the same time, at one period of their existence, something of an animal nature, which may account for the fœtor attending the masses floating about, as they have the power at one time, it appears, of moving about from place to place independently of the action of the wind and waves. As the subject is interesting, we shall, in our next, give some information on this matter."

The following extracts are from a journal of a voyage round the globe by D. F. Bennett, published in the Transactions of the Royal Geographical Society of London 1837.

"In lat. 19° N., long. 107° W., about half way betwixt the Gulf of Revilla Gigedo, on the continent of America, a remarkable milk white and luminous appearance of the sea was observed at midnight all around as far as the eye could reach from the mast-head, and which lasted until daylight. Nothing could be detected in the water to account for it, nor could any soundings be obtained."

For the following extracts from the log of the H.C. steamer *Atalanta*, from Aden to Vingorla, I am indebted to Lieut. Constable.

"17th January, 1850.—Lat. 15° N., long. 63° E., 7 a.m.—Observed the water to have a luminous appearance. 9 a.m.,—The sea of a turbid chalky colour. 10 a.m.—The sea assumed its natural appearance.

"18th Jan.—1 a.m.—The sea assumed a luminous appearance and continued so till 3 a.m." There is no remark on the subject during the day time.

"19th Jan.—1 a.m.—The sea gradually became of a dark chalky colour, inclining to milky. An intense haze all around so that it was impossible to see ten miles off.

"3rd Feb., 1850.—Lat. 10° 50′ N., long. 6° 20′ E., 7 p.m.—The sea had a similar appearance to what it has now assumed on passing across from Vingorla to Aden on the 17th Jan., at 9 p.m., and so on till the 19th, till 2 a.m., betwixt lat. 15° and 14° 30′ N., and long. 63° 50′ to 56° 50′ E."

It will from this almost appear that for more than a fortnight the sea betwixt India and Aden had been thus discoloured for a distance of three or four hundred miles from north to south and nearly as much from east to west, and as many vessels must have passed through the discoloured surface it would be highly interesting to obtain extracts from their logs, and should any of those who commanded them observe these remarks they may, perhaps, supply the notices that are required. The officers of the *Atalanta* state that these luminous appearances, observed in crossing, in January, from Vingorla to Aden, were accompanied by dense fogs and heavy masses of grey cloud all over the sky. On their return voyage from Aden to Vingorla, on the other hand, there was no fog but the sky was entirely concealed by murky black clouds and there was every appearance of bad weather. Although in the coldest part of the season, the air felt close and oppressive; the temperature of the sea was two degrees hotter than that of the at-

mosphere. There was a perceptible smell similar to that given out by spawn in calm hot weather.

The 15th January and 15th February happened to be two of the dates when those singular disturbances which make their appearance all over India, and, perhaps indeed, all around the world, almost simultaneously, may be looked for; and, accordingly, on turning to my journal, I find the following entries at the dates referred to by the *Atalanta*.

"17th January.—Fine soft morning. A perfectly dead calm till 1 p.m.; the sea breeze then sprung up from N.W. and immediately blew somewhat freshly; curious little cirrocumuli with long grey mare's tails in the S.E.; the barometer falling. At sunset, fine cirri all over the sky; the current in the upper air from the S.W., almost right in the teeth of the breeze.

"18th.—Night perfectly still. Curious mist in the sky all over the morning. The sea breeze light and late in setting in; died away at sunset.

"19th.—A singular thin mist in the morning, with very heavy dew. Showery looking clouds in the east. A fine halo round the moon a little after sunset.

"This state of matters had been preceded by considerable falls of rain in N.W. provinces, betwixt the 10th and 15th. On the 12th, Calcutta was visited by a severe north-wester. There had been considerable rain and storm again in the end of January. On the 5th of February, one of the most violent gales of wind that had been experienced for years passed over the north of Europe."

The following are the entries from my journal of this date:—

"February 4th.—The character of the weather all at once completely changed. The eastern sky covered with dense clouds. The temperature suddenly rose by nearly 10°, from 83° to 93°, at noon.

"5th.—Soft misty morning, the heat most oppressive. Clouds all around the horizon with appearance of rain. A damp west wind set in just after sunset. Weather very squally to the northward.

"In central India there was a heavy shower of rain on the 1st, and a thunderstorm on the 6th. On the 7th, 8th, and 9th the thermometer rose at Bombay to 94° and 95° at the coldest part of the whole season, a temperature rarely reached by it in the hottest portion of the heats." At Aden at both the dates the weather was showery and irregular.

The following is an extract from the log book of the ship *Clive*:—

"August 22nd, 1832.—Lat. 16° N., long. 59° 35′ E. At 7·15 p.m., observed the water to become quickly discoloured and of a very white luminous appearance, the sea considerably foamed and smoothed down, having all the appearance of a shoal water over a coral and sandy cottom. Observed the same occurrence both in the *Nautilus* brig and *Elphinstone* schooner on previous years when in the same vicinity."

The following extracts were published, some years since, in the Transactions of the Bombay Geographical Society; but the work is so little known in this country that they will probably be new to most readers. The first extract obviously refers to what has just been noticed.

A remarkable Appearance in the Indian Seas; in a Letter from Lieut. Dawson. Communicated by William Newnham, Esq.

I beg leave to lay before the meeting an extract from the private journal of Lieut. Henry Dawson, a very intelligent officer of the Royal Navy, at present employed on civil duties with the Indian Navy at Bombay, containing an account of a very extraordinary phenomenon, which was observed on the passage from Bombay to the Persian Gulf (the southern passage), on board the H.C. sloop of war *Clive*, in 1832. On my first going to India, I was in the habit of intimacy with the late Capt. David Seton, who was many years resident at Muscat, and I well remember hearing him relate the circumstance of falling in with the *white sea*, described by Mr. Dawson, on his occasional voyages to Muscat, during the period of the S.W. monsoon.* So many years, however, have since elapsed, I am unable to give any more detail of the circumstance related by that officer, and merely here allude to it in proof of the phenomenon having been before observed.

WILLIAM NEWNHAM.

During a passage from Bombay to the Persian Gulf, on board the H.C. sloop *Clive*, on the 22nd August, 1832, at a quarter before eight o'clock at night, a phenomenon appeared of the following nature, and to all on board, of an unheard of kind, which gave rise to transitory feelings of apprehension as to the vessel's contiguity to danger. Sailing under double-reefed top-sails and fore-sail, at the rate of nine and a half miles per hour, before a strong S.W. monsoon wind, and a high sea, without any indication of a change in the elements, the ship was surrounded *instanter* by water as white as milk or snow; it seemed to have no termination until it reached an altitude of 75° or 80°, where it subsided in a strongly-marked ecliptic, above which the heavens presented a beautiful and bright blueish cast, not dissimilar to polished steel. No line of horizon was visible; the dead white colour of the water close to the ship, as it increased in distance from her very gradually brightened, until, where I supposed the horizon to be, it assumed a silvery aspect, which, increasing as it ascended, became brilliant and dazzling towards the zenith, obscuring the stars and clouds which had before this visitation been distinctly visible. The sea in a moment became smooth; the ship, from rolling and labouring considerably, quite steady; no diminution in the wind occurred, but a sensation that it had fallen, even to a calm, was general, but momentary. The delusion was occasioned by the instantaneous steadiness of the vessel, as well as the cessation of the previous noise from the lashing of a mountainous and confused sea against the vessel's sides, and on her decks; her progress through the sea, however closely scrutinized, could not be

* Our subsequent inquiries serve to confirm this statement, inasmuch as few navigators appear to have passed along the eastern coast of Arabia, in the months of June, July, and August, without noticing the discolourment of the water, (but *during the night only,*) and which, on examination when brought on board, is said to exhibit no difference whatever from sea-water in other parts of the ocean.—ED. *Journal R.A.S.*

observed; the disturbed water alongside and in her wake, as well as the foam around her bows, did not contrast with the adjoining unagitated fluid, notwithstanding, from the velocity of the ship through the water, these must have been considerable. Not a particle of phosphoric matter was once observable, either in the surrounding ocean, or in the water immediately displaced by the ship's passage through it; but when taken up in a bucket, and agitated with the hand, such was visible, but not in a greater proportion than is usual, nor did the water vary in appearance from common sea-water; nothing could be perceived to attribute this strange phenomenon to.

Animalcules of a minute kind were perceptible, as likewise a few pieces of a glutinous substance of a purple colour, but neither in any considerable quantity, nor differing from what is usually found in the seas of the Indian Ocean.

We sailed the distance of fifteen miles without the slightest change in the appearance of the sea or sky, when in a moment this extraordinary phenomenon vanished, the ship at the same instant encountering the like high and turbulent sea as previous to her envelopment.

The ship was not within one hundred miles of the eastern coast of Arabia, or of soundings, but sailing in what is termed deep ocean water.

I have before mentioned that the ship was quite steady during her progress through the white water; this was the case, with the exception that in a few instances she gave a heavy roll, as if influenced by a following swell; these were not more frequent than once in a quarter of an hour. Latitude 21° 40′ N., long. 59° 40′ E.; therm. 87°, bar. 29.09.

The phenomenon I have attempted to describe appeared twice after we were first extricated from it, for periods of about twenty minutes; its brilliancy, as well as influence over the waves as previously described; the transition from high and mountainous seas to a smooth and seemingly quiet ocean, and change again to turbulence, was as sudden as a flash of lightning.

On my arrival at Muscat, a few days after, I endeavoured to gain some information on the foregoing matter; but beyond finding that the phenomenon was occasionally met during the strength of the S.W. monsoon, about the limit noted, and that the water was then *quite fresh*, I could ascertain nothing satisfactory. My informants were the Nakodas, or captains of H.H. the Imaum's ships of war, who frequently navigate between Muscat and Zanzibar, consequently must pass about the spot the *Clive* met what I have related. The Arab captains were firm in their assertion in the particular of the fresh water, althongh they confessed that they had never tasted it. I did, as also the surgeon of the vessel, and, as I mentioned before, it did not vary in any way from ordinary sea-water.—*Journal of the Royal Asiatic Society.*

The following is the extract from the Bombay Geographical Society's Transactions in reference to the appearance seen in 1849:—

"Moozuffer, 25th January, 1849.—I cannot permit this opportunity

to pass by without describing to you, in the best way I am able, a most extraordinary phenomenon which we all witnessed on the night of the 23rd instant. It would indeed require a far abler and more scientific pen than mine to do justice to it—however, I hope you will take the will for the deed, and pardon all imperfections.

At 6·30 p.m. observed a very remarkable milky appearance in the water, the colour assuming the same tint as a shallow mud-bank or sand-bank. The sea, which had, a few minutes before, been turbulent and confused, suddenly became smooth and placid, and the air felt cold and chilly. In the space of an hour the whole verge of the horizon, as far as the eye could reach, was most brilliantly illuminated. The vessel shortly after entered a vast body of water of the most dazzling brightness, and of a highly phosphorescent nature; in fact it looked as if we were sailing over a boundless plain of snow, or a sea of quicksilver. The surface of the ocean for miles in extent was unbroken—not a wave or ripple disturbed it, and the waters seemed so dense and solid, that the *Moozuffer* actually appeared as if she was forcing her way through molten lead. That part of the surface which was broken by the stroke of our huge paddle-wheels resembled small patches of thick milk or cream. The sky and everything around us was quite lighted up by it.

The weather was peculiarly fine, though the atmosphere was damp and moist: the wind was light from the N.W., stars overhead clear and light, but those of a lesser altitude were rendered dim by a haze. The horizon nearly the whole time was dark and ill-defined; a few thin cumuli, floating very low down, occasionally swept past; but no other peculiarity in the atmosphere could be perceived until about ten o'clock, when a singular light was seen in the heavens, to the northward, as if day was dawning or the full moon was either setting or just rising. It strongly resembled a faint Aurora Borealis, being of a roseate tinge near the horizon, and was a steady fixed light, but without those corruscations which are usually observed in the higher latitudes. It extended along the horizon in the form of a segment of a circle from N.W. to N.E., and the altitude of the centre of the arch was 15°. It continued visible until a few minutes after midnight, when it disappeared as suddenly as it appeared, and the sea about the same period lost also its luminous quality. The light in the heavens and the lightness of the sea were, however, again seen for about ten minutes at 2 a.m., when both became once more invisible. The horizon, except where the light appeared, was everywhere dark and indistinct, and could not be made out: the sky and sea were apparently blended together. The phenomena was altogether as beautiful as it was extraordinary. I could have stood on the deck gazing at it the whole night, and should not have felt fatigued. There was something grand and sublime in such a scene as I have faintly endeavoured to pourtray. No language of mine could ever do justice to it.

We were upwards of six hours in passing through this vast body of luminous water, and during that time we ran a distance of upwards of

forty miles. Our lat. on first entering it was 16° 13′ S., and long. 61° 51′ E., so that our position was exactly abreast of the entrance to the Persian Gulf, and in the fair channel to the Red Sea. From the fact of our having seen immense quantities of sea-weed floating past whilst in this luminous water, I should conclude the accumulation of this and other decayed matter, whether vegetable or animalculæ, was the sole cause of this phosphorescent appearance; and that all this matter might have been swept out of those narrow seas by strong currents, which meet no doubt about this spot: and I am still more inclined to believe this is the case, as a luminous stream of water has often been noticed nearly in the same lat. and long., and about the same season of the year. I saw it once in the *Victoria*, when I commanded her, in the month of January, 1842, whilst on our voyage from Aden to Bombay; but the sea was not nearly so bright then as this time. The colour of the water so strongly resembled a shoal that I stopped the engines, and took several casts of the lead but could get no bottom with eighty fathoms of line. Several buckets of water were drawn up by Dr. Wilson, of the *Moozuffer*, but nothing whatever could be seen. It seemed as clear as crystal: on taking a bottle of it, however, in the dark, it became highly phosphorescent, giving out a strong light. It was full of animalculæ: some were in the shape of most minute globules of gelatinous substance, and others were not unlike small worms, about an inch in length and about the size of a fine hair. On removing the bottle to the light, the animalculæ became instantly invisible. The light seen in the heavens I cannot account for, unless it was the low fleecy clouds which hung on the verge of the horizon that reflected back the brightness of the sea; but why the whole sky should not have assumed the same appearance, I cannot imagine. It continued to shine in one spot only, and disappeared at the same time the sea lost its brilliancy. I send you an extract of the log, in which the luminous appearance in the sea and heavens is noticed:—'At 6·30 p.m., passing through an illuminated sea: the sea also became suddenly smooth, with quantities of sea-weed floating by. At 10 an extraordinary luminous appearance to the northward, as that of a full moon rising or setting: the water of a thick white; with a very dark horizon: wind N.W.—hazy blue sky, with passing clouds.'"

Some months since I received from Dr. Haines an account of this as witnessed from on board the *Maria Soames* on her way from the Persian Gulf, lat. 21° N., long. 42° E. The phenomena are not only interesting in themselves but an account of them is valuable as explaining the so-called seas of fire, seas of milk, and seas of blood, which we read or hear of and regard as fancies of a heated imagination or the baseless tales of travellers.

"In May 1840, when about one-third across from Aden to Bombay, the aspect of the sea suddenly changed upon us, and at once seemed as if oil had been poured upon its surface. It was still as a mill-pond, and of a brownish soapy hue. The water, on being examined, was full of little fibrils—like horse-hair cut across—in lengths of the tenth

of an inch or so. A wine-glass full of it contained hundreds of them. They were, to all appearance, spawn or creatures of some sort in an embryotic state. I kept them for days, in hopes that they would develope themselves, and drew up fresh specimens of the water so long as it remained discoloured. But no symptoms of life were manifest, and decomposition speedily ensued. In the dark they were not luminous. We sailed through them for about five hours, so that they probably extended over a surface of 500 miles:—what myriads of living things were there! The officers of the ship told us that similar appearances were not unusual; and that one much more remarkable than this was sometimes to be observed, when the sea seemed for hundreds of square miles white and milky, so that it was at times difficult to believe that the vessel was not on the point of getting aground."

In all likelihood the luminous appearance in the sky described by Captain Kempthorne was merely the reflection by the clouds of the light from the sea.

In November the ship *John Line* came on a large sheet of discoloured water in the Eastern seas, supposed to be a shoal: the following is an extract from her log:—

"November 19th, 1849.—At 3 p.m., suddenly came across a large patch of discoloured water (ship at the time running 9½ knots with a heavy sea on). Hauled out E.S.E. and ran along the eastern edge until 2·15 p.m., when the edge trended off to the W.N.W. in a spit. The reef appeared to extend as far as was visible from the topsail yard in a W.S.W. direction, and from four to five miles S.S.E. and N.N.W., and the current setting very strong to the westward over it. There was apparently broken water on the S.E. spit. I had no soundings where the ship was, and it blew too fresh and with too high a sea running for me to lower a boat to sound on the reef, the edge of which was perfectly defined, from the deep blue of no soundings to a dirty green. When off the S.E. end, the lat. was 12° 52′ N. and long., by mean of three chronometers, 109° 46′ 17″ E.—Cape Varella W.b.N., fifteen miles, but not in sight from the thickness of the weather."—Extract from the log. of the *John Line*.

The appearance described as seen from on board the *John Line* so closely resembles those already treated of, that I think we might almost hesitate admitting the certainty of the shoal until more proof of its existence reached us, considering that it must have been so often passed for a century or more without having hitherto been observed.

We have a variety of animalculæ which at certain seasons frequent our shores, imparting to the water in shallow pools, where they chiefly abound, the tint of blood: the exuviæ of this minute creature are found in abundance in the rock salt on the Indus and in the salt range. It tinges the back water surrounding our salt pans, the depth of the hue being considered a sign that the brine is strong enough for being run into the pan. Under a glass of moderate power they are seen in a state of great activity before the salt crystallizes: these once embedded in the salt seem on re-dissolving it to be motionless. On a

recent voyage to Kurrachee I found off the shores of Kattiawar, where the general colour of the sea was of the deepest blue, large patches of the most intense red, apparently some fifty or sixty feet square—they looked like fresh drawn blood, as if some monster of the deep had just been slain there. We did not get near enough any of them to draw a bucket of water, but I have no doubt that they were occasioned by the same animalculæ which visit our shores. May it not have been from appearances such as these that the Red Sea has derived its name rather than from its corals, to which it is ascribed, which are usually white and seem greenish through the water, and are without a tint of red?

I must not here omit to note a curious incident which occurred at Pore Bunder on the 3rd November, of which the following account is given by a correspondent of the *Telegraph and Courier:* I am altogether unable to determine to what class of phenomena it is to be assigned:—

"Pore Bunder, 3rd November, 1849.—We were visited with an epidemic amongst the fish a few days ago, caused, I think, by some submarine eruption of mud, mephitic gas, &c. The colour of the sea water on Saturday evening last, the 27th October, was changed from its usual tint to a deep red, emitting a most foul smell; the fish speedily were all destroyed, and were washed upon the beach in large quantities. The eruption must, I conclude, have been in the vicinity of the place, for many fish were taken alive, apparently stupified. The sea retained its peculiar colour until the 1st instant. I hear that the epidemic extended upwards of forty miles down the coast, and I am told that a similar phenomenon occurred three or four years ago, the natives attributing the death of the fish to a star having fallen into the water. The Geographical Society would do well to examine into the affair. I think the idea of a submarine disturbance is much more rational than that of the falling star. I have no means of telling whether there was any atmospherical disturbance at the same time: we had, however, no sea breeze on the 28th or 29th, and the weather was, on the whole, I fancy, clearer than is usual at this season. The tides also at the last full moon have receded much farther than I have ever seen during the last year. Have you a file of Cape papers at hand? Not long since a similar occurrence was experienced in Table Bay, and, at the time, even such fish as were taken by hook produced disease amongst those who ate them. No such calamity, I am glad to say, has attended the incident here. It appeared quite a windfall to the poorer classes, who gathered up such as had not become decomposed with great eagerness."

This state of matters extended, I am assured, at least forty miles out to sea, and while the native theory of the fall of a star is that which will least readily be admitted, I am at a loss what theory to adduce to account for the phenomenon.

I observe from my journal that the 23rd January, the date at which this extraordinary appearance was met with, was near the close of a periodic atmospheric perturbation of unusual violence. It prevailed all over India, and was felt from Ceylon to the Mediterranean Sea. I am very far from assuming that luminous appearances of the sea have anything to do with the condition of the air, but there are three of the cases that I have enumerated where they have occurred coincidently, and all that can be said of the others is that I have no record of what the state of the weather then was. It would be very unsafe, however, on this ground to assume the want of coincidence. Everyone is aware of the susceptibility of the birds of the air and the beasts of the field to atmospheric influences, and it is quite possible that the inhabitants of the deep may be as much so. What we want is more information on the subject, and I place in your hands my humble mite that I may not be blamed for at once complaining and failing to contribute.

Since the preceding remarks were in type, I have fallen in with a paper by Ehrenberg on the bloody appearance of water, a translation of which appeared in 1831 in the tenth volume of Jamieson's Edinburgh Philosophical Journal. After giving enumeration of the instances quoted by the ancients of red snow, red rain and rivers, and seas covered with blood, he gives a list of our experiences on these subjects in modern times. I give the following entire; he comes to the same conclusion as that which I have arrived at as to the origin of the name of the Red Sea.

"In 1823, I was for a number of months at Tor, on the Red Sea, in the vicinity of Mount Sinai. On the 10th December I there observed the striking phenomenon of the whole bay which forms the harbour of Tor of a bloody colour. The main sea beyond the coral reef that encloses the harbour was, as usual, colourless. The short waves of the calm sea, during sunshine, carried to the shore a bloody coloured slimy mass, which it deposited on the sands, so that the whole bay, fully half a league in length, at the ebb of the tide exhibited a blood red border of more than a foot broad. I took up some of the water itself with glasses and carried it to my tent at hand on the sea shore. It was immediately discovered that the colouring was caused by small flakes, scarcely distinguishable, often greenish, sometimes of a lively green, but for the most part of a dark red colour, although the water itself was not stained by them. This very interesting appearance attracted my attention as explanatory of the name of the Red Sea, a name hitherto so difficult of explanation. I, for many days and with perfect leisure, accurately examined the appearances and made microscopical observations on the colouring mass. The flakes consisted of small spiral or longish irregular bunches of oscillatoriæ threads, which were enclosed in a gelatinous sheath, and the flakes neither resembled one another nor the threads in each flake. In the glasses placed beside me I observed that the flakes during the heat of

the day and in sunshine floated together on the surface of the water. During the night and when the glasses were shaken they descended to the bottom. After some time they returned to the surface. The observation made by Dr. Englehardt on Lake Murten was very similar to this appearance, and the delineation of the single threads by De Candolle exhibits a very close relation to it. De Candolle informs me he has preserved no dried specimen of that substance, for which reason no comparison can be made. The gelatinous covering and the union of many threads into very small spiral groups give to the substance of the Red Sea a peculiar character, which entitles it to form a particular genus of alga. * * * * The appearance of the Red Sea was not permanent but periodical. I observed it four times: on the 25th and 30th December, 1843, and on the 5th January, 1844.

[Frequent references to discoloured appearances in the sea will be found in the earlier volumes of this work —ED.]

JOURNAL OF THE PROCEEDINGS OF COMMANDER PREVOST IN THE ISTHMUS OF DARIEN.

[The following journal of an attempt to cross the Isthmus of Darien has a special interest at the present moment. Although unsuccessful in reaching the Atlantic shore, Commander Prevost and his whole party displayed so much zeal and intrepidity in overcoming every obstacle that they well deserved that reward. Their course was, however, too far northward, and while the misfortunes which befel them in the loss of four valuable lives out of the party must be deeply deplored, it is matter of congratulation, considering the prejudices of the native Indians, that more were not lost. At the same time it is to be regretted, notwithstanding the care with which the road made by the party was *actually measured* and its direction most carefully determined by compass, that no observation was obtained at its northern extreme even for latitude, which a common little pocket sextant would have given. For compasses will *deviate* and the hilly country over which they passed would defy the most careful allowances for a correct result.]

December 16th, 1853.—(Full moon.) 8 p.m. 'Wayed, and steamed from the anchorage off Tobago; shaped a course to pass inside the Pearl Islands. 11, Sighted Pacheca.* Daylight, off the Farallon Ingles. 8 a.m. (17th), entered the Gulf of San Miguel, steering mid-channel between Points Brava and Garachiné to avoid the Buey shoal, which extends some distance south of the former. The tide or current was strong against us. General soundings from 6 to 8 fathoms, which deepened as we approached Morro Patino. Passed through the Boca Chica passage at low water spring tides: lowest cast 7 fathoms. En-

* The northernmost of the Pearl Islands.

tered the harbour of Darien, a magnificent sheet of water, and at 2·30 p.m., anchored in the mouth of the Savana River.

Sunday, 18th.—8.15 a.m., discovered the ship dragging her anchor; let go small bower and got steam up. Brought up outside the river in Darien Harbour; 48 fathoms on each anchor. 10.30, low water, 'wayed and proceeded up the river. In taking up a berth, the ship grounded on a soft mud bank off the right bank of the River Sarana; laid out kedge, let go small bower, and waited for the tide to flow. 3 p.m., ship floated; steamed to an anchorage in mid-channel and moored with swivel, 36 fathoms on each anchor. The Gefe Politico and Governor of this province, Don Manuel Borbua, and the Alcalde of Champigana, with two Scotchmen, Messrs. Hossach and Nelson, residents of that village (about eight miles distant, on the south bank of the Tuyra, containing about 150 inhabitants,) visited the ship. By their united influence I obtained all the native assistance I required and as much information as they could give of the route we were about to take.

Monday, 19th.—About noon this day, the following party, in the cutter and gig, with a canoe for the Indians, left the ship fully armed and equipped with fourteen days' provisions.

Land Party.

Commander J. C. Prevost.	John Lower, A.B.
Lieutenant L. J. Moore.	Thomas Hyde, Gunner.
Mr. G. H. Inskip, Acting-Master.	Thomas Orrell, ditto
Dr. W. Ross, Assistant-Surgeon.	James Perkins, ditto
Mr. W. E. Gordon, Mate (Lieut.).	George Julier, ditto
Mr. W. Kennish, Volunteer.	Pedro Punagana, Indian Interpreter.
Antonio Selcon, his attendant.	Emanuel Raguet, Guide & Labourer.
Mr. Robert Nelson, Spanish Interpreter, Volunteer.	Hilario Macso, ditto
	Manuel Maria Entrada, ditto
William Rolling, Captain F.-castle.	Miguel Moreno, ditto
Henry Windsor, A.B.	Leon Rivas, ditto
Henry Robins, ditto	Manuel Rosero, ditto.

Boats' Crews.

Mr. W. St. J. Hornby, Midshipman.	William Jones, A.B.
Robert Whitbread, Quarter-Master.	Thomas Dick, Ordinary.
John Curtis, A.B.	William Behennah, A.B.
James Tink, ditto	John Callan, Ordinary.
Edward Rowe, Ordinary.	John Collum, A.B.
Alpheus Richards, ditto	

The following joined afterwards to strengthen the boat party.

Robert Blake, A.B.	William Barnes, Gunner.
Isaac Fisk, Gunner.	

The officers and men who accompanied me on the land journey were volunteers, and such was the fine spirit evinced by all on board that every man was anxious to join us.

Parting from our shipmates with three hearty cheers, we commenced the first part of our journey, which was the ascent of the Savana as

high as the river would allow us. Thence it was my intention to strike across the country in a N.E. direction, and, if possible, reach the Atlantic shores. The latitude and longitude of two principal points being given, viz.: Fuerte del Principe, lat. 8° 34′ N., long. 77° 56′ W., and Port Escocés, lat. 8° 50′ N., long. 77° 41′ W.

I deemed it better to work out our route as a course and distance, and cut our road accordingly, rather than trust to the uncertainty of the published maps, which all appear to differ materially from each other. The survey made by Mr. W. Haydon, acting Second Master of this ship, shows the course followed by the boats as far as the Islands Fairfax and Eliza. These we reached at 3 p.m., and were joined by two more native guides, hunters, in a small canoe, who promised to accompany the expedition as carriers. Beyond this the Savana forms a reach, about three miles long, in a N.N.W. direction. Its western bank is entirely lost among small islets and streams running into it, producing a long shallow mud bank; the channel being, apparently, on the eastern side, where, at half tide, we found 5 fathoms.

At 3.45 p.m., we were abreast of a point opening into a straight reach and beyond it a conspicuous hill was visible, which our guides named Periaki, estimated by us at about 300 feet in height; further than this there were no other hills. Following this reach about three miles the river suddenly narrowed to sixty yards, taking a sharp turn towards the N.E., Periaki before us. Thence the turns of the river became sharp and tortuous, our soundings giving only 1 fathom, and the banks consisting of mangrove trees and swampy land. 5 p.m., reached the mouth of the Lara, the Savana continuing N.N.W., about thirty yards wide, its turnings sharp and stream sluggish. About one mile above this the eastern side began to assume banks with large trees; the western side still swampy. 5.30 p.m., abreast of Matumaganti, a small stream on the west bank.

A mile above this our guide pointed out a spot on the same bank said to have been, in former days, the Spanish settlement of Fuerte del Principe;* the absence of forest trees and the presence of brushwood and young shrubs was the only indication we could perceive of it. A short distance beyond this, as the sun had gone, we were glad to stop for the night at an old rancho on the western bank, put up by Hossack and his party on a former occasion when cutting wood.

The quick ears of our native guides soon discovered there were others before us; and, when we landed, they proved to be five huntsmen from Chapigana in search of game for their Christmas dinners. They were not a little astonished, as our boats drew toward the small cleared space or landing place, to find their solitude invaded by such a large party, imagining themselves a few moments before "Monarchs of all they surveyed." We found them inhabiting the only *house* in the place, and here, as everywhere else, possession is nine points of the law.

Our natives began exercising their skill in enlarging the rancho, a

* Preserved in the Spanish charts.—Ed.

work of half an hour, the palm tree growing in great abundance, which, with a few supporters and rafters, cut from the adjoining forest, forms a roof impenetrable to the rain, rising from the ground, at an angle of 45°, to six or eight feet in height; and, with a bed of the same leaf and a cheerful fire in front, makes a comfortable and airy lodge. All must be completed before dusk, for no native will then venture into the woods for fear of snakes and other venomous and ferocious animals.

Our men spread the awnings in the boats; then came the evening meal; which was followed by some of Dibdin's best songs, and loud was the chorus re-echoed by the distant forests when Rule Britannia spoke the feelings of all our hearts. The abundant supply of game, namely: monkeys, wild turkeys, (quite equal to our English breed and very fat,) pigs, and pigeons, which these hunters had procured, made us quite easy as to the supply of fresh food so long as our powder and shot held out.

Tuesday, 20th.—As early as possible we were again on the move, to take advantage of the flowing tide. Passed a small stream on the west bank, by our guide called La Villa, up which he had hunted four or five miles. This was about a mile from our rancho, and half a mile higher up we were stopped by falls and strata of rocks crossing the river diagonally in several places. We had now ascended the river about twenty-two miles from its mouth; the tide appears to flow as high as this point, but only for half an hour This obliged me to land the party here and unload the boats as fast as possible; which was hardly accomplished when they grounded. In addition to a tent, a large rancho was provided on a pleasant slope on the east bank of the river and every precaution taken to ensure the safety of our stores and provisions, which were left in charge of Mr. Hornby, Midshipman, and Robert Whitbread, Quarter-Master, and twelve men, all well armed.

During this short detention I ascended the river, accompanied by Mr. Kennish, a volunteer, well accustomed to river surveys in these countries, in a piragua, (the smallest kind of canoe,) which had to be carried over the numerous falls at this point, called by our boatmen Point Chepo, some Indians of that tribe having once settled there. Alternately walking along the banks and poling in the canoe, we ascended, with some difficulty, about three miles, when the river became so winding and shallow, and so blocked up with fallen trees, &c., that we were obliged to return. In the month of July, we were told, we could have ascended two days' journey, until we reached its source. Its banks assumed a more perfect form and the debris collected on the overhanging branches of the trees gave evident signs of the height and rapidity with which its stream runs during the floods of the rainy season.

On my return to Rancho No. 1, I found all our party equipped and ready for a start with the exception of the two native volunteers of the previous night; their hearts had failed them and they remained behind with their countrymen, the huntsmen. Our work was appor-

tioned out in the following manner, which continued until our return, each officer and man cheerfully performing his share of labour:

Mr. Kennish with orders to steer a N.N.E. course, compass in hand, with three natives, Macao, Roguet, and Miguel, armed with machetas to cut the road. Proceeded myself and Mr. Inskip, Acting-Master, with small axes to mark the trees, the latter also carrying a compass to check Mr. Kennish. These were supported by Thomas Orrell, R.M.A., with his arms and thirty rounds of ball cartridge. Lieut. Moore and Mr. Gordon, Mate, with William Rolling, captain forecastle, supported by James Perkins, R.M.A., also armed, followed measuring the road and taking notes. Dr. Ross, Assistant-Surgeon, bringing up the rear with three other natives carrying provisions, &c., accompanied by Thomas Hyde, R.M.A., and George Julier, R.M.A., with their arms. To these were added, from the boat party, Robert Whitbread, Quarter-Master, Henry Robins, A.B., John Collum, A.B., and John Callan, Ordinary, for the first day or two, as our provisions were found rather too bulky to carry without additional assistance.

The nature of the country we passed over from day to day is fully described in Mr. Gordon's track chart which accompanies this, together with the daily measured distance, commencing at Virago Tree, between No. 2 and 3 ranchos. We encamped about 4 p.m., concluding we had travelled three miles, which we afterwards ascertained did not exceed one mile. This difference of opinion as to the actual distance gone over fortunately led to the measuring system; had we not adopted it we might have been greatly puzzled, so easy is it for the most experienced to be deceived, owing to the density of the forest, the labour of cutting a road, and the total exclusion of the sun and sky from the path, besides the exertion of lifting the feet so high to clear the tendrils, that, even to the last day, notwithstanding more than a fortnight's experience, we could not judge our distance correctly within one half; and Mr. Kennish, who had been for years travelling in these countries accompanied only by Indians, was equally deceived.

Wednesday, 21st.—We were able to send back two of the additional hands to the boats, viz., Robert Whitbread and John Collum; and, starting early, we were soon at work cutting our way through the bush. Halted at a large cuipo tree, upon which we cut "Virago" in large letters, and commenced measuring with a line one chain in length, which we continued until we turned our faces south again. Many monkeys were seen and some shot—a savory meal for our guides. It is a curious sight to see the old one, when frightened, run away with its young one on its back. On one occasion a full grown monkey was wounded and fell on a branch, in a moment two others came to its assistance and carried it off to a higher part of the tree. Not far from Virago tree we discovered the remains of a well. Encamped this night at rancho No. 3, estimating our distance at nearly three and a half miles from the boats.

Thursday.22nd.—Henry Robins and John Callan returned to the boats with one of the native guides (Maria) to prevent missing the road; the latter to return with a load of biscuit. At our first halt a

native climbed a tree, from whence he saw over the dense forest, "A white space like a river but no hills." The largest water course we crossed to-day with but little water in it. All the guides, with Pedro (interpreter), exclaimed, "It was the Lara." Encamped at rancho No. 4, having travelled over 219 chains: 2¾ miles, at 80 chains to the mile. The carriers complained of their loads, which were, indeed, tremendous, and also that they had not enough to eat: both complaints were attended to.

While the rancho was building, I returned about three quarters of a mile to examine what I supposed to be a river we had passed on our left hand, but it proved only a small stream. The cutting this day was heavy and all went tired to bed in our sylvan retreat. The silence of the forest at night is very striking, disturbed only by the falling of trees and branches, which often startled us, together with the cry of some animal. As yet, we have neither seen snakes, tigers, nor any ferocious animals; a good fire is said to keep them off.

Friday, 23rd.—The slow but sure progress we were making determined me to send for another week's provisions. Orders were sent accordingly for the gig to bring them from the ship, and arrangements made for a strong party to follow us up with them. Our work did not commence as early as usual; the cutting was through thick underwood and stunted shrubs, which made it more difficult to get ahead. The supply of water was less plentiful. Soon after noon a tiger approached very close to us, but soon made off. Two turkeys were shot by Maria, which proved a welcome and savory addition to our daily meal. Tracks of the wild hog and also of a large amphibious animal called the danta were seen near the streams. Encamped for the night at No. 5 rancho, having progressed 208 chains. George Julier, from a tree, saw "level land ahead, no mountains to be seen."

Saturday, 24th.—Leon and Rosero, two of our strongest carriers, having been ordered to return to No. 4, to bring up some provisions, were missing, and, not coming back at the proper time, there was no doubt of their having deserted. This obliged me to send a message to No. 1 rancho, where the boats were, to bring up three volunteers of our own men, and to promise the native guides still with us additional wages, rather than break up the whole party. The latter part of this day's cutting was heavy, over swampy ground with ditches of stagnant water. Just as we were beginning to despair of getting better ground for our halting place, we struck on a considerable river, flowing S.E., and built our 6th rancho, after making 249 chains, on its other bank, missing the fine leaves of the palm, which appears never to grow in swampy land, and in its place is found another species with thorns. Pedro, our Indian interpreter, said Indians came up this river for he saw bamboo trees, &c., which might have obstructed a canoe, cut through. This being Christmas Eve our absent friends were not forgotten.

Sunday, 25th.—I was obliged to dispatch Lieut. Moore and two of the native carriers to No. 5, to bring up the provisions left there through the desertion of Leon and Rosero; in every other respect this

was made a day of rest. Our rancho, from the nature of the palm, was not so comfortable as the others, and the mosquitoes annoyed us sadly. Here we had the first intimation of being in the territory of the Indians of the interior, three shots, during the day, being distinctly heard to the N.W., which our natives immediatly said were fired by Indian hunters. Just before sunset we heard a musket in the direction of our road and answered it, and by and by the party from the boats arrived. They had been travelling since 6 a.m. and brought good burthens with them. From them we learnt the two deserters had reached No. 1 rancho before my note, telling Mr. Hornby, by signs, that one of our party had cut his foot very badly and they were sent to the ship by me for assistance and were to take the canoe. Mr. Hornby, though half suspecting them, thought it best to let them have it. Everything looks propitious for the completion of our enterprise.

Monday, 26th.—Pioneers started early, leaving the measuring party and others to follow at their leisure, but to keep together now we were within the Indian territory. Our road lay through low swampy ground, as on the other side of the river, for about half a mile, then over several streams to undulating ground, across several hills, from fifty to sixty feet high, on which the wood was more open. On the slope of a pleasant hill we encamped for the night at No. 7 rancho, having gone 185 chains. On the summit of this hill one of the officers climbed part of the way up a tree and saw another similar hill N.N.E., so that we are crossing over a range of hills, varying from fifty to sixty feet high, running in a N.N.E. direction: this being the highest land we have yet been on. A regular watch was now kept (one officer and one man, relieved every two hours,) as much to keep the fires burning during the night as from any apprehension of the Indians.

Tuesday, 27th.—Pioneers started first, as usual, passing over the same kind of undulating hilly ground for 36 chains, which brought us to a nice stream running to the eastward. Here we fell in with the certain tracks of Indians for the first time, pronounced by Pedro to be the bare feet of men, a child, and a dog, both towards the east and west. The Indian track differs from ours inasmuch as no bushes are cut, no trees marked, and every means taken to conceal their route. Sent orders to Lieut. Moore, then at No. 7, to bring up the remainder of the party, which detained us an hour. The trees were the finest this day I have yet seen. The mahogany, fustic, caoutchouc, and the tree the natives make their canoes of, most abundant; we met also the wild thyme, quite perfuming the air, also some brilliant flowers of the fuschia kind.

At the foot of the last hill, 125 chains from our starting place to-day, we came to the largest river we have yet seen, running pretty rapidly to the eastward, two feet deep; it had more water in it than that at our 6th rancho, though its bed was not near so deep. After crossing this the ground became swampy and wet. The road was too soft and the day too far advanced so that, after crossing three other streams, flowing eastward, the palm disappearing, and it becoming more swampy as we proceeded, we determined not to attempt to cross

it that night. We therefore retraced our steps to the first high ground, which was across the largest river. Turning a short distance off the road we selected a rising ground and, though nearly dark, by the united exertions of all hands, we soon had a rancho built, No. 8, distant from No. 7 125 chains. Our sufferings from mosquitoes had been very great, but here they were increased by the additional attacks of a venomous little animal like a sandfly, called by the natives "rodadores." Fortunately they left us as soon as the sun went down, but only to have their places taken by the mosquitoes, which almost deprived us of sleep, notwithstanding the large fires kept up by those on watch.

Wednesday, 28th.—George Julier and an officer ascended a tree this morning from the summit of the hill near our rancho. The former reported a mountain and a range of hills across our path, apparently about six miles off. He also saw a gap in the range away to the right, bearing about east. The latter reports hills running in about W.b.N.¼N. and E.b.S.¼S. direction. Those to the right of our N.N.E. course seemed the highest and the nearest, about six miles distant; those ahead about eight miles; those to the left further off and not so high. Saw what he thought was a gap bearing north; could not see the gap Julier spoke of, the foliage of the tree he was in shutting out the view in that direction.

The pioneers started alone this morning, as it was thought most prudent to find a road through the swamp before bringing on the provisions, &c. On we went cheerfully retracing our steps of yesterday in hopes of overcoming the only difficulty we had yet met with, viz.: the soft black swamp about three quarters of a mile distant. Compass in hand, we steered N.N.E. and pushed through, sometimes knee deep in water, at others nearly the same in black mud but with a hard bottom for a swamp, which, together with trees growing in it, gave us hopes it would not continue far. About 300 yards of this travelling brought us to terra firma; the heavy cutting commenced and we advanced on level ground nearly half a mile, when we again found the palm and other dry soil shrubs and trees. The falling sun reminded us it was time to rejoin our shipmates who were waiting anxiously at No. 8 to hear the result of our day's work, where we arrived about 5 o'clock, having advanced about a mile beyond the swamp.

This day we again fell in with tracks of the Indians; their marks cut on a tree, but not recent, apparently to mark a spot we called "Tiger's Den," an open space of about half an acre, thickly covered with a species of wild grass, good food for mules, which we supposed had, some time or other, been cleared for the cultivation of maize or other Indian food. Here, too, we saw the clear sky for the first time since leaving the boats (eleven days), so dense was the forest we had cut our way through.

Thursday, 29th.—Our provisions running short, I thought it advisable to wait a further supply from the ship before proceeding. Maria started for game, but was not successful; since the tracks of the Indians have been discovered, he is rather timid and, naturally, dislikes

going any distance from us. While shooting on the 27th, he reported seeing two Indians and a boy in the woods, and that he had hidden from them. He said the men carried guns, the boy a bow and arrows, and that they wore shirts and short trousers, which Pedro and Macao said was so unlikely (these Indians never being clothed even when they visit towns to barter) that we did not believe his story. Future events proved him correct. Sent Mr. Gordon and a small party to No. 6 to gain tidings of the expected provisions. Some of the party employed throwing a bridge across the river, improving the road, &c., others measuring the height of the adjoining hill and tree from whence Julier observed the surrounding country, while the remainder accompanied me to reconnoitre the banks of the river. Following its course in a S.E. direction for about a quarter of a mile, we came upon a rancho which our native guide Macao, intelligent and well acquainted with Indian habits, having married one of their tribe and lived among them for some time, told us had been occupied by two men, huntsmen. It was thatched similarly to our own, differing only in the shape of its roof; which, instead of rising at an angle of 45° from the ground, inclined rather from its horizontal position, its highest part about six feet. There were, also, poles for their hammocks, a raised platform for their guns inside, and a large platform outside for drying the game, under which a fire had been. It appeared to us to have been built ten days or a fortnight. I wished to leave some beads and other trinkets as a proof of our friendly feeling towards them, but Macao exclaimed "If they returned and saw them there they would imagine some evil spirit had paid the hut a visit," and begged us not to do so. I regretted afterwards having followed his advice. There were some indistinct marks of a canoe having ascended the river as high as this hut during the summer season, but only an Indian eye could detect them.

About 3 p.m., Mr. Gordon returned from No. 6 with the welcome intelligence of our provisions being safely lodged there, with the exception of bread, and a note from Mr. Hornby saying he had returned to No. 3 to bring on the remainder. Rolling, with three men, Windsor, Robins, and Lower, was immediately dispatched to No. 6 with orders to sleep there and bring them on the following morning.

Mr. Inskip, with a party of our native guides, was occupied this afternoon in throwing bridges across the streams and otherwise improving the road already cut before us. The return of Mr. Gordon relieved me from all anxiety as to the Indians disturbing our ranchos in the rear or in any way cutting off our retreat. News was received from the ship as late as Christmas Day, when all were well, watching our progress with interest. And a certainty of a further supply of provisions being at hand gave us hopes of being able to push on towards the other side without more delay. Many jokes passed on receiving the first post between a port in the Pacific and our rancho on the Isthmus of Darien, centuries having elapsed since any white man had trodden on these parts, certainly not since the days of the buccaneers.

Friday, 30th.—The pioneering party left early this morning to con-

tinue our road cutting; the remainder had directions to join us as soon as Rolling and his party returned. Retracing our steps we soon reached the point we had left off at on the 28th. From No. 8 to the swamp, one mile and a quarter; distance across swamp, quarter of a mile; length of road cut beyond, half a mile. I would again remark the extreme difficulty we experienced, both in going and coming, in forming any correct estimate of the distance travelled over. Though only two miles and a half it appeared to us, in moderate bounds, to exceed five miles. To proceed with our route: the nature of the forest became quite changed; instead of the small underwood we came on almost impenetrable thickets of the prickly palm or aloe, rather more than six feet in height, through which we, with great difficulty, cut our way for three quarters of a mile, remarking that if the Indians had wished to cut off all intercourse with the Pacific side they could not have hit upon a more effectual barrier.

The total absence of all underwood, together with the thickly spreading roots of large trees and the rich nature of the soil, made me fancy the whole of this belt of land had been once under cultivation; and the discovery of a large river, not half a mile distant, partly confirmed this view. The ground was almost level, with occasionally a rise of a few feet, between which generally a small stream ran. At last we came to a small gorge between two hills, (that on our right about thirty feet high,) through which ran a small mountain stream, due north. This gave us great joy, as we immediately pronounced it to be the Caledonia. In its bed we found stones: the streams hitherto met being generally over a bed of soft clay. On the right hand hill we encamped for the night, making our No. 9 rancho distant from No. 8, 283 chains.

Saturday, 31st.—Started as usual, the pioneers ahead, in high spirits believing we had entered the Cordilleras and that we should soon be rewarded with a sight of the sea, more anxiously looked for by us than ever was the Pacific by Nunez. Having reached more undulating ground, we lost the prickly palm which had so delayed our progress, crossing two mountain streams, flowing W.N.W., which evidently joined that of yesterday; then ascending a hill about thirty feet high, from whose summit, being partially clear of trees, we fancied we saw the sea. Descending the side of the hill, covered with large stones, evidently washed by water, we came upon a noble river, flowing swiftly towards the E.S.E., so suddenly that the foremost cutter almost fell into it; another certain proof of the density of the woodland country. This discovery quite puzzled me. The size of the river, 100 feet broad, apparently too deep to ford even at this time of the year, the rapidity of its current, nearly three miles an hour, with its fine banks, plantations of bananas and plantains, were certain signs of its being the Chuquanaque, which, by the Spanish charts and other public maps, we ought to have left some distance to the eastward of us, steering the course we had from the Savana. I felt still more anxious to explore the hidden resources of this part of the Isthmus, so long and so successfully shut out from the enterprising exertions of

white men since the days of the Spaniards,—its inhabitants even then, as now, unconquered,—and felt it especially my duty to prosecute to the utmost the object of my orders, viz.: the practicability of uniting the Atlantic and Pacific Seas by a ship canal.

The officers and men under my command were but a small party, still they had proved themselves ready and willing to endure fatigue and privation of every kind to accomplish the object we had in view. The season was most favourable, our present supply of provisions was adequate for all we required, and such arrangements had been made that an additional supply was to be found at the intermediate ranchos. From the Indians I believed we had nothing to fear, though their tracks had been seen; they, apparently, avoided all our parties and left untouched the various depots of provisions as well as property often left on trees in the middle of the path; and this opinion was confirmed by our Indian interpreter, as well as all our native guides, who knew their habits and customs. My great desire from the beginning was to fall in with them, and obtain through our interpreter (himself an Indian) such information as they alone could give us. With this determination we pushed on towards the westward, along the banks of the river, to a more open space, distant ten chains, where there was evidently a ford. Here we determined to build our 10th rancho; but, being early in the day we followed on another quarter of a mile, hoping to meet some huts or a village, without success, though the country about the banks was open and pleasant. Here we held a council of war: Pedro (the interpreter) and Macso proposed following the river still higher up, believing they must fall in with some inhabitants. To this I gladly acceded, and proposed to add two of our number, volunteers, Messrs.. Inskip and Gordon. We returned to our first halting place on the river and encamped for the night at No. 10.

Sunday, 1st January, 1854.—By measured distance we had advanced nearly twenty miles in a straight line from our point of starting on the Savana, near La Villa. If former reports are to be relied upon, this must place us only a short distance from Port Escoces; still, knowing the difficulties we had to contend with, I hesitated to give the order to *go forward* until the return of the party in search of the Indians and the examination of the country the other side of the river. To accomplish the latter, our pioneers crossed early by the ford, not more than two feet deep, cutting our way through a plantation of bananas and plantains which had been growing wild for some years. Here we felt the full power of annoyance which the insignificant little sandfly is able to inflict on those who invade its territories. The wild vine grew so thick round this plantation that we had some difficulty in getting through it. Every care was taken to avoid giving offence to the Indians, and positive orders given that no fruit, ripe or unripe, should be picked.

Crossing several steep but small quebradas and broken ground cut up by small streams, emptying themselves into the main river, we reached the foot of a hill, about eighty feet high, covered with fine timber, over which we crossed; then a steep descent to a mountain

torrent or small river flowing N.W., another tributary and a very considerable one in the rainy season. It was a lovely spot, entirely free from mosquitoes, &c. Reaching the summit of another hill, about 120 feet high, the view became rather open and clear towards the N.W. Turned in that direction. While resting, sent our native guide Maria up a high tree on the brow of the hill. He reported a distant view of the sea in that direction (N.W.), with hills on his right and the river we had left in the morning winding its course from the westward as far as he could see.

In consequence of this report we altered our course to N.W., descending steeply the other side of the hill we had just mounted; crossed several mountain streams in the same direction and reached a high point; whence, from the highest tree, we discovered a river at its foot. A rapid descent led to it. Found it on our left hand flowing from N.N.E. to S.S.W., about ninety feet broad, along a valley between two hills, 105 chains distant from No. 10 rancho. The day being far advanced, we thought it prudent to retrace our steps "homewards," reaching No. 10 not long before sunset, and had the happiness to find all our party collected together to welcome us back. Messrs. Inskip and Gordon had returned without falling in with Indians, having followed the course of the river three and a half miles continuing its north-westerly direction, varying but little in size and depth and strength of current, but its banks steep and precipitous—at least 300 feet high. The remainder of our provisions had also been brought up from the other ranchos.

From the nature of the country I had passed over this day, I felt convinced of the necessity of altering our style of travelling. Men with heavy burthens on their backs could not climb the steep and slippery hills of the Cordilleras nor wade through rivers, so it was agreed that each officer and man should carry his own four days' provisions and the remaining provisions, with all unnecessary clothing, stores, &c., should be left at No. 10 rancho, as a depot for the advancing party to fall back upon, in charge of an armed party. Such had been the hearty co-operation I had invariably received from officers and men since the first departure of the expedition, and such the enthusiasm displayed by all to share in every danger and difficulty that might lead to the success of the object in view, that without being unjust I could not make a selection. Accordingly, lots were drawn who should remain to form the guard and they fell on Thomas Hyde, R.M.A., James Perkins, R.M.A., Henry Windsor, A.B., and Henry Robins, A.B. Unfortunately the health of our Indian interpreter Pedro was such as to oblige me to send him back to the ship by easy stages, accompanied by Mr. Robert Nelson, who had joined us as a volunteer, it being probable his services would be useful as a Spanish interpreter. These two were given in charge of Robert Whitbread, Quarter-Master, and William Barnes, R.M.A., who also conveyed orders to Mr. Hornby to communicate with the ship and bring up a day's provisions at No. 6 for our return route. Having made all necessary arrangements and

given my final instructions to the party to be left in charge of No. 10, we only waited for daylight to cross the river, trusting in Providence that we should be allowed to see the Atlantic, and, through His mercy and protection, return in safety to rejoin our ship and shipmates.

Monday, 2nd.—We left early this morning, fifteen in number, including four native guides, with light loads, hoping the densely wooded forests would supply us with both food and lodging. Hitherto we had been greatly favoured, no individual of the party had complained to the Doctor, none had suffered; so far, his was a sinecure, but as a Commissary his exertions often called forth our warmest thanks. We soon reached the beautiful river of yesterday, and followed its course for eighty chains, sometimes in its bed, about knee deep in water, at others cutting our road along its banks, clothed with fine overhanging trees, until it became tortuous, winding away in a more westerly direction, when we ascended its eastern bank and cut our road over several small hills, with quebradas between them, through which ran a stream towards the main river. Striking this river again we crossed it, flowing then more easterly. Here we came upon a rancho building on the west bank; some of the party declared they heard the axe at work, which ceased immediately we appeared A huudred yards further along, on the opposite bank, was another Indian hut, but apparently deserted; near it a tree almost chopped through, the marks very fresh. We observed also a curious hole which appeared to us like a grave, but our native guides said it was made by the conejo or wild rabbit. Continuing our N.N.E. course, we crossed over a high hill, and on our descent struck another river flowing to the N.W. ascending then along a ridge for twenty-five chains, we encamped for the night at No. 11 rancho.

Tuesday, 3rd.—The early part of this day we had climbing enough, crossing several deep ravines whose steep and slippery sides caused many a tumble. However, we cut our way through all in a N.N.E. direction, and, about noon, reached the summit of a hill estimated by us at 800 feet high. Even from here we could see nothing of the surrounding country, so dense was the forest, until George Julier mounted a high tree where, on his right or to the eastward, he saw a three peaked mountain very distant and hills in our course not so distant. Not long after this, having ascended considerably, we came to a river flowing N.b.E., which cheered us on, concluding it must eventually fall into the Atlantic. Crossed this, having travelled 144 chains from No. 11. Ascending gradually over high undulating ground, we came at last to a spot from whence there was so abrupt a descent, forty-five chains from the last river, that we could almost see the surrounding country.

There was no restraining the enthusiasm of our party as they approached this spot, it even extended to the native guides, one and all rushed to the top in hopes of getting a sight of the Atlantic. For a description of the prospect seen I beg to refer to the chart before alluded to.

As sunset was fast approaching and we were still some distance from water, we had to turn our attention to a spot for encamping. The descent into the valley beneath was too abrupt to attempt, so we followed the ridge downwards twenty-five chains, which brought us to another river in a most picturesque situation, flowing S.W. Here we built our 12th and last rancho. Total distance measured twenty-six miles fourteen chains from rancho No. 1.

Wednesday, 4th.—Finding ourselves in the centre of the Cordilleras, though I believe within a very few miles of the object of our search, and having already exceeded the limit of my stay, it became my duty to rejoin the ship without delay, feeling confident that, had time and our provisions allowed us, we should have eventually reached the Atlantic shores, and that easily, by following one of the several rivers or streams which appear to exist in this range of hills, forming certain passages to the sea. We now retraced our steps to the river we had crossed yesterday, flowing N.¼E. Leaving one half of the party there with directions to build a rancho for the night if we did not return before 2 p.m., we pushed on, following its course, to ascertain as best we could in what direction it ran.

Our guide Macao led us some distance from the stream to avoid its windings, not that he had ever seen it before but from the intuitive knowledge he seemed to possess, and when we came upon it again a grand and magnificent sight was before us. Precipitous rocks, causing a fall of at least 150 feet in something less than a quarter of a mile, in which, even at this season, was a beautiful waterfall and several deep pools finding their way through, not over, the masses of rock around them, the richly clothed hills, verdant with the finest forest trees, and above all the perfect solitude, perhaps never before broken by civilized man, made us believe ourselves already repaid for our labours. Our guide thought the stream too precipitous to follow, so we ascended one of its overhanging hills and from its summit commanded a view tolerably clear towards the S.W., over an apparently level country, but too distant to distinguish its true nature; in fact, the trees were so thick, though we cut down several that stood most in the way, that, quoting the words of one of the party, "it was like looking through a window." The passage the river might take towards the N.E. was very indistinct.

Descending from this point at a very sharp angle, we came again upon the river, flowing south-westerly, which we followed until it took a turn W.S.W. between hills rising very high on both its banks, when, finding it very difficult to follow, we returned to the remainder of the party, feeling sure it did not run through the passage we had supposed it to do the previous night. Many fine fish were seen in it, which Macao endeavoured to persuade us were only found near the sea coast. Our party had just began a rancho for the night, but, having plenty of daylight, we passed on to No. 11; which we found undisturbed and the fire still burning.

Thursday, 5th.—Started off at early dawn hoping to reach our

depot, No. 10 rancho, in good time to rest and enjoy a fresh and cooked meal, half allowance of pork with biscuit having been our mountain fare. Returned by our old road without meeting with anything worthy of notice except that, in wading through the river as before, we missed our mark for crossing over the hills; and following the stream lower down it gave evident signs of emptying itself soon into the main river. Lieut. Moore and a party preceded us to prepare our morning meal. We reached the river (Chuquanaque), crossed it by the same ford, and when I arrived at the rancho, to my utter astonishment and dismay, I found all the party gone and all our provisions and stores disappeared, with every sign of the hut having been ransacked.

At first I concluded the guard we had left behind had gone back to No. 9 (only a quarter of a mile distant) as the fire was still burning strongly; but Lieut. Moore told me he had already been there and could see no traces of them, but, on his return from No. 9, had found in the pathway, within a stones throw of it, about 25lbs. of biscuit.

This gave me certain hopes that our men had left rancho 10 in safety, having been alarmed perhaps, and retreated towards the boats. Our native guides searched in vain for traces of an Indian attack or even of their footsteps. Though much alarmed on this account, we pushed cheerfully on, hoping for the best and trusting in the same Providence which had so wonderfully preserved us throughout our journey.

Rancho No 9 was soon passed and, in Indian file, we came to the swamp and there plainly distinguished the marks of Indian feet. Still we were undisturbed, and had reached within a quarter of a mile of No 8 rancho when, to my horror, in taking a short turn in the road, I came suddenly upon the bodies of three of our shipmates, Thamas Hyde and James Perkins, R.M.A., and Henry Windsor, A.B., lying in the pathway, brutally, cruelly murdered! My first impression was they had fallen down exhausted with the weight they were carrying (for each had a load of provisions), so unprepared was I for this sad termination of all our hopes. But I was painfully undeceived, and the melancholy proof of the cold-blooded murder was too evident. Apparently the men had not moved, but had died without a struggle in the act of falling to the ground mortally wounded by gun shot wounds, fired on the left hand side of the road, from an ambush, the density of the forest here, as anywhere else, making every tree a hiding place as well as shelter for as many Indians as chose to collect together. Their bodies were in a sad putrid state, appearing to us to have been dead about forty-eight hours. Nothing had been taken from them but their muskets, not even their ammunition or bayonets; a quantity of rum carried by Hyde was untouched though the bung of the barrel was out. Not a trace could we see or find of poor Robins. The half of a bag of biscuit was standing about two yards from the bodies with a pair of shoes near it, placed with the front part in an opposite direction to that they were going: in one of them a small

packet of medicine which Dr. Ross had left secured in a small tin box with his case of instruments in No. 10 rancho. We looked around in vain for his body on both sides of the path, nor could we distinguish any marks of blood. Nobly had they fallen in obeying the last orders they had received from me, their last thoughts, apparently, the preservation of our provisions. The cause of their deaths will ever be a mystery unless Robins still remains a prisoner in the hands of the murderers and, at some future period, is able to make his escape and tell the tale.

To linger in the neighbourhood of this dangerous ambush was only risking other valuable lives, and although we all desired in our hearts, as the bodies of our murdered shipmates lay before us, to perform the last duty of giving them Christian burial, we had not the means; and, believing it probable that the Indians had only gone back to collect a stronger force and cut off our retreat, and that they might at this moment be pursuing us, we turned from the sad heartrending sight and continued onwards. Painful as this was, the alternative was to risk the lives of all the party in my charge for no adequate object.

At No. 8 rancho we found the few stores and provisions we left there untouched, the Indians had not advanced so far; still we were liable every moment to the same unseen attack, had such been their object. Our only resource left appeared to me to push on to the boats by forced marches, taking every precaution as we went along to prevent a surprise. My fears for the safety of those left at rancho No. 1 were not allayed until we reached No. 6, where we found a day's provisions, letters from the ship, and a note saying a strong party had left that rancho only a few hours previously to our arrival. Sunset came and found us still on our melancholy march; how different from the enthusiastic feelings with which we had trodden over the same ground on our outward course. The moon lighted us to No. 5, where we arrived about eight o'clock. The recollection of that night will ever be in the memory of all the party. Without a fire or a light we lay down, after marching sixteen measured miles, not to sleep but to listen for the slightest sound which might tell of the approach of the murderers of our faithful shipmates.

Friday, 6th.—As soon as we could distinguish the bushes we were on the march towards the boats, which, by a merciful Providence, we were enabled to reach about eleven o'clock, and found all well. The tide was out, and we were unable to leave until 10 p.m., but the good food and rest we enjoyed in the interval set us up. We reached the ship about 2 a.m. of the 7th, much refreshed in body but sad in heart and spirits.

Provisions were left in the different ranchos in the vain hope of being useful to poor Robins, in case he should make his escape. Once on the Savana River I believe his life is safe, as hunting and wood-cutting parties are there every week from Chapigana, La Palma, and other settlements. Fain would I hope his life was spared, but, in the mercy of such cold-blooded murderers, is there any hope? It is a

painful task to me to sum up our successful exploring expedition with the loss of such valuable lives; cut off, in the prime of life, in the most sanguinary and cruel manner. That such an event was beyond our control I need hardly remark, feeling satisfied that every precaution which prudence and human foresight could suggest was adopted by us. Far from dreading the Indians, we sought to meet them on every occasion and, strange to say, such was the desire of our native guides also; and I was prepared with presents of trinkets, &c., to conciliate their good will and, if possible, obtain from them by treaty full permission to survey their unconquered territory, as they acknowledge no superior authority, paying tribute to none. Their true character can be little known, and those of our countrymen, if any, who have resided among them must have been sadly mistaken in them.

[We understand that Mr. Gisborne, after a general meeting of the parties present in Caledonia Bay, and the principal Indian Chiefs, was provided by them with a guide named Robinson, who was also one of the native chiefs, and accompanied by Lieut. St. John, succeeded in traversing the isthmus from that point. Crossing the River Chuquanaque they passed through several native villages, in which they were received in a friendly manner, from the presence of their guide, who had guaranteed their safety previous to setting out. They soon fell on Commr. Prevost's road, and found the bodies of the three unfortunate men of his party, who had been shot by the natives under the impression that all white men were Spaniards, for whom they entertain the most inveterate hatred, from the cruelties with which their forefathers had been treated by them. It is satisfactory to know that this hatred is confined to the Spaniards, and that in the few dealing they have had with the English, excepting the unfortunate affair of Capt. Prevost's men, they have hitherto expressed great friendship. It is some satisfaction also to know that the bodies of these men were decently interred. A desire also for their musquets is stated as another motive which induced the Indians to act as they did, and their alleged dislike to touch a corpse as well as the fact of every thing being left about them, seems to confirm this. After proceeding in the *Virago* to Panama, Mr. Gisborne embarked for England. It is also stated that a party from the *Virago* are directed to proceed up the River Chuquanaque, with the view of exploring it, and they may possibly penetrate sufficiently high up the river to the part where it is supposed Lieut. Strange, with a party of men from the U.S.S. *Cyane*, have perished from want of provisions. We trust to hear of no more such sacrifices of life, and that the friendly feelings of the Indians will be secured; and shall look with much anxiety for the survey of the bay and port of Escoces, which is in course of proceeding by Mr. Parsons of the *Scorpion*, as well as Lieut. St. John's map of the isthmus. But from Commr. Prevost's journal, as well as the American account, we have faint hopes of any canal being ever constructed even to the Chuquanaque River, should this be found sufficiently deep to be navigable.]

The following is an extract of a letter just received from H.M.S. *Scorpion*, in Caledonia Bay, dated March 4, 1854. "Having just heard of a chance for letters to Cartajena by a new arrival, I hasten to give you a slight insight into the present operations of the Darien expedition.

"Of this place or port as a terminus for a ship canal, it will do very well; rather limited, but capitally sheltered by a line of islands, on a barrier reef, with every advantage for wharves, &c.; but of the country with regard to

the cutting, I think its best friend is mistaken, for instead of finding 150 feet summit level, he has to cross 600 feet several times; this is rather different to what is stated in a book, said to be taken from Dr. Cullen: it is probable that the author *never* crossed the country The first party, with Mr. G. at the head, tried to get across, but could make nothing of it, and travelled about in a tortuous course for a week, and then suddenly came out where they had started from. He then persuaded an Indian to go over with him, and left about a month back; and we were all supposing they had suffered the same fate as the *Virago's* men, when a couple of days back the guide returned, saying, he had reached the Savana, and would be round in a few days from Panama, when we shall know the ultimatum.

"The American party have been gone forty-five days; and as they left with eight days provisions, and in a short time threw away their guns, it is probable that they are starved out in the bush, or been quietly put out of the way by the Indians. Although, in the latter case, I think we should have heard something of it, for the Indians do not try to wave the question of the *Virago's* men, but state that they found a party travelling through their country without permission of any one, and taking them for Spaniards, the chief ordered them to be disposed of.

"There are many conflicting interests in this place, for and against the grand question. The English party are of course all for, the Americans all against, as it would entirely do up the Panama railway; while the Granadians, with a Colonel at the head, who possesses land adjacent to the Atrato, is strongly possessed with the advantages of that route. But I think if they do not cut it here, there is no other place with any decent ports to be found made on both sides, although the land party do not seem to consider this point of much consequence, when to most people, who understood shipping affairs, this would seem the primary consideration; for a hill of 5000 feet or so may be cut down, quarried, or got rid of in some way; when a harbour, to be manufactured would be quite another affair.

Pitcairn Island.

[By the following report and journal of Pitcairn Island, it will be seen that these interesting people still maintain their high moral character; and that the Rev. Mr. Nobbs is held as affectionately as ever in their estimation, although his absence might have somewhat perilled their feelings towards him. Their rapidly increasing numbers now render the produce of the island barely sufficient to support them, and allows but little, even with the liberal supplies given by Her Majesty's government, and yet larger by private friends, to exchange with the whalers for other necessary articles, showing that the time has arrived when some measures should be taken for their future welfare. The subject, we have no doubt, will receive the attention it demands.]

On the 29th September, 1852, parted company with the *Portland*. We cleared the anchorage at Valparaiso, and found a strong coast wind from the Southward, which enabled us to make the island of Ambrose on the third day afterwards, when we continued our course to the W.N.W. till in the latitude of 22° S., and having then a brisk trade wind we hauled more to the Westward, with every prospect of making

a rapid passage to Pitcairns. The trade wind, however, failed us shortly after, and we were compelled to stand again to the Northward, and reached as far as 20° S.; every attempt after that to get to the Northward was always accompanied with the loss of the trade, and even light westerly winds, so that it was not till the evening of the 2nd November that we were enabled to run up to Pitcairns.

The chief magistrate with a party then came off from the shore to welcome us, and remained on board all night, and were truly grateful at the many tokens of remembrance from Admiral Moresby, Captain Chads, and the *Portland's* officers and crew, together with all the presents from their friends in England and Valparaiso. Their devoted loyalty on receiving the picture of the Queen was most gratifying. They were busily employed on the next and following days in landing the cattle and packages, &c., many of which were very large, and had to be opened and taken piecemeal through the surf. This was done with great alacrity, although two whale boats and twenty-four hands were absent in freeing a whaler with fifteen feet of water in her hold, that had been scuttled by a couple of wretches of the crew, with the intention of sinking her off the island. Her fate was doubtful for some time, but gaining upon her at last they succeeded in stopping eight auger holes of one and a half inch bore, thus giving another proof of their readiness to help all who are in distress around them.

On landing I was met by the whole population, with their highly esteemed and reverend minister, Mr. Nobbs, at their head; and I am happy to add, that owing to the supplies left by the *Portland* last May, they had speedily recovered from the effects of the famine which had prevailed, and, with one exception, the whole island was in perfect health.

During my stay on shore the inhabitants were assembled by me, and in compliance with the admiral's order, informed them that their memorial relative to Norfolk Island had been forwarded from Callao last June. His kind and affectionate caution relative to excess during the visit of ships of war was also read, and it is gratifying to know that during the *Dido's* stay, with the exception of a single glass of wine to drink the Queen's health, they abstained from taking all wines or spirits. It is impossible, however, to disguise the intoxicating delight with which the presence of a British man-of-war inspires all, both young and old.

I took the opportunity of attending their divine service on Sunday, when the whole adult congregation received the sacrament from their minister, Mr. Nobbs; and it cannot but be gratifying to all who are interested in their welfare to know that their respect and attachment to this gentleman, since his return amongst them as their ordained minister, beloved as he has ever been by them, are, if possible, stronger than ever. All, indeed, were perfectly aware of the additional advantages which his ordination has conferred upon them. The person who had the medical charge during Mr. Nobbs' absence still continues to perform the duties which he undertook, yet every case is superintended

by Mr. Nobbs himself. On our arrival we found he had a patient suffering from ovarian dropsy, and during our stay he had to attend a young woman nearly burnt to death, and a premature birth; and although our surgeon, or his assistant, was soon after in attendance, to whom he resigned the cases, yet everything had been done by Mr. Nobbs that their professional experience could approve, and all appeared unanimous that no one could be better adapted to their general wants.

With reference to provisions, their yam harvest had been a fair average, but owing to a long drought, great fears were entertained for the potato crop, on which they are equally dependant. One whaler only had been supplied for the year, yet there was not in the island a single yam, potato, hog or goat, available for traffic, although they would exchange them for an equal amount of nutriment in biscuit or flour. Their famine has taught them a good lesson, for in many houses small parcels of biscuit might be seen tied up to the beams to await their pending scarcity; all which circumstances induced me to leave the supplies, with directions that they were to be reserved for the contingency.

It has long been their custom to leave any case at issue for the decision of a captain of a man-of-war as a final appeal. One only was found left now to be decided. It had previously been before a magistrate and submitted to a jury, and on my confirming the opinion of their own tribunal, they all shook hands immediately.

I must be allowed to add my testimony to their already established reputation for morality and virtue. With the scriptures daily, even hourly, in their hand, it is impossible that any people can act from higher principles or purer motives, and all their impulses happily appear for good, while their goodness ever inclines them to judge charitably of the faults of others. But so simple and confiding is their nature, that any designing person thrown among them might easily destroy their peace and harmony. It has never been my lot to witness a community more entitled to admiration and respect, and with this estimation of their character it is impossible to separate the credit that is due to Mr. Nobbs, who has been their friend and teacher for twenty-five years, and is now happily their spiritual guide and minister. Mr. Nobbs is now deprived of the assistance of his three eldest sons, and his declining years are ill adapted to supply the increasing wants of a numerous young family; and if his frugal, and often scanty meal, which must ever be produced by hard labour, is considered, any addition that could be made to his salary would enable him to increase his sphere of usefulness, and enhance the respect that is now due to his sacred calling. A glance at the public records of the island will show the delight experienced at Mr. Nobbs' return. He is welcomed back in the words, their "*worthy Pastor, and dear, kind friend.*" These will evince their feeling towards him better than any comment that can be made here.

Previous to our departure on the 7th November, they assembled on the quarter-deck of the *Dido* and sang our national anthem. The

interesting scene being concluded they left us, and we proceeded to replenish our water at the Gambier group.

Copy of the Pitcairn Island Register, between the 15th May and 5th of November, 1853.

Sunday, 15th May.—Light winds from the N.E.; a sail was seen in the morning coming from the eastward bearing down for the island under a crowd of sail. At half past 12 she had neared the island sufficiently for the boats to go off to her, which was immediately done. The vessel proved to be the *Portland*, and we had once more the satisfaction to welcome the (to us) dear and gallant old Admiral Fairfax Moresby, and our Pastor, the Rev. G. H. Nobbs, to our island home. She also brought back the son and daughter of our worthy pastor, the former of whom had been absent nearly four years. We were truly rejoiced to see those dear and good friends, who have done so much to promote our comfort and happiness, and we hope and trust we may ever deserve their unmerited kindness and regard. Divine service was performed during the evening, and our humble church was honoured with the attendance of the fatherly old Admiral and his officers. The Rev. Mr. Holman preached a farewell sermon to the community, which deeply affected, and will long be remembered by them. Text from 13th chap. ii. Cor., 11th verse.

Monday, 16th.—The community busily engaged landing the various presents to them from their untiring friend and benefactor Admiral Moresby, and others in Valparaiso and England, to all of whom we feel truly thankful.

Tuesday, 17th.—To-day at 12 the Admiral assembled the people, and addressed them on various subjects, principally relating to the internal regulations of the island.

Wednesday, 18th.—This morning the Admiral avowed his intention to sail in the course of the day, and in consequence all was bustle and preparation. The Rev. Mr. Holman took an affecting leave of the community at 2 p.m., and embarked in one of the island boats, accompanied by many of the islanders. At 3 p.m. the dear old Admiral embarked, after taking leave of his sorrowing friends on Pitcairn Island. He was rowed aboard by a crew of the islanders, who after being hospitably entertained by the officers, took a final leave of their generous friends and returned on shore.

Thursday, 19th.—Several of the people were attacked with influenza.

Friday, 20th.—The epidemic rapidly spreading, many very ill. Henry Chads Christian born.

Wednesday, 25.—The majority of the people seriously ill, and unable to help themselves.

Saturday, 28th.—Rainy, and very thick weather. About 10 a.m. a ship was reported in sight to the westward; 12 the ship seen from the village, and instantly recognised to be the *Portland*. After some

hours a crew of invalids pulled off to her. The gallant admiral and his worthy and generous officers, when made aware of the condition of the islanders, expressed much concern, and did all in their power to relieve them. The boat did not return till the following morning. The admiral very kindly sent a surgeon on shore to attend to the sick, and with almost unexampled generosity, he with his officers sent a quantity of biscuit, sugar, tea, &c., &c., to alleviate, as far as lay in their power, the sufferings of the afflicted islanders. At sundown the good ship *Portland* left us, we fear for ever. May our Heavenly Father ever preserve her and her gallant crew from all the dangers of the sea, and from the assaults of their spiritual and temporal enemies, is the prayer and earnest wish of the community at Pitcairn Island.

May 31st.—Elizabeth Holman Adams born.

June 20th.—Thomas Buffett and Louisa Quintall, and Fletcher Nobbs and Susan Quintall married.

28th.—John Moresby Acland Quintall born.

August 9th.—William Henry Holman Christian born.

13th.—Rosalina Amelia Young born.

September 5th.—Earnest Heywood Christian born.

19th.—Sarah McCoy had a severe fall, by which she broke her collar bone and fractured her jaw.

21st.—Sarah M'Coy suffering much pain.

October 5th.—Sarah M'Coy almost recovered.

16th.—George Henry Parkin Christian born.

November 2nd,—About 4 p.m. a sail, which was immediately pronounced to be a man-of-war, was seen coming from the eastward. The whale boat was immediately manned, and after a few minutes hard rowing some of the islanders received a hearty welcome on board H.M.S. *Dido*, bringing to the community some more tokens of the kind regards of their untiring friends abroad, more especially Rear-Admiral Moresby and his benevolent officers. Nothing could exceed the kind treatment which the islanders received from the captain and officers of the *Dido*.

November 3rd.—This morning at daylight a sail from the eastward made its appearance; she proved ultimately to be a whaler which left us on the 1st inst. She had returned to obtain help to free the ship from water, let in by some of the crew, who had attempted to scuttle her. They had so far succeeded in their diabolical designs upon the vessel, that had it remained half an hour longer undiscovered, she would have sunk. At half-past 10 Captain Morshead landed with a party of his officers, who were so kind as to remain all night.

November 4th.—The people busily employed landing the articles from the *Dido*. Those who went to free the whaler succeeded in doing so after twenty-four hours' hard working at the pumps.

6th.—The people succeeded in landing safely all the goods from the *Dido* at 3 p.m.

[In our volume for 1852 will be found a former Register of Pitcairn.]

Further Observations on St. Paul Island, Indian Ocean.

Continued from our February number.

St. Paul Island is unquestionably the product of the now extinct submarine volcano, the enormous crater of which is quite sufficient to have ejected materials enough to form an island of much greater dimensions. The geologist finds a difficulty in designating the various volcanic products which pass insensibly into each other, and which, although much alike in ultimate composition, are yet modified in the strangest manner by the degree of heat to which they have been subjected, the continuance of that heat, and the mode of cooling. A dark compact crystalline, amorphous, basaltic lava constitutes the base of the island, or, at least, is the lowest rock which is exhibited, and above this the various kinds of vesicular and cellular lavas, volcanic tufas, scoriæ, and ashes are arranged normally in strata which dip from one common centre. Among the other volcanic products of St. Paul are pummice and obsidian in small quantities and not *in situ*. There is no reason to suppose St. Paul to have been an active volcano during the present epoch. That the small lateral tumuli seen in various places round the margin of the island were formed before the large crater had ceased to be active is shown by a geological section in my journal, for the sides of these small craters are flanked by horizontal depositions of black or brown shaggy scoriæ. The island still shows signs of latent volcanic energy in numerous places from the margin of the crater upwards, and also on the outer slope of the island, where there are many thermal springs and crevices whence gaseous exhalations, at a high temperature, are given out.

The island supports a very scanty vegetation, consisting chiefly of grasses and a rush, but is destitute of a single tree or bush. The indigenous plants are not more than eight or nine in number, exclusive of three forms, a club-moss, and a dozen or so lichens and mosses. Various plants and weeds introduced into the island have now covered large tracks of ground; particularly a well known English grass. The men residing on the island during our visit had a considerable quantity of land under cultivation, in small terraced patches among the great loose stones and blocks of rock on the steep inner slope of the crater; where alone the violence of the winds admits of the growth of vegetables. The rich dark soil there consists of disintegrated lava and volcanic ashes mixed up with decomposed vegetable matter derived chiefly from the decayed roots of grasses growing in great tufts, and plentifully manured by the dung of birds. Amongst the plants cultivated successfully and without any additional manure to that already contained in the soil, are barley, wheat, potatoes, cabbages, beans, peas, carrots, turnips, and artichokes; all of which I saw growing.

With the exception of some seals, there are no indigenous mammalia upon St. Paul Island. Sperm whales are said to be scarce, and to appear off the island at irregular intervals. The right whale (*Balæna*

Australis) annually resorts to the neighbourhood of St. Paul in July, August, and September, to bring forth its young. The domestic mouse of Europe has begun to spread over the island. Some house cats also have run wild, and their progeny are now numerous. There are many pigs running wild on the island, besides a number of goats originally introduced eight or nine years ago.

According to Roure there are no land birds on St. Paul Island. The sea birds are the albatross, three species of tern, of these one is a black-billed species, which does not appear to be common, another is red-billed which we had also met with at Tristan d'Acunha: it arrives in July and leaves in March. Antarcticus, ponte mauve, is abundant at this island, where it lives chiefly on the whale bird, but also takes off young rabbits, chickens, &c., and feeds on carrion of every description. By far the most common bird upon St. Paul is the whale bird, which arrives there the end of June and leaves in March following. We had an opportunity of observing its mode of feeding, which explained the use of the curious mechanism of its mouth. On shore the ground was everywhere perforated by the holes of this bird. We found them breeding in crevices, under rocks, and among loose stones, and they even make burrows in the earth. They lay a single white egg, of large size in proportion to the dimensions of the bird. The giant petrel breeds among the rocks on the inner slope of the crater. The penguin is very abundant; it lays two eggs upon a few blades of grass, which can scarcely be said to constitute a nest. The penguins arrive in July, immediately commence breeding, and, after moulting, young and old leave the island between March 20th and April 1st. The only other bird frequenting St. Paul, and, during its stay, the only feathered inhabitant of the island, is a black petrel the size of a pigeon. It arrives in March and April, makes a hole in the ground and lays a large white egg.

According to Roure there are neither lizards, frogs, nor snakes upon St. Paul Island.

The four kinds of fish of most importance, and those which the people of the island catch for salting, are: 1st., Cabot, a large cod-like, grey and spotted, spiny-finned fish. 2nd, Moru, a polynemus two or three feet in length, with greenish longitudinal bands. 3rd., Tassar, which I did not see. 4th., Poisson-bleu, a polynemus, a foot long, of a blueish or greenish colour, with seven dark vertical bands and having one of the pectoral rays prolonged an inch beyond the fin. This last was the most plentiful fish at our anchorages, and it also swarms in the crater and about the shores.

The most remarkable crustacean about St. Paul is a very fine and, apparently, undescribed palinurus or crayfish, found everywhere from the water's edge to a depth of thirty fathoms. Among the stones of the breakwater, between tide marks, three species of sphœroma and an idotea were found. Porcellio tristensis swarms everywhere over the island, under stones and about the roots of grass. A large oniscus inhabits the rocks by the shore, where it feeds on decaying animal matter. Insects are exceedingly few in number of species.

There appear to be no land shells on St. Paul Island, and there are

not many marine species, as frequent careful searching produced only fourteen kinds.

Our February number contains the account of the loss of the *Meridian* on Amsterdam, a few miles to the northward of St. Paul, of which the same number contains the interesting account of Captain Denham, concluded in the foregoing, relating to the natural history of the island. The *Lifeboat*,* a useful little contemporary periodical, gives further particulars of the noble conduct of Captain Ludlow on that occasion.

There were four whale-boats employed in taking us off, the women and children going first, and by noon all those who had escaped from the wreck were on board the *Monmouth*, with the exception of the chief cabin steward and a little girl, whom he carried on his back, (both of whom were brought off on the following day,) and a steerage-passenger, named Pell, who severely injured his foot among the rocks on the first day of the wreck, and who was unable to travel. Plenty of provisions, however, had been left with him at the encampment on the cliff, and, to save this man, Captain Ludlow left on the island four of his own men, including Smith, with instructions to bring him off as soon as possible, for he declared that unless he saved the life of every person who had escaped from shipwreck, he should look upon his work as incomplete.

And surely, when Captain Ludlow stood upon the deck of his staunch old vessel, and gazed upon the grateful but haggard countenances and emaciated bodies of more than a hundred fellow-creatures, almost reduced to the last extremity, he might well feel a degree of anxiety in the completion of an achievement which nothing but an indomitable resolution would have enabled him to accomplish. Another gale sprang up on the Tuesday, after we had embarked, and we were obliged to stand out to sea, nor could we approach near enough to take the men off till the Friday afternoon, when the captain manned his own boat, and brought Pell and his own four men on board. With three hearty cheers for Captain Ludlow and his brave crew, we then left Amsterdam; and after a very fine but rather slow passage of seventeen days, we arrived at the Mauritius.

On board the *Monmouth* all that could be done by respectful sympathy and unobtrusive kindness was done for us, in order to make us forget the hardships which we had undergone, and that not merely on the part of Captain Ludlow, but by all hands in the whaler, down to the cook's mate. And it must be borne in mind that every man of the *Monmouth's* crew incurred a considerable pecuniary loss by his participation in Captain Ludlow's views. In a whale-ship, no one receives wages, but every one takes a certain share in the profits of the voyage, according to his rating in the ship. They had been out two years, and had not been very successful, the *Monmouth* being only half full of oil. They had come upon fishing-ground, where, in a few days, they might have filled the ship, for I myself saw several whales sporting about, close to the shore, and one monstrous fellow showed his black back above the water, within an eighth of a mile from the boat which carried me to the ship. But not a murmer was heard from the lips of the gallant "*Monmouths*" at the loss of their whaling-season, and with it a sacrifice of their means of living. We were liberally supplied with food, and the quality was such that I should like to see it emulated in English passenger-ships.

* Well deserving the patronage of those who approve of its object—a record of the doings of Life-boats on our coasts.

The occasion has given rise to the following impromptu by a well known ancient mariner, whose initials no doubt many of our readers will readers will readily recognize:

See Heaven's own hand in human destinies,
Though states decline, see youthful nations rise!
The Anglo-Saxon seed, in Britain sown,
Has graced the Land, the Altar, and the Throne!
And when oppression drove the true of soul
To other climes, where distant oceans roll;
There, firm of heart, the Pilgrim Fathers found
Soil for that fruitful seed, congenial ground;
And there Columbia emulates the fame
Which long has graced our loved Britannia's name.
Ah! fitly called, the *Monmouth*, gallant bark,
Came to that rescue from those perils dark:
There the loved banners of the Saxon line,
Unfurled to Heaven, proclaim their source divine
In deeds of mercy! As in courage bold,
The *Monmouth's* gallant crew are thus enrolled;
And, in those rescued lives, exists a flame
Which, while it burns, shall bless a LUDLOW'S name!

Ramsgate. K. B. M.

We must not omit to add the following, which has been inscribed on an elegant gold pocket chronometer, the gift of the Admiralty, with fifty guineas, which, we believe, was to be distributed among the crew of the *Monmouth*.

PRESENTED
BY THE BRITISH ADMIRALTY TO
CAPTAIN ISAAC LUDLOW
OF THE AMERICAN WHALER MONMOUTH
FOR HIS HUMANE CONDUCT
IN SAVING THE CREW AND PASSENGERS OF THE
BRITISH BARQUE MERIDIAN
WRECKED ON AMSTERDAM ISLAND
ON THE 24TH OF AUGUST 1853

Our attempts to bring to light the original discovery of these islands of St. Paul and Amsterdam, have not been very successful, although we addressed our inquiries to the fountain head, the Dutch authorities. But following up those inquiries in the British Museum, we are enabled to assign an earlier date than has been generally allowed to them, and yet who the original discoverer was does not appear. Our researches have led to the conclusion, that, like many others, they were an accidental discovery by the Dutch navigators about the middle of the seventeenth century, and probably not many years after the establishment by the Dutch of Governors General over their Indian possessions, of which Java was the principal, and Batavia the seat of government. Their countryman Valentyn has preserved a list of these, from 1610

down to 1725, with the dates of their several appointments, enumerating no less than twenty-one persons, which number, in little more than a century, allots but a brief period for the government of each. At the head of the list stands Pieter Both, appointed 19th Dec., 1610, whose name may be recognized in that of the celebrated peak at the Mauritius, the ascent of which by Col. Lloyd was so graphically described in one of our early volumes.

The well known names of Pieter Carpentier (1622), preserved in that of the Gulf of Carpentaria, and Antoni van Diemen (1635), will be recognized by seamen, the latter country being more properly called Tasmania. It was when these possessions were frequented that the proper method of making the passage would seem to have been found, for we find in an old chart of the Indian Ocean, published by Mr. Faden of Charing Cross, in August, 1817, a track marked as "the great passage called by the English the Southern Passage, first attempted by the Dutch about the year 1621," which passes a few miles south of the islands St. Paul and Amsterdam, and then turns to the northward east of them for India and the Strait of Sunda. The Governors of the Dutch possessions in the east appear mostly to have gone out by Mauritius and Ceylon. Our chief authority for this conclusion is a Dutch map published at Amsterdam in 1661, in which these islands appear; and it also appears that the confusion which has arisen between the names of the two islands, they being occasionally exchanged, has originated with the Dutch themselves, for this misapplication of names we have traced in several Dutch charts of a subsequent date. Thus in the map above mentioned, Amsterdam appears as the southernmost island; but in 1681, in the Diary of E. Hessen, on his way to India, mention is made of St. Paul being sighted on the 7th of May, but nothing further about it, thus making St. Paul the southernmost island; and this is preserved by Vlaming, who visited the islands in 1696, and expressly describes St. Paul as the southernmost island. Vlaming gives a faithful sketch of this island, and represents the lowest edge of the crater as some feet above the level of the sea, in which the sea has washed a breach, sufficient, as we have seen, for a small schooner to pass over. The islands have been successively visited by various navigators, by D'Entrecastaux in 1792, as well as our own. In 1793 H.M.S. *Lion*, in which Sir George Staunton was on his way to China, touched there, and found five resident sealers, who supplied a schooner which called annually for skins for the Chinese market. We have preserved in the annexed note Vlaming's account of them, given in the usual illiterate and unsatisfactory, indeed ignorant style of his day.

Since the foregoing was concluded, we have received a letter from Mr. J. Swart, the intelligent hydrographer of Amsterdam, on the discovery of these islands, which confirms the opinion we have advanced. He says:—

"The Islands St. Paul and Amsterdam were not discovered by the Dutch seaman De Vlaming, for in the instructions for his voyage he is

recommended to visit these islands;—thus showing they were discovered before his voyage, which was made for the search of Dutch seamen wrecked on New Holland, called by your countrymen Australia. Who the Dutchman was that discovered the islands is, to me, unknown, notwithstanding all my researches on the subject, but as soon as I find anything about it I will immediately communicate it to you.

"The Dutch navigators of that day regarded these islands, just as you have supposed in your letter, as a sort of landmark from which to shape their course."

In the Old and New East Indian by Francis Valentyn, Amsterdam, 1726, the following appears on St. Paul and Amsterdam Islands.

De Vlaming's Voyage to Zuidland in the year 1696.

"The old Vlieland navigator William De Vlaming undertook the above expedition with three vessels, viz., the galliot *Geelvink*, of which he was commander, the hoy *Nijptang*, and the galliot *Wezel*, on the 27th of November, commencing his observations before he arrived at the Cape of Good Hope, in lat. 38° 18′, long. 92° 3′.

"On the 28th of November he arrived off the Island St. Paul in lat. 38° 40′, long. 95° 44′. The weather was very hazy, but he distinguished a flat projecting point. From the west end along the south shore he found no beach whatever, and says it should not be approached within cannon shot. On the west side a reef extends a cannon shot out to sea, as shown by breakers. He found to the northward of it forty fathoms, mud. He continued his course E.b.N., along the coast until the island bore west, and anchored about a musket shot from it.

"He found many seals, some of which were eighteen feet long, but no vegetation, with the exception of reeds and, here and there, between the rocks, a kind of parsley was seen but even this was scarce. He saw very few birds, but a great number of fish, large bream and codfish, of which, in four hours, 436 were taken with the hook. He saw no firewood nor water, and should there be any on the heights it would be difficult to embark. There is a kind of small lake about twenty paces from the sea, protected by some rocks, where these fish resort, in figure nearly a half moon and about a pistol shot long. The west side of this island is free from danger and is high land.

"On the 2nd December he sighted the third island, Amsterdam. It is 13 or 13½ miles south and north of St. Paul, in lat. 37° 48′ and long. 95° 44′. It is uneven but good ground. He landed on this island, but found the bushes so close to the sea that scarcely four miles a day could be accomplished, and this through thick jungle and high trees. But he saw neither man nor beast. One of his people, he said, saw a four-footed animal like a weazle and another like a fox, and abundance of rushes washed together.

"The ground is swampy to about three feet from the surface, under which is rock and pummice stone. But the ground is of that nature that trees cannot grow high nor can any wholesome roots flourish. On the 5th, towards the evening, he sailed for the south land.

"On the 6th, he found his compasses showing 20° west variation, being then in 37° 25′ and 96° 45′; and he met with seaweed drifting as far as 36° 9′.

A Tribute to the Memory of Beautemps Beaupre.

Our pages have hitherto found no room for biography, but the name of Beautemps Beaupré claims from this journal a record of services to hydrography, combined with the qualities of a good man, that are rarely found united. We have, therefore, transferred from a memoir of this celebrated officer—who has been justly called the "Father of Hydrography" by his countrymen—the following notice of him, pronounced by Vice-Admiral Baudin at his funeral, which, we are sure, will be acceptable to the readers of the *Nautical Magazine*, who are well acquainted with the name of Beautemps Beaupré. It is gratifying to record such testimony, and it is highly satisfactory to see how the important science of hydrography, in all its branches, is appreciated in France. How it is cultivated, encouraged, and rewarded, and its fruits preserved and cared for as those of "one of the sciences most eminently useful to man!" for reasons so well set forth by Vice-Admiral Baudin. All this is highly gratifying to see. Who would have supposed that the foundation of Beaupré's great work, the *Pilote Francais*, comprised in six large volumes, is contained in 527 *quarto volumes*, now preserved in the Hydrographic Office in Paris; from the documents in which any portion of the coast that may be required can be reprojected on any scale, where important operations may render that desirable? We are told this by Monsieur Duperrey. Well does *France* deserve to be considered a first-rate maritime power. Her seamen not only know the value of good charts, but she herself deals liberally with the whole science of hydrography and its requirements, as one that is "eminently useful to man."

Admiral Baudin addressed his companions on this solemn occasion, including many Members of the Institute, the Board of Longitude, &c., Admirals Baron de Mackau, Duperrey Baudin, Dupetit-Thouars, Mathieu, M. Begat, and many other officers of the several Scientific Boards at Paris, in nearly the following terms:—

"This is the third time in an interval of five months that I have been called upon to pay the last duties to one of my brethren of the Board of Longitude, the already limited numbers of which in that short space of time have been deprived of its most eminent men:—Mons. Arago, as Astronomer, Admiral Roussin, as Navigator, and Mons. Beautemps Beaupré, as Hydrographer.

"Few lives have been more useful than that of this distinguished *savant*—of the estimable man whose loss we have now to deplore. For sixty years he devoted himself to that science in which he took delight and in which he excelled. He has died full of years, of days usefully and honourably employed. In his career he has done eminent service to science, and has placed himself foremost in its ranks. He has had the good fortune to see this position assigned to him by public opinion, by general consent, with no rival ambition, no rival jealousy, to dispute that high place which his success had gained him. Never, to my knowledge, have his works been questioned or slighted, never has any one sought to rob him of his merits. In fact, if the

practical part of his career has been trying and full of privations, fatigues, and dangers, his dealings with the world and the body of learned men of which he was a part has been always marked by condescension. He was, indeed, affable, considerate, and respectful to all.

"This rare and happy privilege, this unexceptionable position, Beautemps Beaupré had attained from the nature of his disposition and the character of his works.

"Hydrography, which has for its object to determine the true configuration of the coasts washed by the sea, and even of the depth of that sea in their vicinity, is one of the sciences most eminently useful to man. In presenting to mariners the means of navigating, by day or night, through labyrinths of rocks and shoals, they are relieved from much anxiety, from difficulties and delays, they become an auxiliary to the naval force of a country, they preserve many lives from wreck; in fine, they facilitate maritime commerce, the great source of national prosperity. Under all these aspects, no science has greater right to our solicitude, to our gratitude, and to our respect.

"Commencing his career at an early period of life under the eye of the celebrated geographer Nicolas Buache, his father, Beautemps Beaupré had the advantage of being employed nearly from his outset in life under M. de Fleurieu, whose clear and excellent judgement shed so bright a light on the discussion of all the elements of hydrographic knowledge.

"The doctrine of such a master could not but produce the happiest results on young Beautemps Beaupré. At the age of twenty-one, he embarked as Hydrographic Engineer in the expedition which, under the orders of D'Entrecastaux, was sent, in 1791, to search for La Peyrouse.

"By an unhappy fatality attaching to all our expeditions of discovery, nearly without exception, D'Entrecastaux's ships were, in point of quality for sea, quite as bad as those of La Peyrouse, of which he went in search; and, when one contemplates the difficulties surmounted by Beautemps Beaupré with ships drawing too much water to approach an unknown coast in safety, which sailed so ill as to be unable to beat off a lee shore or to profit fully by a fair wind, it is impossible not to admire still more the surveys which he made, with such means, on the coast of New Holland and Van Diemen Land and several parts of the Pacific Archipelago.

"The method which he employed in these works was not his own, but he had the merit of being the first to adopt it, to recommend it, to make it succeed, and bring it into general use. He also contributed to nautical surveying facile and correct methods before unknown.

"The end of that expedition is known. The locality where Peyrouse and his companions were wrecked, of whom some were living at the time, was seen at a distance; but, among a variety of islands, all of which it was impossible to explore, who could say that the one before them was actually that of which they were in search, and which was the only object of the voyage. There was nothing to lead to such a conclusion; even the wind and current was against approaching it, and the two ships which formed the expedition were deficient in the qualities necessary to overcome such obstacles.

"Important contributions to hydrography and to natural history were obtained. But the humane act which France would have performed in recovering the survivors of the wreck was not accomplished, and yet no blame could be attached to any one on that account.

"In an unhealthy climate, disease and death made sad ravages in the *Recherche* and *Esperance*. The chief of the expedition and the second in command died, and the two ships reached Java in a deplorable condition, where more evils followed: this was in the latter part of 1793. Two years before, when they left France, violent civil discord had distracted our country. This evil had increased during the voyage and even manifested itself among the officers

of the expedition. The adherents of the old system and of emigration were the least in number; but with the support of the Dutch Government, in the port at which the ships had then arrived, they became powerful, and used that power with rigour against the opposite party. The greater part of the officers and naturalists of the expedition who had embraced the principles of 1789 and who, notwithstanding the errors and excesses of the revolution, adhered to the flag of the country, were thrown into prison at Sourabaya. Although joining their party, Beautemps Beaupré was not included in this measure. His personal character and the acknowledged usefulness of his labours found grace in political strife and he preserved his liberty.

"Returning to France in 1796, he was appointed, as Chief Engineer, to the Hydrographic Office; and, after some years, employed in the compilation of the charts resulting from the voyages of Marchand and D'Entrecastaux. The superiority of his work obtained him the attention of Napoleon; who entrusted to him successively the survey of the Scheldt, those of the coasts of Illyria and Dalmatia, and, in fact, the mouths of the Ems, the Elbe and Weser, and others.

"After the Restoration of 1816, he undertook his great work of the survey of the coasts of France from Dunkerque to Bayonne, and devoted himself to it with untiring zeal for the space of twenty-two years, always foremost in the work and never leaving any important point without being examined by himself. He delighted in hydrography for its own sake, and, at an advanced age, yielded to the effects of those enjoyments which he had so long found in the performance of his useful labours.

"I may be here permitted to refer to a personal remembrance of him. It was at my own request and, I may venture to say, from personal friendship, that, in the year 1841, when, at the age of sixty-five years, he considered that he had then nothing to do but to repose, he consented to undertake his last hydrographic exploration, that which had for its object to determine the changes which had taken place in the bars at the mouth of the Seine in the course of the seven preceding years. I had the honour of being attached to him in this work. It was then for the first time that he had a steam-vessel at his disposal. Struck with admiration at the facility which the employment of such means afforded him in his work, he exclaimed, 'Would that I could again commence my career that I might have the pleasure of surveying with so much ease.'

"Truth and benevolence were the foundation of his character: truth was the essence of his mind, benevolence that of his heart. In occupying himself conscientiously and assiduously in works of exactness, he gratified his desire of truth; in rendering, by his daily avocation, a service to his fellows, he satisfied his spirit of benevolence. He carried his ideas of modesty and simplicity to their utmost. He was deaf to praise.

"Editors of biography, according to their custom, frequently requested of him articles on that subject or at least notes of himself. 'It will be time enough to think of that when I am dead,' he would answer with good-natured simplicity. One compliment was paid him which he did appreciate and, indeed, enjoyed with an honest entire satisfaction: this was when, in 1852, the Emperor, who was then President of the Republic, commanded that his bust in marble should be placed in the Hydrographic Office.

"M. Ducos, the Minister, after having assisted at the inauguration of this bust, proceeded to the residence of Beautemps Beaupré to offer him his congratulations. The venerable man highly enjoyed this mark of respect.

"Alas! that such legitimate enjoyment, such repose in dignity, should not delay the approach of grief. Soon afterwards his health underwent a change. He was not permitted to pass away quietly, surrounded by his family and friends. This was perhaps all that was wanting to terminate a life so happy.

Nevertheless, let us not complain that the Almighty in allowing him to endure, for several months, intolerable suffering enabled him to display an example of resignation and unchanging placidity of character.

"Doubtless his career has not been distinguished by any great scientific discovery which might reflect imperishable honour on its author. But it has been made up of a succession of works of acknowledged daily practical utility. Perhaps in some few places, such as the mouths of rivers, where nature is perpetually changing the features of the coast, and particularly those of the banks, the utility of Beaupré's works may be limited; but all the rest, we have a right to expect, will be unchangeable. As long as our shores preserve their present condition, and their detail remains unaltered by any extraordinary catastrophe of nature, that is, if it please the Almighty Disposer of events, our countrymen and foreigners, day after day, will bless the name of Beautemps Beaupré. This name, inscribed on numerous excellent charts, will be preserved with gratitude by the public. It will be cherished with enduring respect long after the hearts in which it is now preserved with affectionate esteem shall have ceased to beat."

On Finding the Position by Double Altitudes, with only One Latitude.

Ship *Jamsetjee Jejeebhoy*, of Bombay, Jan. 17th, 1854.
At sea, lat. 6° 30′ N., long. 106° 10′ E.

Sir,—It having occurred to me that by using the azimuths along with the hour angles, Captain Sumner's method of finding the position by double altitudes might be much simplified, requiring only one latitude to be used, the following easy method suggested itself to me, a copy of which, together with a practical example, I now forward to you, trusting you will insert the same in your useful work for the general benefit of the nautical community.

I remain, Sir, your most obedient servant,
L. T. Fitzmaurice.

To the Editor of the Nautical Magazine.

Rule.

Assume a latitude, certainly less than latitude in, and compute both hour angles, also the azimuths, (calling that farthest from the meridian A, and the other B,) and find the longitude by the hour angle farthest from the meridian; also the difference between the computed and true intervals, which difference reduce to miles. Then when both altitudes are on the same side of the meridian, take the difference of the azimuths, and when on opposite sides their sum, and to the amount of this sum or difference add the sine of azimuth B, and the common log. of the difference of intervals; place this sum down twice. Then for the correction for latitude, to this sum add the sine of azimuth A, and the cosine of the latitude assumed, and the sum, rejecting 10's, will be the common log. of the correction, always additive; and to the sum of the three logs. add the cosine of azimuth A, and the sum, rejecting 10's, will be the log. of the correction for longitude. When the azimuth A is less than 90°, and the least altitude East of the meridian, add in East longitude and substract in West longitude; and when greater than 90°, subtract in East and add in West longitude; and when the altitude is West of the meridian, apply the correction the reverse way.

Example.

January 17th, 1854.—Lat. by acct. 6° 40′ N., long. 106° 20′ E., the following sights were taken in the forenoon:—At 13h. 45m. 27s. chron. Greenwich time,

true altitude of ⊙ 33° 48′ 10″, bearing S. 60° E., and after steering S.W.b.S. 13 miles, at 16h. 7m. 9s. ⊙ true altitude 59° 5′ 50″, and from then till noon S.W.b.S. 6·5 miles.

	h. m. s.		° ′ ″
Chr. Time, 1st. alt.	13 45 27	⊙ Dec. 16th noon	20 56 37·7
Ditto, 2nd	16 7 9	Correction	6 40·8
Interval	2 21 42	Dec. at 1st obsn.	20 49 56·9
		Cor. for interval	1 8
		Dec. at 2nd	20 48 48·9

Equation Time 10 4·5
Correction 11·5

10 15

	° ′ ″					
Alt.	33 47 28	..		..	Cos.	9·9196
Lat.	6 0 0	..	Sec. 0·002386			
P. D.	110 49 57	..	Cosec. 0·029363	..	Cosec.	0·0294
	150 37 25					
	75 18 42	..	Cos. 9·404083			
	41 31 14	..	Sin. 9·821440			
App. Time	20 38 40·4		9·257272	..	Cosec.	0·1136
	10 16					
					Cosec.	10·0626
M. T.	20 48 56·4					
G. T.	13 45 27	..	Az. A. S. 59 58 0 E.			
		..	B. 29 23 20			
Long.	7 3 29·4					
		..	Diff. 30 34 30			
D.	105 52 21 E.					
Cor. + ..	21 23					
	106 13 44					
Cor. till noon	3 36					
	106 10 8 E.					

Alt.	59 5 50	..		..	Cos.	9·7106
Lat.	6 0 0	..	Sec. 0·002386			
P. D.	110 48 49	..	Cosec. 0·029308	..	Cosec.	0·0293
	175 54 39					
	87 57 19	..	Cos. 8·552420			
	28 51 29	..	Sin. 9·683624			
	22 57 25·2		8·267738	..	Cosec.	0·5692
	20 38 40·4					
			B. S. 29 23 30 E.		Cosec.	10·3091

	° ′ ″					
Comp. Int.	2 18 44·8					
Int.....	2 21 42					
Diff.	2 57·2 = 44 25					
Diff. of Azth.	30 34 30	..	Cosec.	0·2936		
Azth. B.....	29 23 30	..	Sin.	9·6909		
Diff. of Int.	44·25	..	Log.	1·6459		
				1·6304		1·6304
Azth. A.....	59 58	..	Sin.	9·9374	.... Cos.	9·6994
Lat.	6 0½·0	..	Cos.	9·9976		
	36 46				21·37 =	1·3298
			36·76 =	1·5654		
Lat.	6 36 46					
Cor. till noon	5 24					
Lat. at noon	6 31 22 N.					

THE BLACK SEA AND THE SEA OF AZOF.

In 1850 a work was printed at Constantinople entitled, *Atlas et Pilote de la Mer Noire et de la Mer d'Azov*. The Chevalier Taitbout de Marigny, its author, was formerly the consul-general of Holland at Odessa, who devoted the whole of his leisure time to studying the hydrography of the Pontus. The *Atlas* consists of 36 lithographed plates, tolerably well executed for a Turkish publication. Whatever its artistic merits, however, may be, it is the first and only work in existence of the like nature; and so important was it found to be, that a copy of it has been published at Marseilles.

The Euxine has been libelled by poets in every age, and thus obtained a worse reputation than either the facts or its Greek name warrant. Mr. Taitbout has dispelled many prejudices against it. The easterly position of this basin causes, it is true, a more unfavourable regulation of heat along its coast than its latitude would lead us to expect. Thus the cold season of the year and the freezing both of the harbours and estuaries (including the Sea of Azof) often set in very suddenly, because there are no mountains towards the north to arrest the current of air that blows from the Frozen Ocean to the Steppes of Southern Russia; but then, on the other hand, there are no sunken rocks throughout the depth of its waters, while there are many goodly harbours along the shores of the Crimea, Anatolia, and Roumelia. The prevailing current in the Black Sea comes from the Straits of Kartsch, that separate as it were the Black Sea from the Sea of Azof. This current is produced by the Don, that pours its streams into the Azof. Its direction is from the straits in question westerly along the shores of the Crimea, being very rapid at certain spots. It is, however, then turned very much to the south in consequence of the influence it receives from the powerful rivers the Dnieper, the Bug, and the Dniester, as it approaches their mouths. A great part of this current sets into the Sea of Marmora through the Bosphorus, but the remainder flows along the north coast of Anatolia as far as Caucasia. From here, where the Phasis and other great rivers enter the Euxine, it completes its circuit at the Straits of Kertsh, whence it set out. Of course the winds and the various localities produce varied modifications, the mention of some of which may just now prove highly interesting.

When a ship runs out of the Bosphorus into the Black Sea, she then has most to fear from the east or the N.E. winds. Whenever the wind blows from this quarter, the ship can only reach the harbours of the Crimea (Theodosia, for instance, or Kertsh) by sailing along the coast of Asia Minor as far as the heights of Sinope, where it first receives a northerly direction. Nature has here formed a line of demarcation in the Black Sea, for ships sailing along this line are then independent of the prevailing currents, and safe as such a sea permits. This line runs from Cape Elia in the Crimea, to Cape Kerempe in Asia, and divides the Black Sea into two halves. It is impossible to transgress this line without at once perceiving a marked change in both the wind and the current. The violent N.E. wind, blowing from the region of Anapa to Sonbachi in Caucasia, is the commonest in winter, detaining ships even for months in the Dardanelles or the Bosphorus, whereas, with a favourable breeze, both those straits could easily be traversed in eight and forty hours. It is an ill wind indeed that does not blow some good, and thus the one in question, though so dreaded, brings dry, bracing cold weather, while the N.W. wind is attended by fog and damp. It was for this reason that the Greeks called the mountains of Caucasus the "Bed of Boreas." It is hence evident that ships wishing to reach Odessa or Sebastapol can only do so by a wide circuitous route while the north-easter is in the ascendant.

The winters are very severe in the Black Sea, especially on the northern coast; the very sails freeze, and the deck is covered with ice. December and the second half of January, are the most dangerous portions of the year. The mouths of the Dnieper, the Dniester, generally also those of the Danube, are frozen over, as are also the harbour of Odessa and the Straits of Kertsh. The ice does not extend far out to sea, and a southerly wind dissolves the whole by its welcome change. At the beginning of March the ice finally disappears, though its presence is almost constant from the winter solstice till that term, so constant, indeed, that the port of Odessa for the last twenty years has not remained open more than three winters.

One of the most interesting features in the Black Sea is what are called its limans. These are very numerous, and require a short explanation. These limans are produced by the debouching of certain large rivers into the Black Sea. The Danube, it is true, and the Po, the Rhone, the Nile, and others, divide themselves into arms and form Deltas, but the rivers from the Steppes of Southern Russia scoop for themselves capacious bays. Kohl, the well-known traveller, in the second volume of his Travels in Russia, has clearly explained the theory of these bays or limans. It would seem that all these rivers last alluded to dashed originally in falls over the steep opposing wall of the Steppe, till by degress they crumbled and wore it away, forming in its stead those large basins that are now known as limans. Upon this geognostic theory the Sea of Azof itself is a liman of the River Don. Thus also Akkierman is situated at the liman of the Dniester, Odessa at the two limans of the Kujalnik, Cherson at that of the Dneiper, and Nikolajeff at that of the Bug. It is clear that the places just named in accordance with the configuration of the coast at a liman and the origin of one, can have no real harbours, but merely roadsteads. Consequently Odessa, like Trieste or Plymouth, to become a haven required a mole or breakwater. One has been began, but it is not yet finished. We content ourselves with one other extract: At the mouth of the Tchketil Sou rises the fort of St. Nicholas, sixteen miles S.S.E. from Poti, which defines the boundary of Russia on this coast. Its anchorage is as bad as that of the other neighbouring roadsteads." On the other hand, we are glad to learn that the haven of Batoum is the safest and best along the whole eastern coast of the Black Sea. The Turks may think themselves fortunate in this respect.

The coast of Anatolia is almost without a single secure haven; the navigation is precarious and dangerous at all times. Trapezunt itself, though in all

ages a trading place of the first rank between the eastern and western world, has but a sorry approach to it. Kerasunt, too, the habitat of the cherry, is no better off. Not so the Bay of Sinope, which, by its geographical position, enjoys certain advantages, well known to all the mariners of that sea. From whatever side the seaman steers towards it, he easily recognizes it by the form of the peninsula Boze-tepe, the cape of which is flattened off, and the shores rocky and bluff, both very characteristically. The town itself is divided in two; one part lies on the peninsula, and is inhabited by the Turks; the other on the neck or isthmus, with exclusively a Christian population, for the most part Greeks. From five to eleven fathoms are found to within a cable's length from the shore.

Hard as it is for square-sailed ships, should the wind be in the least adverse, to run out of the Bosphorus into the Black Sea, the reverse is quite a different thing. Not even the south wind in the latter case can keep them effectually out of the Bosphorus, for its windings and the powerful current carry the ship in despite the breeze. All that is required is to manage the sails, which we shall leave, simple as the manœuvre is said to be, to the pilots in charge.

To sail out into the Black Sea is not absolutely impracticable, provided the ship has the so-called lateen or three-cornered sails. The reader by this time must see how essential—nay, how indispensable—steamers are, unless we wish our fleet to sleep three-fourths of the year in some Turkish haven. Our men-of-war, urged on by sails alone, will, we have no doubt, be soon recalled and replaced by screw-propellers. We are sorry to learn also, from this book, that lighthouses, buoys, and the like, are things quite unknown in the Turkish half of the Euxine. It is for this reason that the author takes such care to describe any conspicuous rock, or tree, or other landmark. Sometimes a tree alone guides the steersman, and when we reflect how heedless the Turk is in the preservation of trees and ruins, we may imagine the difficulties our cruisers are destined to encounter, and what circumspection will be requisite on the part of the combined squadrons as at present constituted.

The Capes of Kaliakri, Emona, and the mountains of Babia, on the two places before mentioned, certainly offer good landmarks in fine weather; not so the mouths of the Danube, and the whole coast between them and the northern part of the Crimea. Here nothing is visible when at a distance in the offing. Again, on the southern coast of the Crimea, between Kutshuk-lambate and the Chersonesus, or on the Circassian coast, towards Pitsunda and Ardler, calms are frequent, and ships, in some spots, run very great danger from the currents.—*Daily News.*

THE BALTIC FLEET.

Very gratifying are the accounts which reach us from correspondents in the Baltic Fleet. Everything seems progressing favourably. There is an absence of unnecessary evolutions and worrying orders, but in all essentials due attention is given to the service the ships are likely to be called upon to perform. The prevailing opinion in the fleet is, that the Russians will not come out to fight. Their plan of operations appears to be concentration, for what ultimate purpose cannot now be divined. The inference is, that the Czar is aware of the incompetency of his naval commanders and weakness of his sh ps. On paper the Russian fleet is overpowering. Thirty large sail of the line, besides frigates and sloops; yet with all this show we find the Czar abandoning the important position of Aaland,* and endeavouring to collect his ships at his principal stronghold in Helsingfors. The approaches to Cronstadt are being rendered impassable;

* We believe this is not so.—ED.

blocks of granite and other impediments are sunk in the narrow and only available deep water channel. Practical men are averse to any expedition against either Helsingfors or Cronstadt. The latter indeed is out of the question. The pilots consider that ships drawing more than twelve feet water could not be brought into a position to bombard Cronstadt with any effect, and as we are destitute of ships of sufficient force drawing so little water, that idea must be abandoned. Helsingfors again is defended by Sveaborg, a fortification, or rather series of fortification, comprising tremendous batteries calculated to deal destruction upon any ship approaching within their deadly range. Copenhagen and Algiers have been mentioned as proofs of the vast power of ships' batteries; but we think the comparison not to be sustained. The fleet under Lord Nelson at the former place, as well as that under Exmouth at Algiers, were permitted to go into action and take up their positions with little molestation. Had the Danes resisted the approach of the British in 1801, a different result might have ensued, and moreover had it not been for Nelson's masterpiece in negociation, it is barely doubtful whether one of his ships would ever have left their anchorage. At Algiers also had the Dey opened fire on the *Queen Charlotte* and other ships as they advanced to take up their allotted stations, they would all have been very roughly handled as the *Impregnable* was. The Russians would not forego that advantage. Our ships would be exposed to a terrific raking fire, to which no return could possibly be made, hence the inexpediency of attacking such places as Sveaborg. At Port Baltic or Revel our chance would be better, and it seems probable that one or other of those places will be captured. Port Baltic, which is a capacious harbour, might be found particularly useful. We subjoin a private letter, which gives a general sketch of the fleet's movements:—

As you will suppose, there is a constant exercise of one kind or the other; but still we are not worried with unnecessary evolutions, and all seems to be arranged with a due regard to circumstances. Gales of wind appear to be frequent. On Sunday, 9th, it blew heavily from the westward, as it did also on Friday. The *Neptune* carries a *red* flag, instead of a *white*, which is an unaccountable arrangement, since Admiral Corry is *white*. Reports as to the proceedings of the fleet are various. Some persons in Copenhagen are of opinion that the Russians will not come out; others say that the entrance to Cronstadt is blocked up with heavy sandbags and granite rock; others think that we should take Port Baltic, or Revel; some are for capturing Aaland, in the Gulf of Bothnia. Helsingfors is considered impregnable from its position, being fronted by innumerable rocks and sandbanks, rendering the passage most intricate. In fact, until the ice breaks up, it is hard to say what we shall be at; and the people of England must be prepared to find that our best and only plan will be to blockade the Russian fleets till they rot, which will be as cheap and effective a plan as losing half our ships in doing the same thing. The pilots, and others who are acquainted with Cronstadt, give their opinion that it is not practicable in large ships, or, in fact, in vessels drawing more than two fathoms, effectively to bombard Cronstadt, both from its narrow entrance, and from the weight of metal that can be brought to bear upon one point; for if a ship happened to get on shore in the narrow part, she would, in all probability cause the stranding of all those near her, as there is not room to turn.

However, no doubt the heads of wise men are on this subject, and from the number of hands required to be acquainted with infantry movements, a grand *coup de main* is anticipated. If reports are correct with regard to the gunboats at Helsingfors, &c., the sooner we send a lot of vessels there the better, I mean small tugs, drawing little water, and heavily armed. Fifty of them would clear the coast in no time; and in all our operations it will be necessary to have an overwhelming force, so as to place a reverse quite out of the question. Several screws, *Imperieuse*, *Dauntless*, *Tribune*, and *Amphion*, with Admiral

Plumridge in *Leopard*, are gone to the northward to see how the ice lies, and also to take any vessels with arms or ammunition. Some of the paddles are gone to assist in towing colliers to the fleet. At present there are thirteen sail of the line, and nine other vessels. *St. George, Prince Regent, Nile, James Watt*, or *Majestic*, have not arrived.

Kioge Bay, Copenhagen, 11th April, 1654. *United Service Gazette.*

The Baltic and Black Sea Fleets.

As ships are constantly being added to the Fleet under the command of Sir Charles Napier, we have endeavoured, from the best sources, to give a list of what it will be when complete, exclusive of gun-boats and tenders, which will most likely be added in great numbers.—*United Service Gazette.*

Ships.	Guns.	Men.	Tons.	H.P.	Commanders.
Duke of Wellington	131	1100	3700	780	Vice-Admiral Sir Chas. Napier, K.C.B., (blue)
					Capt. of Fleet M. Seymour
					Capt. G. T. Gordon
Neptune	120	970	2705		Rear-Adm. A. L. Corry (white)
					Capt. Fred. Hutton
Leopard (paddle) ..	18	280	1412	560	Rear-Adm J. H. Plumridge (blue)
					Capt. Geo. Giffard
Edinburgh	58	660	1772	450	Rear-Adm. H. D. Chads, C.B.
					Capt. R. S. Hewlett
Nile	91	850	2598	500	Commodore H. B. Martin, C.B.
Royal George	120	990	2616	400	Capt. Codrington, C.B.
St. George.....	120	970	2719		,, H. Eyres, C.B.
St. Jean d'Acre ..	101	900	3200	650	,, Hon. H. Keppel
Princess Royal....	91	850	3129	400	,, Lord C. Paget
James Watt	91	820	3083	600	,, George Elliot
Cæsar	91	850	2761	400	,, J. Robb
Algiers	91	850	3165	450	
Hannibal	91	850	2765	450	,, Hon. F. Grey, C.B.
Prince Regent	90	820	2613		,, H. Smith, C.B.
Monarch	84	750	2286		,, J. E. Erskine
Cressy	81	750	2537	400	,, R. L. Warren
Majestic	81	750	2589	400	,, James Hope, C.B.
Boscawen	70	700	2212		,, W. F. Glanville
Cumberland	70	700	2195		,, G. H. Seymour
Hogue	60	660	1750	450	,, W. Ramsay
Ajax	60	660	1761	450	,, Fred. Warden
Blenheim	60	660	1747	450	,, Hon. F. Pelham
Screw-propelled Frigates, &c.					
Imperieuse	51	530	2347	360	Capt. R. Watson, C.B.
Euryalus	51	530	2371	400	,, Geo. Ramsey
Arrogant	47	450	1872	360	,, H. R. Yelverton
Amphion	34	320	1474	300	,, A. C. Key
Dauntless	33	300	1490	580	,, A. P. Ryder
Tribune	30	300	1570	300	,, Hon. S. Carnegie

Ships.	Guns.	Men.	Tons.	H.P.	Commanders.
Archer	14	170	973	200	Capt. Edm. Heathcote
Miranda	14	170	1039	250	„ E. M. Lyons
Desperate	8	175	1100	400	„ E. C. D'Eyncourt
Conflict	8	175	1013	400	„ John Foote
Cruizer	17	160	750	60	Comd. Hon. G. Douglas
		Paddle-wheel Steam Frigates and Sloops.			
Penelope	22	300	1616	650	Capt. J. C. Caffin
Magicienne	16	260	1258	400	„ T. Fisher
Odin	16	270	1310	500	„ F. Scott
Valorous	16	260	1255	400	„ C. H. M. Buckle
Dragon	6	200	1270	560	„ J. Willcox
Bulldog	6	200	1123	500	„ W. K. Hall
Vulture	6	200	1120	470	„ F. H. H. Glasse
Hecla	6	160	817	240	„ W. H. Hall
Driver	6	160	1056	280	Comd. Hon. A. Cochrane
Gorgon	6	160	1111	320	„ A. Cumming
Rosamond	6	160	1059	286	„ G. Wodehouse
Basilisk	6	160	980	400	„ Hon. F. Egerton
Prometheus	5	100	800	220	„ E. B. Rice
		Surveying Steamers.			
Lightning	3	50	296	100	Capt B. J. Sulivan
Alban	3	50	405	100	Comd. Otter

The Fleet in the Black Sea will be no less an object of deep interest during the approaching struggle; we therefore supply a list of that force.

Ships.	Guns.	Men.	Tons.	H.P.	Commanders.
Britannia	120	970	2616		Vice-Admiral J. W. D. Dundas, C.B. (blue) Capt. T. W. Carter
Ayamemnon	91	820	3074	600	Rear-Adm. Sir E. Lyons, Bt., G.C.B., K.C.H. Capt. T. M. C. Symonds
Trafalgar	120	960	2694		„ H. F. Greville
Queen	116	960	3083		„ F. T. Michell
London	90	820	2598		„ Charles Eden
Albion	90	820	3083		„ S. Lushington
Rodney	90	820	2598		„ C. Graham, C.B.
Vengeance	84	730	2284		„ Lord E. Russell
Bellerophon	78	650	2056		„ Lord G. Paulet
Sanspareil	71	650	2334	350	„ S. C. Dacres
		Frigates, &c.			
Arethusa	50	500	2130		„ W. R. Mends
Leander	50	500	1987		„ G. St. V. King
Diamond	28	300	1054		„ Wm. Peel
Highflyer	21	230	1153	250	„ John Moore
Modeste	18	145	562		Comd. W. H. Stewart
Wasp	14	260	970	100	„ Lord J. Hay
Niger	14	160	1013	400	„ L. G. Heath
Frolic	16	130	511		„ M. S. Nolloth

Paddle-wheel Steam Frigates, &c.

Terrible	21	300	1847	800	Capt. J. J. McCleverty
Retribution	28	300	1641	400	„ Hon. J. Drummond
Tiger	16	220	1220	400	„ H. W Giffard
Furious	6	216	1286	400	„ William Loring
Firebrand	6	200	1190	410	„ Hyde Parker
Sampson	6	210	1297	467	„ L. T. Jones
Inflexible	6	160	1124	378	Comd. G. Popplewell
Fury	6	160	1123	515	„ E. Tatham
Vesuvius	6	160	976	280	„ R. A. Powell
Spitfire	6	100	432	140	„ T. A. B. Spratt
Caradoc	2	63	650	350	Lieut. S. H. Derriman
Triton	3	65	650	260	„ H. Lloyd
Banshee	2	65	656	350	„ L. R. Reynolds

Hurricane at Manila.

The northern parts of the Philippine Islands have been visited by a hurricane, the effects of which we shall perhaps hear more of shortly. The focus it would appear must have passed much to the northward of Manila, by the short duration of the hurricane, but as the following report from H.M. Consul at that place will show, not without producing some very severe effects.

"Manila, 18th Dec., 1853.

"On the night of the 23rd of November last there prevailed calms, with slight rains, in that part of the sea of the Archipelago of these possessions which is to the S.W. of the coasts of Zebu and Negros, and the barometer was at 30 till about midnight, when gusts of wind blew at intervals from the West, and the barometer began to descend, and at 2 o'clock was at 29·58, when the hurricane commenced to blow violently, and at half past 3 was raging from the S.W., and the barometer had fallen to 29·36. At dawn the hurricane blew from the S.E., and rain fell in torrents. From half past 3 the barometer began to ascend, and at 5 in the morning was 29·58; at half past 6, 29·80; and at 9, 29·93. The ascent of the barometer accompanied the decrease of violence in the hurricane.

"Fifteen vessels, and all the smaller craft which were anchored in the port of Zebu, were cast ashore. A brig foundered in sight of the town, and the reports from other parts of the coast of Zebu describe similar disasters. Bridges, churches, and other public edifices have been destroyed, or materially injured; 343 houses and huts at Zebu were thrown down. Trees of immense bulk were rooted up, crops destroyed, and the rivers, swollen and encumbered by the trees cast into them, overflowed in torrents the adjacent plains. Upwards of 90 corpses had been numbered when the first account left.

"H.C.M. steamer *Magallanes*, in its passage from Mindanao to Manila, was about half way between the coast of Mindanao and Zebu when the hurricane occurred, without any indication of it appearing there; and the Spanish galeta, *San Ignacio*, was navigating within 180 miles to the north of Zebu at the time of the hurricane without perceiving it.

The number of American vessels engaged in fisheries is 3,160; British, 3,775; French, 580. The capital invested is:—American, 8,880,015 dollars; British, 8,900,175 dollars; French, 1,255,000 dollars. While the value of the annual product is:—American, 4,018,030 dollars; British, 8,690.000 dollars; French, 1,840,000 dollars.

Magnetic Variation.

Table showing the mean monthly westerly declination, or westerly variation of the magnet, and the mean monthly dip, at the Royal Observatory, Greenwich, in the three months ending March, 1853.

1853.	Variation, W.	Dip.
January	22° 11′ 55″	68° 45′
February	22 12 3	68 49
March	22 10 51	68 46

The mean variation has been found by the application of corrections (deduced by Mr. Glaisher from two-hourly observations taken during the seven years 1841–7) to the mean of readings taken at 9h. A.M., 1h., 3h., and 9h., P.M. daily. The mean dip by taking the mean of observation at 9h. A.M., 3h., and 9h. P.M. on one day in each week.

1854, *April* 7. G. B. Airy.

Nautical Notices.

Stratheden Rock.—*Entrance of Manila, North Channel.*

The following is an extract from a letter dated Manila, Jan. 20th, 1854 :—

"A British vessel, the *Stratheden*, on her voyage from this port to Sydney, with a full cargo, struck on a rock or shoal between the main land to the right and the Island of Corregidor, at the entrance of the Bay of Manila, and became a wreck. Part of the cargo was recovered in a sound state, and the damaged part and vessel have been sold at auction by the captain.

"The situation of the shoal after passing, outward bound, the Punta de Cancaven, is near the sounding No. 7, in a line of soundings successively marked 7, 25, 45, 31, from the main up to the Isla de Corregidor, in the Spanish chart of the Bay of Manila, published at Madrid in 1807 in the *Direccion Hydrografica*. Between the shoal and the main land there is a navigable depth of water, and the master of the *Stratheden*, in his deposition, states that through that passage he entered the bay on coming here.

"At his request I investigated officially the circumstances of the loss, which leave no charge of blame on him. He was ignorant of the existence of a reef there. It is not indicated in the chart, and in its immediate vicinity 7 fathoms water is marked. Some months ago a Swedish vessel of war touched on the same part, and I now hear that several vessels on their passages in or out of this bay have touched it. No measures have been hitherto taken by the government here to avert the danger, but I will bring the subject to their attention.

"I have the honour to be, &c., &c.,

"J. W. Farren."

The Comoro Islands.—Horsburg says this island (Mayotta) is surrounded by coral reefs to the distance of 3 to 5 miles in some places. They extend a much greater distance from 3 to 15 miles rather. An English ship was wrecked on them this year (1854), twelve miles from the shore, in working through between this island and Johanna. The current being so variable about these islands, it requires a good look-out and great caution in passing them.—*Extract from Remarks of H.M.S. Penguin, Commr. T. Etheridge.*

LIGHT ON RATHLIN ISLAND.—We understand that the attention of the Board of Trade having been directed to the unfinished state of the Lighthouse on Rathlin Island, has resulted in a statement that the Light will be in operation in the month of November next.

NEW BOOKS.

THE UNITED STATES GRINNELL EXPEDITION—*in Search of Sir John Franklin.* New York.

Dr. Kane has published his "personal narrative" of Mr. Grinnell's Expedition of 1850, which has been printed at New York during his absence on a *second* voyage to the North, now under his own command. Our readers are aware that Mr. Grinnell, at his own cost, fitted out two small vessels, called the *Advance* and *Rescue*, which sailed under the command of Captain De Haven in 1850, and fell in with our ships under Captain Austin and Captain Penny, at the entrance of the Wellington Channel. Here, they will doubtless remember, Mr. Grinnell's ships became entangled in the ice, after parting from the rest for home, and were drifted, first up the Wellington Channel, and then down, through Barrow Straits into Lancaster Sound and Baffins Bay, and finally released in Davis Strait, after having drifted, in the depth of winter, and in hourly peril, upwards of a thousand miles. No sooner were they at liberty, than their heads were laid northerly again, and in the short-lived summer they strove to regain the ground they had lost, reaching north of Uppernavik; but finding it hopeless, returned in the autumn of that year.

Dr. Kane, the author of this work, nothing daunted by the perils of the previous voyage, sailed last year in the *Advance*, again liberally fitted out by Mr. Grinnell, for the head of Baffins Bay, intending, if they could, even to reach the Pole of the Earth in search of our Franklin and his ships, in case they should have entered the Polar Basin through Smith Sound.

Hopeless as we look on all their efforts to be, yet heartily do we wish success to this enterprising little party. That they will be amply rewarded with interesting geographical discovery there can be no doubt, the account of which on their return will be as heartily welcomed as that of their former voyage.

Dr. Kane's personal narrative of De Haven's Voyage, is an interesting work. Setting aside the map, it is well brought out by the publishers (Harper Brothers), who appear to have spared no expense in the numerous illustrations and woodcuts, most of which are beautifully designed and executed. The book is written in a pleasing style, with much originality of thought and expression. Dr. Kane gives quite a novel character to his description of Arctic scenery and adventure as compared to any which have preceded. There is a naiveté about the whole which is very captivating, and at the same time a vividness of description which, if it does not tire, places one on the spot. The dangers are not magnified, but are truthfully and simply narrated, and no sooner passed than forgotten. Here is a specimen of the style of the book.

"Now let us start out upon a walk, clothed in well-fashioned Arctic costume. The thermometer is, say 25°, not lower, and the wind blowing a royal breeze, but gently.

"Close the lips for the first minute or two, and admit the air suspiciously through nostril and moustache. Presently you breathe in a dry, pungent, but gracious and agreeable atmosphere. The beard, eyebrow, eye-lashes, and the downy pubescence of the ears, acquire a delicate, white, and perfectly enveloping covering of venerable hoar frost. The moustache and under lip form

pendulous beads of dangling ice. Put out your tongue, and it instantly freezes to this icy crusting, and a rapid effort and some hand aid will be required to liberate it. The less you talk, the better. Your chin has a trick of freezing to your upper jaw by the luting aid of your beard; even my eyes have often been so glued, as to show that even a wink may be unsafe. As you walk on, you find that the iron work of your gun begins to penetrate through two coats of woollen mittens, with a sensation like hot water.

"But we have been supposing your back to the wind; and if you are a good Arcticised subject, a warm glow has already been followed by a profuse sweat. Now turn about and face the wind; what a devil of a change; how the atmospheres are wafted off! how penetratingly the cold trickles down your neck, and in at your pockets! Whew! a jack-knife heretofore, like Bob Sawyer's apple, 'unpleasantly warm' in the breeches pocket, has changed to something as cold as ice and hot as fire: make your way back to the ship!! I was once caught three miles off with a freshening wind, and at one time feared that I would hardly see the brig again. Morton, who accompanied me, had his cheeks frozen, and I felt that lethargic numbness mentioned in the story books.

"I will tell you what this feels like, for I have been twice 'caught out.' Sleepiness is not the sensation. Have you ever received the shocks of a magneto-electric machine, and had the peculiar benumbing sensation of 'can't let go,' extending up to your elbow-joints? Deprive this of its paroxysmal character; subdue, but diffuse it over every part of the system, and you have the so-called pleasurable feelings of incipient freezing. It seems even to extend to your brain. Its inertia is augmented; everything about you seems of a ponderous sort; and the whole amount of pleasure is in gratifying the disposition to remain at rest, and spare yourself an encounter with these latent resistances. This is, I suppose, the pleasurable sleepiness of the story books.

"I could fill page after page with the ludicrous miseries of our ship-board life. We have two climates, hygrometrically as well as thermometrically at opposite ends of the scale. A pocket-handkerchief, pocketed below in the region of stoves, comes up unchanged. Go below again, and it becomes moist, flaccid, and almost wet. Go on deck again, and it resembles a shingle covered with linen. I could pick my teeth with it.

"You are anxious to know how I manage to stand this remorseless temperature. It is a short story, and perhaps worth the telling. 'The Doctor' still retains three luxuries, remnants of better times—silk next his skin, a toothbrush for his teeth, and white linen for his nose. Everything else is Arctic and hairy—fur, fur, fur. The silk is light and washable, needing neither the clean dirt of starch, nor the uncomfortable trouble of flat-irons. It secures to me a clean screen between my epidermoid and seal-skin integuments."

FIELD'S PARALLEL RULE—We commend to the notice of the nautical world an improvement by Captain Field of the old parallel ruler that requires but to be known to bring it into general use. By being provided in the middle with a central point and from thence the points of the compass, Captain Field's ruler enables the seaman to lay off any course or to find any bearing on a chart (by merely referring it to a meridian or parallel) in any part of it without having recourse to the compasses engraved on it, as hitherto. In fact, this rule of Captain Field's is a protractor which will traverse the chart in any direction, and will give bearings or angles from the meridian without the aid of that important instrument. No parallel ruler in future should be without Captain Field's improvement. It is made by Potter in the Poultry, the Admiralty Chart Agent, and will assuredly become a favourite instrument.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

JUNE, 1854.

An Historical Sketch of the Russian Navy, *with a Statement of its present condition.*

The Russian Navy, although it bears no proportion to the land-forces of that gigantic empire, already begins to rival those of the other great powers of Europe. One hundred and thirty years have have hardly elapsed from the capture of Azof by Peter the Great to the battle of Navarino; and this short space of time has sufficed, to two of her monarchs, to raise it to its present respectable condition. It is difficult to conceive how these persevering men so soon succeeded in overcoming the repugnance of a class of people so continental in their habits to an element to which, from time immemorial, they had been absolutely strangers. In risking himself on the ocean, the Russian, yet a barbarian, trampled on all his most inveterate prejudices and renounced every object of his affection to enter on a career the novelty and danger of which must have inspired him with horror. Nevertheless, these prejudices have been overcome, and Russia, at this day, possesses a hardy race of seamen, well versed in all the various branches of their duty and who have nobly upheld the honour of her flag.

The history of the Russian Navy cannot be dated previous to the reign of Alexis Mikhaïlovitch. We find an abridged, though faithful, account of it prefacing the regulations which Peter the First gave to his fleet in 1720. This document is very remarkable from the description it contains (drawn up, in all probability, by the monarch

himself,) of the state in which he found the navy on his accession to the throne, and of what he had done to raise it from its absolute state of nullity. He appears to attach no great importance to the maritime enterprises in the Black Sea of the immediate successors of Rurik. In the 15,000 barques which Igor led before Constantinople he sees but a vast assemblage of mere canoes, yet he deplores that this weak beginning should have led to no more important results, owing to the dismemberment of the empire by Vladimir the Great.

From that period nothing more is heard of the Russian Navy till the reign of Ivan IVth Vassilievitch. This enlightened prince, in 1581, invited several Dutch shipbuilders to Arkhangel, the only port which, at that time, Russia possessed. The Tartars of the Crimea surrounded the shores of the Black Sea, while the Swedes were masters of the mouths of the Neva and the Narova. The Russians, in fact, possessed but the Caspian and the White Sea, covered during nine months of the year with ice.

Alexis was the first who saw the importance of a Navy; and, having established a dockyard on the River Oka, at a short distance from Moscow, he engaged in his service David Butler, a Dutchman, who constructed for him a ship of war and a small flotilla. This little squadron descended the Volga to the Caspian Sea, but it was almost immediately destroyed by the revolt of Stianka Rasene, which broke out about the same time on that coast. All the crews perished, with the exception of the Surgeon and a Dutchman named Karsteen Brandt, destined by fate to second, at a subsequent period, the son of the Czar in his great work of creating a navy. This prince, when he was at Izmailof, visited several edifices containing various objects of curiosity collected by his grandfather Nikita Ivanovitch Romanof, and he discovered in a loft a sloop built by order of his father. Struck with its form and construction, the young prince questioned his tutor, Zimmermann of Strasburg, if it were yet possible to make use of it. The tutor commissioned Brandt to repair it, and the young prince was impatient to make a trial of the little vessel. Shortly afterwards, Brandt built, by his orders, two small frigates and three yachts, and in 1649 the young Czar repaired with his squadron to Arkhangel; where, to his inexpressible joy, he embarked for the first time on the open sea. His wars with the Turks first gave him the idea of establishing a dockyard on the Voronega, and, in 1696, he launched upon this river two ships, two galleots, twenty-three galleys, and four fireships. This squadron contributed powerfully to the capture of Azof, which opened to the Czar the navigation of the sea so called; with which view he established the port of Taganroy.

Such was the slender origin of the Russian Navy; but even so feeble a beginning served to inflame still more the mind of this great monarch, whose whole life appeared to be in the future. The Czar resolved that the Russians should teach themselves an art which hitherto he had cultivated with the assistance of foreigners. For this purpose, several Russian young gentlemen were sent to Holland to study shipbuilding and navigation. The Czar subsequently repaired

there himself, and it is a well known historical fact that Peter Mikhaïlof worked as master carpenter at Sardam. In 1698, a line-of-battle ship arrived at Arkhangel, mounting sixty guns, in the construction of which the monarch had himself assisted; and this was the first that Russia ever possessed. This vessel was followed by several others, and thus the Russian Navy received its first impulse. In the year 1718, the Russian Navy was composed of twenty-three line-of-battle-ships, and three frigates fit for service, besides a vast number of small craft, manned by upwards of eight thousand men and officers, mostly foreigners. In the year 1723, Peter celebrated a fête, worthy of constituting an era in Russian History. On this occasion the Czar exhibited to his navy at Kronstadt the little sloop that had so powerfully acted upon his youthful imagination. While he steered her, Prince Menchtchikof, and the Admirals Sievers, Gordon, Siniavene, and Sanders, were stationed at the oars; and the Master-General of the Ordnance worked the gun she carried. The whole Russian squadron was drawn up in order of battle, and as the little vessel passed along the line, each ship lowered her flag and fired a salute, and the crews manning the yards gave three Russian hurrahs: a splendid dinner terminated this solemnity. This sloop, called in Russia, the Sire of the Navy, may be still seen in the fortress opposite the Cathedral of St. Peter and Paul at Petersburg.

It has been calculated that Peter built, during his reign, 112 line-of-battle ships and frigates, that he purchased 20, and captured from the enemy, 1 line-of-battle ship, 6 frigates, 6 galleys, 4 yachts, and 65 sloops. He revised with his own hands the regulations of the navy, and established the magnificent ports of St. Petersburg and Kronstadt. Under his two successors, Anna Ivanorna and Elizabeth Petrovna, the Russian marine was neglected, until the reign of the great Catherine, who, constantly at war, either with the Turks or the Swedes, increased it rather too hastily to a prodigious force. She kept up in the Baltic one hundred armed vessels, among which were fifty ships of the line, and twenty-two frigates. In the Black Sea she had thirty ships of the line and frigates, and more than sixty vessels of a smaller class; and in the Caspian Sea she had three frigates, two bomb-vessels, three brigs, and several transports. Her squadron of galleys was besides composed of one thousand vessels with oars, two hundred of which were large large gun-boats. This immense naval force astonished all Europe, and the complete victory gained with it by Count Orloff, over the Turkish squadron at Tchesme, in the Archipelago, astonished all Europe. The peace of Koutchour-Kaïnardjo, and the free navigation of the Black Sea, were the fruits of this victory. At a subsequent period, Otchakof and Kinbourn fell into the hands of the Russians, and the conquest of the Crimea made them masters of the entire northern shores of the Black Sea. Taganroy and Coffa lost all their importance after the foundation of Kherson, Odessa, and Sevastopol; and this last-named place became the principal naval station of Russia in that quarter.

The late Emperor Alexander established better order and regularity in the naval affairs of Russia; and he wisely proportioned the number

of his ships to that of his neighbours. In the Black Sea, Alexander made the greatest efforts to keep up the squadron, doubtless with the view of one day accomplishing the favourite policy of Russia, viz., the conquest of Constantinople; and under the present reign, a new impulse has been given to the proceedings of the Admiralty.

The Russian Navy, according to the last official return of the Minister of Marine, consists of 32 ships of the line, 25 frigates, 20 corvettes and brigs, 6 cutters, 7 brigantines, 54 schooners, 20 galleys, 25 floating batteries, and 121 gun-boats. This calculation gives a total of 310 vessels, mounting about 6,000 guns, manned by 33,000 men, including 3,000 marine artillery, and 9,000 marines. They are divided into two squadrons, one of which is in the Baltic, and the other in the Black Sea.

The following are the principal ships composing these two squadrons.

IN THE BALTIC.

Line-of-Battle Ships.

	Guns.		Guns.
Alexander	110	Grand Duke Michael	74
Peter the First	110	Cesarevitch Constantine	74
La Pere Champenoise	84	Vladimir	74
Empress Alexandrina	74	Hangoud	74
Azof	74	Grand Syssoi	74
St. Andre	74	Kronstadt	74
Hezekhiel	74	Emmanuel	60
St. Alexander Nefski	74		
			1178

Frigates.

Constantine	44	Russia	44
Castor	44	Maria	44
Grand Duke Alexander	44	Provoonoi	44
Olga	44	Diana	44
Princess Lovitch	44	Mercury	44
Kraisser	44	Helena	36
Vestovoi	44		
			564

Corvettes.

Greimiachtchii (Thunderer)	24	Gemanistii	24

Brigs.

Okhta, 18; Zeleras, 18; Achilles, 18; Ulysses, 18; Telemachus, 18; in all 90 guns. 10 line-of-battle ships, and several heavy double-banked frigates are now building in the dockyards of Okhta and Petersburg.

SQUADRON OF THE BLACK SEA.

Line-of-Battle Ships.

Paris	110	Pimeon	74
Francis the First	84	John Zlatooust	74
Empress Maria	84	Black Eagle	74
King of Prussia	84	Tschesmé	74
Panteleimon	84	Erivan	60
Omega	84	Archipelago	60
Holland	74	Tenedos	60
Superb	74		
Parmenion	74		1228

Frigates.

	Guns.		Guns.
Standard	56	Flora	44
Estafette	44	Eustafia	44
Alert	44		
			232

Corvettes and Brigs.

Diana	28	Mercury	20
Orpheus	20	Mongrelia	15
Jason	23	Papal	20
Ganymede	18		
			144

Besides which, a flotilla is kept on the Caspian Sea, and another on the Sea of Okhotsk.

A line-of-battle ship and several frigates form the *squadron of the guard*, manned in time of war by the regiment of sailors of the guard. The remainder of the fleet forms three divisions, each of three squadrons; the first is commanded by a Vice-Admiral, and the last by a Rear-Admiral.

The highest rank in the Russian service is that of High Admiral, generally conferred on a member of the Imperial family. The Admirals are next, and rank with Generals in the army. The Vice-Admirals rank with Lieutenant-Generals, and Rear-Admirals with Major-Generals. Ships of the line and large frigates are commanded by Captains of the first class, and rank with Colonels; Captains of the second class rank with Lieutenant-Colonels, and Captain-Lieutenants with Majors. All naval officers, like those of the army, are allowed a number of servants in proportion to their rank. The sailors for the Russian navy are obtained by a conscription similar to that of the army, consisting of one in five hundred throughout the empire. The conscripts from the Baltic provinces generally make the best sailors.

The expense of supporting the Russian Navy scarcely ever exceeds twenty-five millions of roubles. The pay of the officers is so extremely low, that the government make them a handsome allowance in the shape of table-money. The pay of the sailor is about half a crown a month, and their rations are on a most economical scale; when afloat, they receive daily a pound and a half of biscuit and a glass of brandy. They receive further, once a month, fourteen pounds of salt beef, five pounds of butter, three pounds of pease, twelve pounds of oatmeal, and one pound and a half of salt; and their ordinary beverage is a fermented liquor called quass.

The discipline of the Russian service is extremely severe. All the crews are organized like the military, and are well drilled in the evolutions of infantry; thus the crew of a Russian man-of-war, on her return from a foreign station, is never paid off and sent adrift as with us; but, on their ship being laid up, they land and do duty on shore in the arsenals as marines. In general, the officers are more scientific than practical, though we must allow that some of the ships of Count Hey-

den's squadron, in the Mediterranean, are manœuvred with a celerity equal to our own. The two Admiralties, one of which is at St. Petersburg, and the other at Nikolaev, direct all the operations of the fleets of the Baltic and Black Seas. The principal dockyards are at Okhta, Kronstadt, Kherson, Archangel, and Voronega. There are eleven hospitals and lazarettos for the reception of invalids. At St. Petersburg there is a Naval College for cadets, and at Kronstadt another for pilots. Two similar establishments are to be found at Nicolaev, and also a school of naval architecture and navigation, besides which, in various parts of the empire, there are several other institutions for the education of sailors' children.

The most important naval station in the Russian empire is Kronstadt, which is capable of containing twenty-five ships of the line. The roadstead is large and spacious; but affords no shelter from the westerly winds, so dangerous in those latitudes. The channel is full of shoals, and the fort has many defects. The mouth of the harbour is so narrow, that no ship can work out with the sea breeze; the freshness of the water destroys the shipping; besides which, the ice of the Gulf of Finland does not allow them to put to sea before the month of May. The Port of Revel, re-established in 1820, is deeper than that of Kronstadt, and the water more saline; but the approach is difficult. Baltiïskoi, formerly Rogerveck, also in Esthonia, is a most spacious harbour; but too shallow for large ships. Catherine the Second conceived the plan of making this port the grand naval station of the empire in the Baltic; but insurmountable obstacles obliged her to relinquish the undertaking. In the White Sea, the Port of Archangel is safe and commodious; formed by a bay near the mouth of the Dvina. A sand-back at the entrance may be avoided by sailing along the coast, which is free from shoals. This port, however, is closed by ice for nearly eight months of the year; but it contains an extensive dockyard.

The principal port in the Black Sea is Sevastopol, in the Crimea. It is a small bay, five versts (about three geogr. miles) in length, and situated upon the southern point of the peninsula. The entrance is defended by some rocks, but the harbour is sufficiently deep for ships of the largest draught, which it effectually protects from the tempestuous weather of this sea. Sevastopol, and the adjoining roadstead of Aktiar, is now the centre of the naval forces of Russia in that quarter. But it is unfortunately situated at an immense distance from the great forests of the empire, from whence it derives its materials for building, and the *teredo navalis* commits such fearful ravages, that ships are obliged to be refitted every two years. This inconvenience does not exist at Odessa; but this harbour is open to the gales from the south-west, and, consequently, while these winds blow it is insecure.

The Port of Kherson, the first Russia ever possessed in these latitudes, has been abandoned. The Port of Nikolaev, at the mouth of the Ingoul, is the station of the squadron of galleys; it is likewise the seat of the Admiralty that directs all the operations of the navy of the Black Sea. Ships navigating this sea will find good anchorage and

shelter in the ports of Kzolof and Dertch, where they may winter in perfect safety.

The Caspian Sea presents on its eastern shores a vast number of commodious harbours, hitherto but little frequented. The flotilla kept up by Russia on this sea, is stationed at Arkhangel on the Volga, situated thirty versts (17½ geogr. miles) from its mouth. Large ships are obliged to anchor outside, from the shallowness of the water.

Russia possesses two other ports on the eastern coast of Asia, Petropavlofsk and Okhotsk. The former is situated on the Sea of Kamstchatka, and is 12,337 versts from St. Petersburg. The water is extremely salt, and tides very strong. Okhotsk is situated on the sea of that name, and is 9,693 versts from St. Petersburg. It serves the Russians as a point of departure in their voyages to Kamstchatka and America.

Such is the present condition of the naval power of an empire, whose gigantic military resources, combined with the grasping ambition of the government, have, ever since the memorable campaign of 1812, given her such a decided preponderance in the political system of the European continent. So long, however, as Russia preserves her present geographical *arrondissement*, there will exist physical obstacles to her becoming a great maritime power. But should ever the gigantic designs of the Imperial Catherine be realized, should ever the Russian eagle soar above the towers of old Stambol, the naval resources of this empire will then receive a rapid and powerful development that the combined efforts of Europe would in vain oppose. In her vast inland lake, the Euxine, free from every hostile demonstration, Russia might form a fleet that, at its maturity, would rush like an avalanche into the Mediterranean, and sweep every thing before it.

The foregoing appears in the first volume of this work (1832), and will form an interesting comparison with the annexed extract from a contemporary journal.

The Russian Fleet in the Baltic.

Sailing Ships of the Line.

Names.		Guns.	Present Station.	Division of the fleet to which they belong.
Russia	3-deckers	120	Helsingfors	3rd, or red.
Emperor Peter I.	3-deckers	120	Cronstadt	1st, or blue.
St. George the Conqueror	3-deckers	112	,,	2nd, or white.
? ? ?	3-deckers	112	,,	? ?
Emgeiten		84	,,	1st.
Krasnoi		84	,,	,,
Gunule		84	,,	,,
Pultava		84	Helsingfors	3rd.
Prochor		84	,,	,,
Vladimir		84	,,	,,
Volga		84	Cronstadt	2nd.
Empress Alexandrina		74	,,	,,
Narva		74	,,	1st.

Names.	Guns.	Present Station.	Division of the fleet to which they belong.
Beresina	74	Cronstadt	1st.
Brienne	74	Helsingfors	,,
Borodino	74	Cronstadt	,,
Smolensko	74	,,	,,
Arsis	74	Helsingfors	3rd,
Finland	74	Cronstadt	,,
Katzbach	74	,,	,,
Ezekiel	74	Helsingfors	,,
Andrew	74	,,	,,
Culm	74	Cronstadt	2nd.
Ingermanland	74	,,	,,
Pamyat Azofa	74	,,	,,
Sisoi the Great	74	,,	,,
Villagosh	74	,,	?
Natron-menya'	74	,,	2nd.
La Pere Champenoise	84	,,	,,
Michael	74	,,	,,

Total..... 2,468 in 30 ships.

Of the above we believe that eighteen or twenty ships are in fair condition; the rest are mere hulks.

Sailing Frigates.

Constantine	44	Cronstadt	
Cesarevitch	44	Helsingfors	
Cesarevina	44	Cronstadt	
Amphitrite	44	,,	Gunnery frigate.
Castor	44	,,	Old ship rebuilt
Diana	44	Rio Janeiro	For sale?
Alexander Nevsky	58	Cronstadt	Razée
Aurora	44	Flushing?	For sale?
Pallas	52	C. of Siberia	Razée. Kamschatka.

Total ..... 418 in nine ships

And three flat-bottomed frigates for the use of the marine cadets.

Sailing Brigs and Corvettes.

Ajax	20	Helsingfors	
Palinurus	20	,,	
Paris	20	Cronstadt	
Philoctetes	20	,,	
Prince of Warsaw	20	,,	
Navarino	20	Flushing	For sale?
Dwina	20	Kamschatka	
Olivutza	20	,,	Disarmed.

Total ..... 160 in eight ships.

And two or three others.

In addition to the above, there are, belonging to the Baltic fleet, 15 schooners, transports, and luggers; also 50 or 60 miscellaneous craft, such as pilot vessels, tenders, yachts, &c. The gun-boat flotilla is in bad condition, and in number does not exceed 50 boats; but 80 more were ordered to be built last autumn.

Paddle-wheel Steamers.

Names.	Guns.	H. P.	Present station.	Remarks.
Kamschatka....	16	540	Cronstadt	Built in America.
Olaf	16	450	Helsingfors	Built at Helsingfors in 1852.
Smiloi	12	400	,,	
Grosaschi	6	400	Cronstadt	
Gremiaschi	6	400	Helsingfors	
Rurie	6	300	Cronstadt	
Chrabroi	6	300	,,	
Bogatir	6	300	,,	
Diana	6	200	,,	
Hercules	6	200	,,	
Total	86	3490 in 10 steamers.		

Besides the above, 10 small yachts (used by the imperial family for river purposes, and tenders), chiefly of iron, with horse power from 100 to 60; also a few tugs, &c., for local use, in various parts of the Baltic, and the iron post steamer Vladimir.

Screw Steam Ships of the Line.

Name.	Guns.	Horse Power.	Present station.
Orel	84	500	St. Petersburg.

Remarks.—On stocks ready for launching. Engines, by Napier, just seized in Scotland.

Wiborg	84	.. ....	Cronstadt.
Constantine	84	.. ....	,,

Remarks.—Two old ships re-built and converted; ready for their machinery, which has just been seized by H.M.'s Government.

Screw Frigates.

Maria	44	360	St. Petersburg.

Remarks.—Ready for launching. Engines by Penn, now in possession of H.M.'s Government.

Ilya of Muronetz	44	.. ....	Archangel

Remarks.—Just laid down.

Polchan	52	350	Cronstadt.

Remarks.—Launched last year at Archangel; engines on board, but machinery not complete.—*Frazer's Magazine*

It has been well observed that Russia, after all, is "a maritime power, but it has the misfortune of being a maritime power without a navy, for, compared with the naval force now arrayed against her, the Russian navy may be disregarded, notwithstanding the 24 or 30 ships of the line she is said to have at Sebastopol or Cronstadt. Should they venture to sea beyond the batteries, they are certain to share the same fate as her merchant shipping. The Emperor of Russia, when he engaged in war, did not expect such a cordial and sincere alliance (and *long may it last)* between France and England as now subsists. He depended, as the court of Russia has done before, on effecting by intrigue what he could not accomplish by honest means. He thought it unlikely that two such countries, engaged so long in bitter hostilities, could unite with one heart, and one mind, and one feeling, to thwart his ambitious projects." But he is happily mistaken, —"The road to Constantinople" is lost.

Russian Ports in the Black Sea.

The principal ports of the Black Sea are situate at the mouth of the three great rivers above-mentioned, and are as follows:—Taganrog, Rostow, and Nakhitchevan, at the mouth of the Don; Odessa, Kherson, and Nicolaieff, at that of the Dnieper; Galatz, Brailoff, Reni, and Ismail, at that of the Danube.

Besides these, the Sea of Azoff has Marioupol and Berdiansk; and the Black Sea, Kertsch, Theodosia, Yalta, Balaclava, Sevastopol, Eupatoria, Otchakoff, and Ackermann. At all these places, with the exception of Rostow, Nakhitchevan, and Berdiansk, custom-houses are already established; and the ports of the Black Sea, excepting only Kherson and Nicolaieff, possess also quarantine establishments.

The sea of Azof presents to navigation all the disadvantages of a very confined basin; namely, but little depth, shallow water, and a very flat shore. Its extremity, towards the mouth of the Don, is so contracted as to form only one very narrow passage, containing fresh water; and it becomes wider only in its shallow part, beyond the two dangerous promontories of Dolgoi and Belosarai. The entrance of the strait of Kertsch, opposite to Yenikalé, is only thirteen feet in depth; and, consequently, ships of a greater draught of water than this, are compelled to discharge there a portion of their cargoes into coasters, which they have to re-ship after passing the bar. Of 2,447 vessels which in the course of ten years, (namely, since 1824,) have entered the Sea of Azof, eighteen have been lost. Besides these, twelve coasting vessels have experienced a like fate. Yet, notwithstanding these manifold disadvantages of the Sea of Azof, its navigation is of the highest importance to commerce. It is surrounded entirely by Russian territory; and, though its surface is not great, yet, being of a conical form, it penetrates far into the interior of the country. The whole of the eastern part of Russia, from Mount Caucasus and the Caspian Sea, has no other outlet for its produce than the Sea of Azof. A great part of the produce of Siberia, destined for the consumption of southern Europe, is now forwarded from the Wolga to the Don, in lieu of by the former very circuitous route through the Baltic. In short, some part of the governments of Ecatherinoslaw, of Taurida, of Kharkow, and of Voronege, find themselves incommoded in their commercial relations; and even Moscow would pay much dearer for oil, wine, fruits, &c., could not these articles be procured by way of the Sea of Azof.

The Don being, as it were, the vivifying artery of this basin, its trade should naturally concentrate itself at the mouth of this river; but, unfortunately, its mouth is so obstructed by sands to a distance of several versts, that it can only admit the passage of boats drawing at the most from five to six feet of water. Indeed, it sometimes happens, after heavy gales of wind, that bars of sand are formed so high as even to prevent the fish from getting out of the river; and thus the lighters

are stopped very frequently for whole weeks. These circumstances are favourable to the fishery. To obviate these difficulties, Peter the Great decided on forming a port at Taganrog, thirty versts from the mouth of the Don, the position of which cannot, however, be said to have been well chosen, as even there the water is very shallow. Vessels drawing more than eight to nine feet water, cannot approach nearer to the shore than from 280 to 300 sajines. The channel, within which they must keep, is formed by the current of the river Sambeck, which empties itself into the sea, betwixt Taganrog and the Don. The soundings of the sea, as far as to the channel, are hard and sandy, but beyond that it becomes muddy and soft. Higher up, the depth of the water increases, and at seventeen versts from Taganrog it is twelve feet deep. Large vessels are, consequently, obliged to anchor at forty versts from the town. The winds from the north and north-east sometimes occasion a reflux of the water from the sea to that degree, that the channel of Sanbeck resembles a river; but, thanks to the slimy bottom, few accidents are known to occur, except, it may be, when a vessel runs foul of some sunken hull, or of an anchor, or other object of magnitude that may be fast embedded in the mud. In the space of ten years, eleven vessels have been lost in the roads of Taganrog; in which number are included three boats that were upset in a squall, whilst conveying goods belonging to ships in the roads. The means employed for loading ships is very expensive, and sufficiently dangerous: 600 to 1000 carts, each drawn by one horse, convey the goods upon a kind of scaffolding to the boats which lie in the channel, or thence to land. If the wind do not blow hard, they traverse this distance of about 300 sajines with little difficulty. Small boats also are occasionally employed, which receive the goods from the carts, and carry them on board the lighters, which latter convey them to the ships. It sometimes happens, that contrary winds retard this operation, and cause a great loss of time. The lighters likewise, as we have before named, are often lost upon their passage. In some manner to remedy these disadvantages, a pier is about to be constructed as far as the channel, so that the larger lighters may then approach safely. At present the expense of conveyance to the lighters is from 24 to 28 copecks per sack of wheat, seven of which sacks make three chetwerts. The lighterage on board comes still higher; so that a chetwert of wheat cannot be shipped at Taganrog for less than 123 to 150 copecks. These very high charges are attributable partly to the immunities enjoyed by the carmen, who were formerly a corporate body; but, since the re-establishment of a free competition, the rates may be supposed to have declined. The imports that arrive in casks are thrown overboard, and floated from the vessel to land; which mode of conveyance gives employment to 150 hands, who, like the carmen, are also incorporated. When the quarantine was in force in the Sea of Azof, dry goods, such as coffee, carobs, and other merchandize, were unshipped at the Lazaretto; other articles were landed as I have before stated.

From the fresh water which it contains, and from its more confined

boundary, the deep part of the Sea of Azof freezes sooner than the shallow. During the last ten years, the navigation of the port of Taganrog has commenced and ceased at the following periods:—

1824	..	March	11	..	November	1	1829	..	April	9	..	November	8
1825	..	—	11	..	—	1	1830	..	—	9	..	—	1
1826	..	April	8	..	—	1	1831	..	March	18	..	—	1
1827	..	March	15	..	—	1	1832	..	April	17	..	—	1
1828	..	April	1	..	—	1	1833	..	—	10	..	—	2

The port constructed at Taganrog by Peter the Great has entirely fallen to decay, and vessels now prefer wintering in the Don. Rostow, at about 30 versts from the mouth of the Don, and Nakhitchevan, an Armenian town, at the distance of three versts farther, are the two most important points upon this river. These two towns may be regarded as the suburbs of Taganrog; for, not only do all the goods which descend the Don make a halt there; but the inhabitants of Rostow, and more especially those of Nakhitchevan, are in the habit of purchasing from the interior, and re-selling to the merchants of Taganrog. The Cossacks of the small town of Aksai, two versts from Nakhitchevan, share also in this trade, and are often known to convey iron in their small boats even to Constantinople. During the summer season, the activity which reigns at Rostow and Nakhitchevan is very great; for it is there that the merchants of Taganrog receive their goods, and reload them into coasters for transportation to the latter place. Of the numerous vessels which descend the Don, it has been deemed expedient to forward those only which are laden with timber direct to Taganrog. As the commerce of these places has but very lately begun to be developed, it is not to be wondered that Rostow should be deficient in warehouses; and it is the more difficult to remedy this evil, as the opposite bank of the Don, right over against the town, forms a part of Nakhitchevan, whose inhabitants are chiefly Armenians.

The want of a custom-house at Rostow, and at Nakhitchevan, is also much felt; for the lighters expedited thence with goods for the shipping, are compelled to stay at Taganrog to make their entries there; and the coasters coming from Kertsch, laden with salt, have to undergo the like delay. Rostow would seem to enjoy the special favour of the government, for it has there formed depots of provisions for the army, and the fortresses of the Caucasus, and of the eastern coast of the Black Sea. Add to these advantages, that immense quantities of rye-flour, bought in the government of Voronega, are sent down the Don, and are expedited from Rostow both by sea and land.

The fortress of St. Dimitri, near the town, serves as a depot for the munitions of war, which arrive by the Wolga and the Don, and which are forwarded as I have before stated. The demand thus created for the means of transport, attracts vehicles from all quarters, and a consequent reduction has taken place in the expense of conveying that portion of the produce of the country which finds a market at Rostow. Here also are depots of salt from the Crimea; and the carriers have

it in their power at the same time to lay in their stock of iron here. These circumstances alone are sufficient to render Rostow and Nakhitchevan places of very great commercial consequence, did not the 9,000 inhabitants of the latter place belong to perhaps the most commercial nation in the world. The connections they have formed with Astrakhan, Mosdok, and Kizliar, also colonies of Armenia, almost annihilates the distance that is betwixt them. They draw annually from these countries rice, some hundreds of poods of silks, a vast quantity of wine, and about 500 casks of Kizliar brandy, which is of great esteem in Russia. This brandy is distilled from wine, nine to fourteen casks of which yield about one cask of brandy. They receive, moreover, from the Caucasus, all the rough produce of the country. By constantly frequenting the fairs, which in the adjacent towns and villages are very numerous, even to the distance of some hundred versts, the Armenians have found the means of making themselves masters of the trade of the interior of the south-eastern part of Russia. The Cossacks, who are fonder of hazardous enterprise than of agriculture, are under the especial favour of the laws, which permit to them the exercise of all descriptions of trade in their own province, not even excepting foreign trade, and provide an express exemption from military service, for all those who pay a fine of 220 roubles per annum to the state. These people are very honest and upright in their dealings; whilst, on the contrary, the Armenians are too often actuated by motives of mere personal gain. The misunderstandings so often consequent upon the gross ignorance of this people, too often lead, I fear, to an excess of distrust of them, which is the more sensibly felt and cherished, from the fact of the difficulties of communication in a new country, obliging strangers to rely, in a great measure, on the good faith and character of the inhabitants. The posts, for instance, are so badly organized, that the only safe mode of transmitting news, and more especially money, is by sending an express each time; and it is often found necessary to adopt this method even betwixt Taganrog and Rostow, which are distant from each other only 63 versts, because, forsooth, the post takes from 12 to 14 hours for each journey, and is dispatched only twice a week.

The countries which feed the commerce of Taganrog, are yet in a great measure unexplored. The parts which supply it with grain are the districts of Isium, of Slavenoserbsk, and of Starobelsk, in the government of Kharkow, and of Bakhmout, in the government of Ecatherinoslaw. The territories of the Don Cossacks and of the Black Sea, which are more within reach of Rostow, furnish a less proportion; indeed a large quantity of grain is often forwarded thence by lighters to the various parts of the Sea of Azof. In 1832, the colonies established along the line of the Caucasus, disposed of 80,000 chetwerts. The Don Cossacks hold common possession of more than 6,000,000 deciatines* of uncultivated land. In 1832, however, they

* The deciatine contains 117,600 English square feet, or 27·10 acres; but in Kezan it is greater by one-half.

had sown 360,000 chetwerts of summer, and 90,000 chetwerts of winter, wheat. At that period, too, they were in possession of 257,000 horses, 2,110,540 sheep, and 840,000 head of horned cattle.

The very constitution of their order presents the greatest possible hindrance to any thing like agricultural pursuits. The common right of property established amongst them, must for ever prevent those improvements on the land, which can result only from individual possession. Every Cossack, from the age of 20 to 45, is liable to military service; but in time of peace, not more than about one-third of them are called out; and, according to his grade, each soldier receives a certain portion of land, which is cultivated by his family. Out of the entire population of 513,300, not less than 123,300 are serfs, and are the property of the nobles. These serfs are not of Cossack origin. They dwell chiefly in the district of Mious, which surrounds Taganrog. It is a singular fact, that whilst as much as 170 roubles are paid for a deciatine of land in the environs of that town, yet, in this particular district, there are 300,000 deciatines which no one ever thinks of cultivating, and which are absolutely valueless.

The Cossack district of the Black Sea is renowned for the extreme beauty of its breed of cattle; which, though not of large growth, possess great length of body, and that plumpness which good pasturage naturally produces. The markets of the Sea of Azof have recently received additional supplies from the mountaineers encamped beyond the Cuban and the Terek, who send thither their extra stock of ox-hides, hare-skins, furs, and also of wax. The resources of these countries are incalculable, and offer the greatest inducements to commercial enterprise, prudently directed. Yet, notwithstanding the advantages we have detailed, Taganrog has a formidable rival in St. Petersburg, which, for at least a century back, has derived considerable supplies of tallow from these districts; of which produce more than 400,000 poods are sent yearly from Voronega to the latter city. Indeed, though the large funds of the merchants of the capital, and the continual fluctuations in prices, which present a greater chance of profit, draw the produce chiefly thither; yet, it may be fairly presumed, that the low prices of produce at Taganrog will attract the attention of the English merchant to the trade of that port. It must be confessed, however, that, with these differences in the value of goods, at the respective places, Taganrog could not maintain a competition with Odessa.

The commerce of Taganrog being only practicable, for the reasons we have before stated, for six or seven months during the year, the greatest activity of course obtains during that period. And this is more observable, as the whole business is transacted within a small space of ground, around which stand the warehouses, amounting in number to about 200. It is on this little spot that the loading and unloading, the buying and the selling, goes on. In the last four years, from 1830 to 1833 inclusive, the custom-house at Taganrog has yielded to the revenue the sum of 6,840,417 roubles; and, in 1834 alone, the sum of 2,300,000 roubles. The merchants of the place are chiefly of

Greek original, with the exception of a few foreign houses. The entire population of Taganrog is 17,500; of Rostow, 8,000; and of Nakhitchevan, 9,000 inhabitants.

A design has been for some time entertained of cleansing the mouths of the Don, and of giving them a depth of at least 10 feet water; but its practicability is somewhat doubtful, owing to the immense accumulation of sand, and to the extreme shallowness of the sea itself, even to a considerable distance outward. Indeed, to accomplish this, it would be necessary to deepen the sea also. If it should happen that Rostow or Nakhitchevan ever became the rival of Taganrog, the commerce of this latter place must necessarily be reduced to those articles of produce which the governments of Kharkow and Ecatherinoslaw supply: the remainder of the trade would concentrate itself on the Don, which, though somewhat farther distant from Kharkow than Taganrog, is yet as near to Moscow, and is nearer to Nijeni Novgorod.

The steppe betwixt the Don and the Dneiper, along the Black Sea, and the Sea of Azof, is in part fertilized by a great number of small rivers, which empty themselves into the latter sea: these are, the Sambeck, the Mious, the Kalmious, the Molochina, the Berda, the Obitochena, &c. From the time of the Empress Catherine, the country seems to have been destined to bring together specimens of the human race from almost every nation. The most ancient and most numerous of the inhabitants of this district are the Nogai Tartars; after them in number come the Greeks and the Armenians, refugees from the Crimea. These latter, conjointly with the Armenians who came from Persia, have founded the town of Nakhitchevan in addition to several villages. Marioupol owes its existence to the Greeks. In all parts Russian emigrants are to be found; the greater part of whom are sectaries, professing various religious creeds. The most remarkable colonies are those of the Germans, and more particularly the Menonists, on the banks of the River Molochena. The capital and industry of these people give considerable animation to the plains of this district. It is not to be questioned, that the want of proper outlets, has most materially retarded the commerce of this country. At present it directs its produce towards Maraioupol, Eupatoria, and Theodosia; but since the period from 1822 to 1830, when the trade of these ports became entirely paralyzed, the only speculation carried on, has been in grain; and the Menonists have been compelled themselves to carry their wools to Moscow to find a market. Latterly, however, the attention of the Odessa houses has been directed to this country, which requires only a little cultivation to triple its present produce. The small town of Marioupol, containing only 4000 inhabitants, and situate 120 versts distant from Taganrog, and which, from 1815 to 1822, had taken a somewhat active part in the trade of the Sea of Azof, has only been recovering its prosperity since the peace of Adrianople. Already, in 1830, not less than 186 vessels, laden with corn, sailed from this litte port; and, since 1833 and 1834, a few

shipments have been made of rapeseed, hides, and wool. Being possessed of a custom-house only of the third class, its imports from abroad are limited to a very few articles.

Notwithstanding that its roadstead is very open and exposed, yet, from the excellence of the anchorage, accidents are almost unknown at Marioupol: vessels bring up in the roads at a few versts from the town. The approach from the shore is practicable only for small coasters, drawing at most from 5 to 6 feet of water. The Kalmious, which is in this neighbourhood, empties itself into the sea. It is deep enough in winter to admit small craft; yet, from the constant accumulation of sand at its mouth, is almost useless for navigation.

The Italians and Sclavonians, who have for some years been established at Marioupol, are said to have added little to the capital of the place. They have, moreover, to compete with the native Greeks, who, from a feeling of jealousy perhaps, lose no opportunity of annoying them, availing themselves of the protection of the laws, which grant to natives many advantages, which to foreigners they deny. Marioupol derives the maintenance of its commerce from the colonies of which we have just spoken, and from the districts of Alexandrovsk and of Pavlograd, in the government of Ecatherinoslaw. At a distance, however, of 70 versts from that place, a new port is about to be opened, viz., that of Berdiansk. This spot possesses peculiar advantages; for a tongue of land, 15 versts in length, has already formed for it a natural port, under shelter from the winds, so that even the ice cannot leave it but with difficulty. The bay has a muddy bottom. The depth of water here from the shore is—

3	feet at	15	sajines	14	feet at	200	sajines
4	—	25	—	13	—	250	—
5	—	40	—	16	—	300	—
7	—	75	—	18	—	1	verst
9	—	100	—	18	—	2	—
12	—	150	—				

Notwithstanding these advantages, the strand being sandy to a distance of several versts, will render the conveyance of goods rather troublesome. Berdiansk, however, by its position, has the great advantage of being situate as well beyond the narrow channel of the Don, as beyond the most dangerous parts of the Sea of Azof, and is directly opposite to the strait of Kertsch, so that one and the same wind will enable vessels to reach it in a few hours. Berdiansk, also, being situated more toward the west, offers a more convenient outlet for that wide range of places which have hitherto sought this in the ports of the Crimea, or at Marioupol: the country eastward of this town giving the preference to Taganrog, which offers a more extensive and a better market. It is only the Greek colonies of the adjacent parts that are likely to remain attached to Marioupol; so that, in the course of a year or two, Berdiansk will, in all probability, be in a condition to export from 200,000 to 300,000 chetwerts of corn. Most of the foreigners established at Marioupol have already purchased houses,

or sites for building, in the small town founded at Berdiansk, in 1825; and the intended accordance to this place of certain exclusive privileges, will in a short time render it a most important commercial station.

Since 1833, all vessels entering the Sea of Azof must undergo quarantine at Kertsch; and this sea has consequently been declared *Pratique*. The form of the basin here, which communicates with the Black Sea only by a very narrow channel, easily closed, first suggested the idea, which was afterwards carried into effect, of removing by this means the danger of the plague from the empire; and, at the same time, saving the expense necessary for the maintenance of the sanitary guard along the very great extent of coast. The state of the port of Taganrog, which obliged vessels to anchor sometimes at a distance of forty versts from the town, rendered the duty of the inspecting officers a very difficult one, and added another to the many reasons which led to the abolition of the quarantine. The interests of the trade of Taganrog, have succeeded, for thirty years, in averting the blow which threatened them, and they were the better able to do this, on account of the plague having never yet been introduced into the Sea of Azof. Ships liable to quarantine, bound for Taganrog, were subjected only to an observance of eight days at Kertsch: but those which were bound for Marioupol, were under the necessity of submitting to the entire period of quarantine.

We may fairly then view the measure adopted by the Russian government in two distinct lights; namely, of public safety, and of commercial interest. By concentrating at a single point the danger which had heretofore threatened the entire coast of the Sea of Azof; and in removing the possibility of infection to 170 leagues from the interior, the Russian government has shown herself alive to the truest interests of humanity. Quarantine, like all other restrictive measures, is a great evil; and, consequently, all the inhabitants of the shores of the Sea of Azof must have been gainers by being no longer subject to the inconveniences that resulted from it. This vast basin, by the paternal act of the government, may be said to be, in a manner, re-opened to them; and, being free to touch at any part of the coast, they traverse it without restriction. The opening of numberless ports, which may be expected to follow, will give a fresh impulse to the industry of the border population; and Russia may fairly look to this wisest act of her policy for the foundation of a mercantile marine.

The matter, too, is altered as regards exterior commercial relations. Foreign ships are now obliged to perform at Kertsch a quarantine of from fourteen to twenty-eight days, according to the state of health in the Levant, reckoning from the moment when they have discharged. The time which they pass there is consequently a pure loss, if they continue, as they still do up to the present time, to enter the Sea of Azof, since they cannot now, as was the case formerly, load during their quarantine at Taganrog. It is evident that the time they lose at Kertsch must considerably enhance freights, and consequently affect the profits of the Russian growers and manufacturers, who are obliged

to sell their merchandise 25 to 30 per cent. cheaper, in order to compete with the produce of other countries. The coasts of the Sea of Azof are thus removed by 20 to 35 days' journey; and, from this circumstance, lose their greatest advantage, namely, their opproximation to the centre of the empire.—*Report of Julius de Hagemeister.*

VOYAGE OF H.M. STEAM SLOOP "VIXEN."—*F. L. Barnard, Commander.*

From Plymouth to Tenerife, Bahia, Rio Janeiro, and the River Plate.

H.M. steam sloop *Vixen* left Plymouth on the afternoon of 4th May, 1852, with Sir Charles Hotham,* K.C.B., Minister Plenipotentiary to the Argentine Confederation, and suite, consisting of Mr. Edward Thornton, Secretary of Legation, Captain Augustus Hotham, Private Secretary, and Mr. Ouseley, Attaché. A breeze from the N.W. springing up the same evening enabled us to use the square sails and work on the second grade of expansion, averaging nine knots. We found that by using the third grade the speed was reduced without a corresponding economy of fuel.

On the morning of the 5th the wind drew to the eastward and continued from east to N.E. until the 8th, when we were in lat. 39° N. From the 8th to the 10th we had light and variable winds to lat. 32° N., when a breeze sprung up from the S.E., which continued to blow with all the characteristics of a strong trade until our arrival at Santa Cruz, Tenerife, on Tuesday the 11th.

During the run from Plymouth to Tenerife we experienced no current until we had passed the great Salvage; between which and Tenerife there was a set to the westward. Tenerife was enveloped in mist and could not be seen at any great distance, the headlands becoming defined before the higher parts.

The anchorage off the town of Santa Cruz, though so accurately described in the *Book of Directions*, presents difficulties to a stranger when the N.E. trade blows strong on the shore and creates a heavy swell, for the soundings are so deep that no bottom can be obtained with the lead until it is time to come to an anchor. In the *Vixen* we ran along the starboard shore and found ourselves amongst the shipping without being able to get bottom; trusting, however, to the chart, we anchored in thirty fathoms: the mole head bearing W.¼N., southernmost fort S.W.½S., northern fort N.b.E. This was an excellent berth, about three-quarters of a mile from the shore, and convenient for coaling and watering. With the wind on shore, I should recommend a steamer to steer boldly under the sterns of the vessels at anchor off the mole head, and bring head to wind with the mole head on with the church tower in from twenty-five to thirty fathoms.

* The result of Sir Charles's mission will be found in the sequel.

The contract of coals was thirty-five shillings a ton; they were sent alongside in launches carrying ten tons. Water was sent alongside in butts, which had to be hoisted in, the bung holes* not being large enough to receive the suction hose of the engine; we paid two Spanish dollars a ton for it. Beef and vegetables, as well as coals and water were supplied by Mr. Hamilton, an English merchant.

We left Santa Cruz on the 15th and crossed the equator on the 25th, in long. 25° W. The N.E. trade was neither strong nor steady after leaving Tenerife, and in lat. 15° N. we lost it altogether and experienced variable winds, calms, and heavy rains. After crossing the equator until our arrival at Bahia the trade blew freshly from E.S.E. to south, gradually drawing to the southward as we approached the coast of America. During the whole voyage we had no current until we made the land to the northward of Bahia at night and stood off when we found a strong set to the N.E.

Bahia lighthouse should be made, if possible, from the southward, as it is shut in by a hill with a signal post a few miles to the eastward of it, and cannot be seen until brought to bear N.N.W.

If to the northward, the land will show out with sandy hillocks and long patches of white sand, looking in the distance like buildings. The extreme point to the southward will at first appear like detached trees until a mound like a round island rises; on the other side of this is the lighthouse. The cathedral will be seen long before the lighthouse between the openings in the forests. About ten miles to the northward of the point, where the land begins to tend to the westward is a large barracoon or factory close to the beach.

On anchoring at Bahia we parted a cable although the ship's way was stopped. There must be a very strong under current for I afterwards observed that one of the large mail steamers had great difficulty in bringing up.

On the passage from Bahia to Rio we kept fifty-eight miles outside Abrolhas and experienced no current. Between Rio and the River Plate we found no current. Cape St. Mary is laid down thirteen miles of longitude too far to the eastward and this error is carried on in all the charts of the River Plate up to Buenos Ayres.

To the Straits of Magellan and back, touching at the Falkland Islands.

On the 1st of April, 1853, left Monte Video at 4 p.m., under steam, and, giving Punta Brava a berth of about four miles, steered E.b.S. until about fifteen miles to the westward of Flores light. During the night a breeze sprung up from the northward, and, at 4 a.m., the engines were disconnected and the ship put under sail, steering S.b.E. until 11 a.m. then S.b.W. as the wind was drawing round to the S.W., with a high barometer (30·10).

From the 2nd to the evening of the 6th the winds varied from

* This may be a useful hint to provide a piece that may screw on, of small diameter, for supplying H.M.'s ships.—Ed.

W.N.W. to S.S.W., generally drawing to the northward after noon and back to the S.W. at night; the barometer ranging from 30° to 29·78.

Each day we experienced a strong current to the southward between lat. 36° and 45° S. and long. 55° W., evidently the Plate current marked in the current charts. Setting as it did against the wind it caused a very heavy sea; its direction was as follows:—3rd, S. 24° E., (true,) fifty miles; 4th, S. 21° E., forty-two miles; 5th, S. 8° W., seventy-one miles; 6th, S. 7° W., fifty miles.

From the 6th to the 8th we stood to the westward as far as 59° W., the wind varying from N.E. to N.W., and had a set to the southward of half a mile an hour to lat. 46° S.

On the 8th the barometer had fallen considerably and the weather looked very threatening; but it rose again without any change and the sky remained overcast all the 9th.

The 10th commenced with gradually increasing breezes from the northward, drawing round to the westward. At noon the barometer was down to 29·30, and in the evening we had a heavy swell from W.S.W. and the wind was very unsteady. At 9 p.m. it shifted back to the northward, and by noon on the 11th it had gone round by the east to S.S.E., blowing strong, with heavy squalls and rain; barometer rising all the time; lat. 47° 49′ S., long. 64° 11′ W. The ship was put under close-reefed topsails, fore and main trysails, fore staysail, and inner jib. By 10 p.m. sail was reduced to the topsails and fore trysail, the fore staysail having been blown to ribbons.

During the gale, which lasted until the night of the 12th, generally from S.b.E., there was a very heavy sea which, at times, made a clear breach over the ship, washing away hammock nettings, sponson gratings, and all light work. The inclination was from 18°, to windward, to 37°, to leeward. At the end of the gale the bar. was 30·10, and then began to fall.

At one time I was inclined to think that some distant storm had affected the barometer and that we should escape, but, as usual, its warnings were not to be despised, and, as it seemed to foretell another gale, I steamed to the southward until within fifty miles of Cape Virgins; when, being anxious to save fuel, I disconnected and put the ship under sail, intending to stand in by daylight.

At 10 p.m. of the 15th, lightning was observed to the northward, a further inducement to me to keep under sail; but a gale suddenly sprung up from W.S.W. with a sea incredibly heavy at so short a distance from the land. With steam, we just kept steerage way, head to sea, all the 16th, and crept up under the land during the night.

At daylight of the 17th we made Cape Virgins to a mile, proving our chronometers quite right. As soon as we got within the line of soundings marked on the chart, Massey's patent lead was kept constantly in use, and we invariably found the quality of the bottom to correspond with that on the chart.

Although the coast and land are so correctly described in the *Book of Directions*, it may not be amiss to note down the first impressions

made on a stranger when entering the Straits of Magellan from different points.

Cape Virgins, when seen from the northward, cannot be mistaken after having once looked at the view of it which is given in the chart; but, as it was low water when the *Vixen* was about ten miles from it, I determined to follow out Captain Fitzroy's directions and not cross Sarmiento bank within that distance. A furious breeze, however, from the W.S.W. sprung up as the sun rose, and the current setting strongly to leeward at the same time, we were swept away to the S.E.; so, under fore and aft sails and steam, we stood back under the land, and I would strongly advise a ship nearing Cape Virgins during the ebb tide with a westerly wind to anchor under the lee until about half flood, and then round the cape at the distance of about two miles.

Approaching Cape Virgins from the southward, it assumed quite a different form, calculated to puzzle a stranger, for the high land to the westward of it makes exactly like the Cape itself, excepting that a low point appears to run off from the base. Once having been passed, however, it cannot be mistaken, being, as the *Book of Directions* describes it, the S.E. extreme of chalky looking cliffs, whereas all the land to the westward is much darker.

Whilst standing inshore we had two or three casts of ten fathoms on the Sarmiento bank and the patent lead brought up one pebble about the size of a pigeon's egg, the next cast gave twenty fathoms. Rounding Cape Virgins about half flood, at a distance of from two to two and a half miles, we had not less than nine fathoms water.

The low point of Dungeness appears at first much farther from the Cape than it is laid down, running far out to the S.W. like a low sandy point; we found it, however, perfectly correct and passed it within a mile; the extreme point was covered with sea lions and birds.

In the evening we anchored under Mount Dinero, which bore N.b.E., in fourteen fathoms, from two to three miles off shore, and remained there on the 18th, but found it much too exposed an anchorage for any time. It is open to the ocean in all winds from the southward and subject to a short jumping sea with all winds from W.S.W. to south, directly on shore, and we were taking seas over the forecastle all day. We found the rise and fall four fathoms, the moon being nine days old.

On the 19th, at daylight, we steamed along the land at a distance of about two miles, inside Wallis Shoal, towards Cape Possession, sounding in from twelve to seven fathoms; whenever we got the latter depth, an alteration of a point in the course soon deepened it.

Passing two miles from Cape Possession we stood W.b.S. across the bay, keeping Mount Aymond from one to one and a half point on the starboard bow, the soundings varying from fifteen to twenty-four fathoms. Once we passed through a kind of eddy and ripple and, stopping, found eight fathoms; the next cast there was no bottom with twelve fathoms; the soundings then became irregular from ten to eight fathoms. At 11.40, when nearly low water, we anchored in six fathoms, about five miles off shore, Mount Aymond, N.W.b.W.,

Direction Hill, S.W.¼S. After sounding with the Master to within a mile of the shore, we shifted in to about one and a half mile from the beach in seven and a half fathoms, having from seven to ten fathoms whilst standing in at half flood: Mount Aymond, N.W.b.W.¾W.; inner part of Direction Hill, S.S.W.¼W. At low water we had five and a half fathoms and, as it would probably fall two fathoms more during the approaching spring tides, we shifted further out, under sail, on the following day: Mount Aymond, W.N.W.; inner part of Direction Hill, S.W.¾S.; about three and a half miles off shore. The lowest water at spring tide was six fathoms. The rise and fall was forty feet.

All these anchorages are perfectly safe with the prevailing winds from the westward, but in an easterly gale, such as we experienced in the western entrance of the Straits, Possession Bay must be exposed to the sea of the open Atlantic Ocean. The holding ground is good, being stiff mud.

A few remarks on the leading marks may perhaps assist a stranger.

Mount Aymond and the Asses' Ears cannot be mistaken as they correspond exactly with the drawing given in the chart. The Direction Hills do not show themselves until the ship is well to the westward of Cape Possession, and the eye wanders in vain along a blue line of table land stretching to the southward from the base of Mount Aymond for the least inequality; this, however, is the Gregory range far inland, and the Direction Hills show as small dark islands gradually raising their peaks above it as you advance towards them.

The land on the opposite shore about Cape Orange made like a number of white rocks detached from each other.

We found the beach under Mount Aymond a mixture of shingle, sand, and clay, covered with mussels and limpets, and dry from half to three-quarters of a mile from high water mark. From the bank we could distinguish a line of kelp extending along the shore about a mile from high water mark, and, as we found but three fathoms on it two hours before low water neap tides, it is not advisable to anchor too near it.

The land, which is a loose sandy soil near the beach and a rich black mould further inland, is covered with heather and, here and there, a stunted shrub, which might be used for common firewood, but it is so covered with thorns that it would be difficult to cut any quantity.

The watering place is a small rivulet S.E.b.S. from Mount Aymond, as marked in the chart. It is banked up by sand just above high water mark and when first we arrived it was quite good; a high spring tide and surf afterwards made it salt, which obliged us to roll the casks up the sand bank about 300 yards and fill them by means of the small engine with 260 feet of hose, which reached from the edge of a deep hole across the rivulet, into which a stream of the most delicious water constantly trickles.

We found great difficulty in loading the boats, for a dead flat of shingle beach runs off for more than half a mile, and even in moderate

weather there is a nasty surf. The rise and fall being forty feet, a boat may be well afloat, and ten minutes afterwards two to three hundred yards from the water's edge. The plan we had to adopt at last, was to land the casks and allow the paddle-box boat to ground, load her, and let her float off with the rising tide; in this manner we got two turns, but with considerable risk, as she did not arrive on board until the middle of the night, and was the second time caught in a strong breeze and sea, which nearly swamped her.

Possession Bay is so exposed to the ocean swell that a ship may be weeks without being able to water; but in the event of requiring to replenish, like the *Vixen*, I would offer the following suggestions:— Boats should not be sent on shore with fresh north-easterly or easterly winds, as with them there is generally a long swell, which causes a dangerous surf. Avoid as much as possible having the boats away from the ship at night; the *Vixen's* cutter was twice unintentionally left high and dry by the rapid fall of the tide, and was nine hours pulling on board. If it is determined to allow the boat to ground for a tide, she should be sent on shore about half ebb during the night or early morning, if the weather will permit, so that she may float off again during daylight; a strong party should be sent in addition to the boat's crew, to roll down the casks, and load as they are filled. At times during the neap tides, when the water is fresh close to high water mark, it may be possible to fill the casks in the boats by means of the engine, whilst a party fill and carry down breakers, but these opportunities must be very rare. The boats should have a long jag of rounding in addition to their grapnell ropes, to be used as surf-lines or parbuckles; buckets for baling, and a blue light for a signal, should not be forgotten.

On approaching the First Narrows, the low land from which the Direction Hills arise, shows plainly, and the long line of blue is made out to be the Gregory range, which terminates in the bay of the same name. When Mount Aymond bears W.N.W. and Direction Hill W. S. W., steer about S. S. W. ½ W. until Mount Aymond bears N.W.b.N. and Cape Orange S.E.b.S., then S.S.W. through the Narrows. Cape Delgada is not conspicuous enough for a leading mark, but is easily made out when Mount Aymond is a little open to the left of Direction Hill. Orange Peak on the opposite shore is always conspicuous until through the First Narrows.

We found that the flood tide set towards the south shore, and had to haul up for Point Barranca before we were quite through. After Point Barranca bore W.N.W., a S.W.b.W. course took us close to Gregory Point. If the hummock to the left of Gregory range cannot be seen, keep the extreme of the Range itself about a point on the starboard bow. When Gregory Point bore from S.W.b.W. to W.S.W. three or four miles, we had two or three casts of 10 fathoms, an hour after high water. This does not appear on the chart.

From the entrance of the Second Narrows a snow-peaked mountain over Peckett Harbour is the first feature of a remarkable change in the scenery. A S.W. ½ S. course took us through, until Cape St.

Vincent bore S.S.E., when we steered for the north end of Elizabeth Island. Keeping from half to three quarters of a mile from the east shore of the island, we passed through several patches of kelp, which we saw too late to avoid. They are mentioned in the account of the *Fisgard's* passage through the Straits. Off the N.E. end we had one cast of a quarter less five fathoms, but afterwards not less than 7 fathoms. On looking back I found that the kelp extends about a mile from the shore. There is no known danger, but it is well to avoid it. As soon as the channel between Elizabeth Island and the main was open, we stood from S.b.W. to south, passing Laredo Bay, which appears to be a snug anchorage; in some patches of kelp off it we had no soundings with 7 fathoms.

On Sandy Point we observed a settlement with the Chilian flag flying, and after anchoring the acting Governor and Physician came on board. We anchored after dark from three to four miles to the southward of Sandy Point, a light at the settlement bearing N.N.W., in 14 fathoms, stiff mud, about a mile from the beach. The soundings are rather sudden, and caution is requisite on approaching the shore; we had 40, 32, 28, 22, 16, and 14 fathoms, within three miles of the shore. We afterwards sounded in shore, and found 8 fathoms one and a half to two cables' length from the beach.

Port Famine is now quite deserted, and the whole establishment removed to Sandy Point.

Unless close to the shore, the passage between the Island of Nassau and the main cannot be seen; but the island may be known by its terminating in a point of needle-shaped rocks, the only one in the neighbourhood not covered with trees.

We anchored in the Bay of San Nicholas, about three quarters of a mile to the S.S.W. of the small island in the centre, in 12 fathoms; on entering we towed the *Rattlesnake* a little further to the southward, and so steep is the bank, that although we made the signal for her to anchor when the lead gave 14 fathoms, the anchor went down in 25 fathoms. This a sheltered and good anchorage, with wood and water in abundance. Fish may be caught with the seine near the watering place, which shows itself in the centre of the head of the bay.

We experienced no current after leaving Elizabeth Island. The scenery here is grand and magnificent, no words could convey any adequate idea of it. From Cape Froward to Port Gallant the distance run by patent log coincided with the chart.

Cape Holland is a most beautiful and picturesque object, and stands out in strong relief against the snow-covered mountains behind it. It is rounded off and clothed to its summit with evergreen trees. Off it we had several snow squalls, which for about half an hour at a time quite obscured every object. They would have made it very awkward had they come on later in the day when near our anchorage.

Fortescue Bay, outside Port Gallant, is, as described, a well-sheltered anchorage. On approaching it from the eastward, after passing the islets off the entrance of Port St. Miguel, we kept very close to the shore, and just outside the kelp of a low peninsula, sounding in

from 10 to 5 fathoms, and anchored in 7½ fathoms to the south-eastward of Wigwam Island, in soft sand. The bank is rather steep; it is therefore advisable to anchor well in, to insure not being blown into deep water by some of the heavy squalls off the high land.

Point Gallant may be distinguished by its having on its termination close to the water a large flat like a round of beef. I mention this particularly, as on our return through the straits I ascertained our position by it, when running through English Reach in a snow-storm, with a current of five knots an hour to the eastward.

Passage Point is the only headland on the east shore of English Reach between Point Gallant and the Jerome Channel which has an islet off it; we passed close to this also in the snow-storm and found it a good guide.

In English Reach, during our passage to the westward, we experienced a strong easterly current, and passed through the tide ripples described by Captain Fitzroy. They twisted us round like a chip, and although going through the water at the rate of six knots, we did not make any head way by the land for some time. These ripples seem to be caused by the meeting of the waters out of Jerome Channel and Crooked Reach, as they ceased as soon as we shut in the former.

Borja Bay is a perfect basin, land-locked on every side; the watering boats can be hauled backwards and forwards, and the starting hose may be taken sufficiently high up to run of itself; wood can be cut close to the beach; and it is decidedly the best stopping-place in the Straits.

In Crooked Reach there is a most dangerous shoal, on which the *Otter* screw steamer nearly ran just before our arrival. It was visited by the Master of the *Gorgon*, but as the bearings do not quite agree, I took the Master and Master's Assistant with a boat's liquid and a large Azimuth compass, which agreed well together. The boat was hung by the kelp from the very point of the rock, which had only three feet water on it, and the following bearings were taken :—

Cross on Ortiz Island—N.E. ½ E.
Centre of the bluff of El Morion—S. ¼ W.
A remarkable white patch low down on the land in the centre of Butler Bay, and just to the westward of the extreme point of El Morion—S.b.W. ¼ W.

The small island was about its own length open to the eastward of Ortiz Island. To the eastward of this small island there is kelp extending upwards of a cable's length, over which we sounded, and found 3 fathoms.

On the following day we landed on Ortiz Island with the Azimuth compass, and took a round of angles. We could distinguish the kelp and tide ripple over the shoal. By most careful measurement we found it to bear from the cross on Ortiz Island S.W. ½ W., about three quarters of a mile. It appears to be of considerable extent, as we saw the bottom for at least a cable's length before we hit upon the shoalest part. The tide runs with such force that the kelp is taken under wa-

ter, leaving nothing to mark its position but the appearance of a common tide ripple, such as ships constantly pass through in other reaches. No better directions for avoiding it can be given than those of Capt. Paynter.

Playa Parda is a most convenient and well-sheltered anchorage. After rounding Shelter Island, we stood for the centre of Middle Island, and anchored in a strong easterly gale with the following bearings:—

Extremes of Shelter Island—S.W. ½ S. and W.b S. ½ S.
Eastern extreme of land—S.E.b.E. ½ E.

The williwaws were tearing up the whole surface of the bay, but did not affect the ship in the least. With the prevailing winds from west to S.W. Shelter Island must be a perfect protection. There are no dangers in approaching it.

Half Port Bay was made out with some difficulty; being merely, as described, an indent on the land. It is in a line with Point L'Etoile on with Shelter Island, and just to the eastward of an opening, and a very low, dark, rocky-looking point, off which there are a number of islets. The very best distinguishing mark is a remarkable chasm in the side of the mountain, formed apparently by a rush of water which falls into the bay. We stood in with the *Rattlesnake* in tow, and were within half a ship's length of the beach before we found bottom in 19 fathoms. The *Rattlesnake*, 80 fathoms astern, anchored in 22 fathoms. On sounding in the kelp half a cable's length inside us, we found 4 fathoms; and the *Rattlesnake*, more to the eastward, found a patch with only 2 fathoms.

With Playa Parda so close at hand, I should not risk a ship here a second time; and it is only fit for one vessel just for a night, when the barometer indicates fine weather. We laid out a spring as a precaution to ensure casting the right way, it was of the greatest service, as the wind set in from the north-westward; and I was glad to get away at 4 a.m., though pitch dark and raining in torrents.

In Sea Reach we experienced a heavy swell, and a gale springing up from W.N.W., we were unable to keep head to wind with the *Rattlesnake* in tow; it was too thick to bear up for Port Tamar, the only known safe anchorage between Half Port Bay and Valentine Harbour. To endeavour to reach the latter, I had stood so close to the shore that we had to wear close to the islets off Cape Felix, and keep under way in Sea Reach all night in the gale. We felt no current. The next morning we got into the Harbour of Mercy, a most excellent anchorage, and the most commodious that we visited in the Straits, being capable of protecting any number of ships. There are no known dangers on approaching it, and we stood through the midst of the kelp which extends nearly across the harbour. A ship intending to water here should go well up into the inner bay. The bearings of Westminster Hall are the best guide for finding the harbour.

On passing Cape Pillar we found a strong set to the southward,

until we had run five or six miles to the westward, afterwards the current did not affect us.

Returning through the Straits from the westward during the night, we encountered a strong easterly gale in Sea Reach. The course given as being steered by the *Adventure*, is E. ¾ S.; but we found that east took us rather close up to Cape Upright. After passing this cape, the wind increased so much that the ship's head occasionally fell off to the southward for a few minutes, and an easterly set took us so close to the south shore, that we found some difficulty in steaming off, even with lower yards and topmasts down. No sailing ship could have withstood the williwaws, which at times nearly stopped us.

We left Borja Bay in a snow-storm before daylight, and it became so thick after getting clear of the bay, that the engines were stopped, and we were soon taken by the current well over towards the York Roads in English Reach. After this we steamed easily along the north shore, and found, on the weather clearing up, that we had experienced a current of five knots an hour to the eastward.

After leaving English Reach, little or no current was felt as far as Port Famine, where we anchored for the night.

We found good anchorage off the settlement at Sandy Point in 12½ fathoms, about one and a half miles off shore. Flagstaff W.b.N. ½ N. Extreme north point N. ½ W. Extreme south point S. ¾ E. A ship intending to wood and water, may safely stand into 10 fathoms. We caught an ample supply of fine fish for the ship's company on the beach near the mouth of a rivulet a little to the northward of the houses. The best time to haul the seine is in the evening, when it generally falls calm. A fire should be lighted on the beach.

There is most excellent wood for steaming, and the authorities afford every assistance in their power.

As this settlement may probably be the first step towards the civilization of Patagonia, I shall endeavour to commit to paper all that I could gather about it.

It appears that it was first established at Port Famine by the Chilian Government as a penal settlement, and afterwards removed to Sandy Point, as being more suitable for agriculture and estançias for rearing cattle; this change of course threw them back, and just as they had become well settled, a revolution broke out, the Governor was murdered, and the principal actors in the tragedy were executed. Since then no more convicts have been sent, and the population consists at present of thirty volunteer soldiers, natives of Chiloe, and several peasants with their families. They are paid and fed well and seem contented. Little seems to have been done towards farming, the houses requisite for the inhabitants being but just finished. They are dependent upon a store ship that comes twice a year from Valparaiso for supplies, excepting fresh guanacoe meat, brought in occasionally by the Indians, who keep a constant drain on the stores of the colony and are very exacting, giving little in return but a kind of passive friendship and nominal protection from the wilder tribes. The Chilian Government have it in contemplation to procure cattle from the

Falkland Islands in exchange for the wood of the colony or for hard dollars. A vessel is daily expected from Valparaiso with definite instructions to the Commandant on the subject.

In compliance with my orders to visit the neighbourhood of Sandy Point and ascertain personally if a supply of coal could be relied on in case of necessity, I placed myself in communication with the Chilian authorities, who willingly afforded me every information and assistance.

On the morning of the 25th, between eight and nine a.m., having made up a large party, consisting of two Lieutenants, the Surgeon, a Mate, three Engineers, and six stokers, we started under the guidance of Doctor Wisbald Lechler (a German) and three peasants with axes to clear the road in the woods. We were also provided with the only five horses belonging to the colony. The first mile and a half was over an open plain; after which we entered a primeval forest in which a road had been partially formed by the fall of trees in tempests, and the cutting and burning down of timber for building, and no difficulties presented themselves not easily to be overcome for about four miles. After this there was a great ascent in the mountain much encumbered with fallen trees, and swamps of small extent, for two miles more. Up to this point, which I consider about half way, we could see no impediment to the construction of a good road, and the horses got on without much difficulty. A sudden descent, however, into a swampy valley, with a corresponding rise on the opposite side, made us doubtful if man had ever passed in the same direction before; but much more were we astonished, when we found ourselves tumbling and sliding down a precipice about 500 feet high, at an angle of about 25° from the perpendicular, in a slippery gulley of half frozen mud, formed by a stream which had washed down the soft sandy soil. This led us to the bed of a river which has gradually worked its way through the mountain, and is constantly undermining the banks, causing the sides to fall down in large landslips. For three or four miles we followed the tortuous course of the stream, crossing it twenty-two times, up to our knees, the boulders, as we sprung from one to the other in the midst of the torrent, rolling from under us, and the small landing places, being but partially frozen over, affording a soft yielding footing. We arrived at the first indication of coal about one o'clock, and at half past one we found that the banks of the stream were formed by a stratum of coal some feet deep. Here I determined to make a stop, although the larger veins were said to be at some distance further, for to have remained out the night would have been certain death to some, out of so many, and I had seen quite enough to convince me that even if the coals were of the very best quality they could never be conveyed to the beach. We dug well into the stratum for specimens. As we returned I was much surprized to find that the horses had descended the precipice like dogs and were coming up the bed of the river towards us; most fortunately it so happened, for one of the officers, who was taken ill, was conveyed back through the bed of the river before one of the guides on horseback, accompanied by the surgeon and two or three others, whilst the rest of the party

struggled back over the precipice in a snow-squall, arriving at the top most thoroughly exhausted and more or less cramped. Once or twice the guides even lost the track in the woods, and the impracticability of conveying coals by such a route was evident to all.

The party who returned by the bed of the river arrived first, and from their report should fancy that it is the most practicable route of the two, and during the winter months coals might be brought down on mules; however there are evident traces of its being a rapid and dangerous stream at times, and the landslips consisting of several tons of petrifactions must be so frequent, that it would be at all times much more economical to freight ships from England.

The following is the report of Mr. Barr, Chief-Engineer, on the specimens brought on board:

"The specimens of coals obtained had the appearance of 'hard flint coal,' or a nearer resemblance to anthracite; after exposing it to a clear furnace fire of Welsh coal for some time, I could not detect the least flame of gaseous matter, or, more properly, 'coal gas,' from it; there appeared to be little or no virtue in it: after it had been exposed, as above stated, then taken from the furnace, it had all the appearance of charcoal or charred wood, get red hot and smouldering away, no smoke being visible, crumbling to powder between the fingers. Trying it at the forge fire with the blast of the bellows, it gave out a small clear flame, with not sufficient heat to heat a small piece of iron, merely burning to wood-ashes or calx, with a disagreeable smell of decayed vegetable matter, very similar to the burnt refuse of a cabbage-garden."

In consequence of the recommendation of Captain Salas, I received on board the Cacique Casimiro, who sent his people overland to meet us at Gregory Bay with guanaco meat. I found him most intelligent and half civilized, speaking Spanish fluently and evidently, from his behaviour at table, much used to the habits of Europeans. His description of the people in the Pampas was most graphic and interesting. He says that they absolutely know nothing, and are like the guanacoes they hunt; that they have no idea of Christian people or of good faith and friendship, and that unless a person like himself is amongst them, to keep them in check and to answer for and explain things to them, they merely follow the bent of their own inclinations and rob and murder strangers. Having heard that a vessel had been wrecked between the First and Second Narrows, I inquired if he knew anything about it. He said that there was an English vessel cast away about five years ago, that the Indians had spoiled her and taken the people into the Pampas whilst he was at the settlement, but that as soon as he heard of it, he liberated them, and conducted them in safety to Sandy Point. Of himself he says that his object is to be the mediator between the Patagonians and the Christians, and for that purpose he lives constantly in the Pampas amongst them; he is most anxious to visit England and other christian countries, to be able to return and instruct his ignorant countrymen, and begged me to do all in my power to further his object. The Caciques Pedro Siloa and

Guaichi, and a Captain Jack came on board, as well as a son of Maria, mentioned by Captain Fitzroy; they were all perfect savages compared to Casimiro, who seems to exert much moral influence over them.

The men are generally from six feet to six feet six inches, and stout in proportion; the women are about six feet, and very fat. I should say that they are more capable of being quickly civilized than any savages I have met with. They are clothed in the skins of guanacoes, and smell like animals; beg and pray for spirits, and seem most anxious to obtain powder, although fully aware that they can obtain little of either from an English man-of-war. In bartering for the meat, the best plan is to weigh it, and give them the value of about three halfpence a pound in biscuit and tobacco. I should recommend a vessel calling at Gregory Bay to ask for Casimiro.

The tribe of Guaicurues, who have behaved so treacherously towards the colonists, inhabit the Pampas in the neighbourhood of Rio Negro, and are of the same race as the Fuegians, and there is always enmity between them and the Patagonians. At present there is an expedition to bring back either the lost governor, or, if he is dead, the chiefs, women, and children to the settlement at Sandy Point.

In all intercourse with the Indians, however frank and friendly they may appear, it is necessary to be prepared for treachery; the boats' crews should be armed and the officers should carry pistols, of which they have a wholesome dread. Should business, or curiosity, induce a party to go with them out of sight of the ship, two or three of the chiefs or squaws should be kept on board as hostages, without showing any distrust, if possible; and on no account should a party separate or straggle. Merchant ships should never allow any number of Indians on board at a time; four of them have been known to take a vessel from eight by attacking them unawares.

The Fuegians, three parties of whom we met with, are far inferior to the Patagonians, and much poorer. The first we saw at Port Gallant, consisting of a man, a woman, and some children, were partially clothed with skins, which scarcely covered them as they crouched over a smoky fire of green bows in the bottom of their canoe. They eagerly exchanged their arrows for bread, tobacco, and soap; the latter they eat voraciously, and seemed to enjoy very much. The next party at Borja Bay was much larger, and had evidently met with some Europeans. The men were allowed to come on board, and the sailors behaved very kindly to them, dressing them up in old but warm clothing, and stuffing them with beef, pudding, and biscuit, but they are most provokingly indifferent, take everything as a matter of course, and never recognize their benefactors afterwards; they swallow the smoke of tobacco, and in about five minutes become intoxicated with it, and foam at the mouth like dogs. The women, on the contrary, have a pleasing expression, acknowledge a gift with a smile, and recognize the donor several days afterwards. They seem very fond of their children, which, when very young, they wrap up before them in the same skin; when paddling, they shift them behind. The older children have merely dogskins over their backs, and creeping about the

bottom of the canoe, look like little animals; still they seem cheerful, and are constantly devouring sea eggs and mussels. The constant crouching over a smoky fire affects their eyes, and makes them the most shivering, wretched looking objects in the world when away from it. As to their language, it is most difficult to learn a word from them, as their powers of imitation enable them to repeat every question they are asked, and they carry it out even in signs.

At the Harbour of Mercy the officers found two men and a woman living in a hole in a rock like animals, with scarcely a vestige of covering, and subsisting entirely on shell-fish.

The wigwam we saw at Borja Bay was about ten feet in diameter, with a fire in the centre, and partially covered with seal-skins; in this twenty-one people and six or eight dogs slept. Still, with all this, we saw no signs of cannibalism, and they appeared kind to the old squaws. Intercourse with Europeans would soon raise them in the scale of the human race.

(To be continued.)

ARGENTINE CONFEDERATION.—We understand that the treaty for the free navigation of the rivers Parana and Uruguay, signed on the 10th July by Sir C. Hotham and the provisional director of the Argentine Confederation, has been laid before Parliament. The Confederation concedes the free navigation of these rivers, wherever they may belong to them, to the merchant vessels of all nations, and agrees to maintain beacons and marks pointing out the channels; such navigation to remain free to the merchant flag of all nations in case of war between any states of the River Plata or its confluents, excepting in what may relate to munitions of war, such as arms, lead, gunpowder, and cannon shot. A uniform system is to be established by the Confederation for the collection of custom-house, harbour, and other dues. No favour is to be granted to the flag of any other nation which shall not equally extend to the British. Considering that the Island Martin Garcia may impede free navigation of the confluents of the Plata, the contracting parties agree to use their influence to prevent that island being held by any state which shall not adhere to the principle of free navigation. The treaty was ratified on the 11th of March.

BOMBARDMENT OF ODESSA.

The English official declaration of war reached the fleet, then anchored at Baldjik Bay, near Varna, on the 9th of April, upon which the steamer *Furious* was sent to Odessa to bring away the English Consul. With a flag of truce flying at her mast-head, she hove to, and sent in a boat, also carrying a flag of truce, to demand the Consul. There was some delay in returning an answer, and the Lieutenant in command of the boat thought it right to return to the *Furious*: upon

which the Russians opened a fire upon the boat and in the direction of the steamer. Six or seven shots were fired, but fortunately without effect. On the 17th (the French official declaration of war having arrived, without which Admiral Hamelin was naturally unwilling to proceed to extremities), both fleets sailed for Odessa, before which place they anchored on the afternoon of the 20th. An explanation was demanded of General Osten-Sacken, the Military Governor, as to his reasons for outraging a flag of truce, always held sacred to all nations pretending to civilization. This demand was also sent in under a flag of truce, but the boat, when backed by the fleets, was not molested. The General returned an unsatisfactory and untrue answer, declaring that he did not fire upon the boat, but upon the *Furious*, which, not heeding customary signals, was steaming up the Bay for the purpose of examining it; whereas she was motionless. Upon this the Admirals sent in a demand for the delivery of all the shipping in the port, and declared that in the event of no answer arriving before sunset on the 21st, they would punish this outrage on the law of nations. The vessel taking these demands having been stopped, Admiral Dundas sent a circular round the fleet stating that what he had done was on account of the Russians having fired on a flag of truce.

Here it is necessary to endeavour to give the reader some idea of Odessa. It has often ben compared in general aspect to Brighton; but the line of cliffs on which the town stands has a slight curve inwards, forming a shallow bay, with a radius of some three miles. These cliffs face the N.E., and towards the north they sink into low sandy mounds and flat endless steppes. Stretching out from below them, at the lower or south-easterly end of the town, runs a long fortified mole, at the end of which was a lighthouse. This is called the Quarantine Mole, and it shelters a great crowd of ships of all nations. Their crews are never permitted to go into the town, but are imprisoned within a small walled-in and strictly-guarded quarantine district, at the foot of the cliffs, even if they should happen to be detained there for six months at a time. Under pretence of preserving themselves from disease, the Russians have made the quarantine a hateful political tyranny. When the Allied fleets appeared before Odessa, this mercantile prison of all nations was very crowded; and on the morning of the 22nd each vessel had her colours at the mast-head, as if appealing for succour and protesting against cannon-balls intended for the Russians. The attacking force had orders to give this mole as wide a berth as possible, in order to be out of reach of its fire, and so to avoid the necessity of returning the fire and injuring any of the neutrals within. The following was the attacking force:—French, *Moyador*, *Vauban*, *Descartes*, *Caton*; English, *Sampson*, *Terrible*, *Tiger*, *Retribution*, *Furious*; and a detachment of rocket boats under Commander Dixon. The *Sanspareil* and *Highflyer* acted as reserve.

At five o'clock on the morning of the 22nd of April, the signal was made for the steamers to commence an attack on the Imperial Mole and the fortifications in its neighbourhood. The orders were to go as far as possible in shore, so as to rake and destroy the Imperial Mole

and shipping, but to avoid firing upon any part of the town or upon the shipping in the Quarantine Mole. The steamers entered in two divisions. The first consisted of the *Sampson*, *Vauban*, *Furious*, and *Mogador*. The *Sampson* fired the first shot at the Imperial Mole, and the fire was instantly returned. The movement, as witnessed from the large ships, about three and a half miles off, was a most curious sight. When within about 2000 yards each steamer delivered the fire of her enormous guns, then wheeled round in a circle of about half a mile in diameter, each taking up the fire in succession. Thus they kept wheeling and twisting about like so many waltzers, without ever touching or getting into scrapes. The guns in the mole answered steadily, and in the course of an hour the *Vauban* came towards the fleets on fire, from red-hot shot, and riddled in several places. Happily, the fire was got under and she returned to her post.

At seven a.m. the second division received the signal to stand in. It consisted of the *Terrible*, *Tiger*, *Retribution*, and three French steamers. The *Retribution* led the way, closely followed by the other steamers. The Russians had laid down a "lump," that is, an old vessel was anchored to mark the distance their guns would carry. The Allied division went within this mark and therefore exposed themselves to loss from the shot of the enemy. At first, however, their shot did not reach our ships, although they suffered severely under our fire. The *Terrible* stood further in than the rest and commenced firing red-hot shot. After a time a loud explosion was heard. The Imperial magazine had been blown up by a shot from the *Terrible* and great part of the mole on which it stood was rent in pieces by the violence of the explosion. This relieved the Anglo-French squadron from their most formidable opponent, the battery on the Imperial Mole. The *Terrible* continued to fire red-hot shot. A Russian frigate in the harbour took fire, burnt to the water's edge and blew up.

Each of the vessels which remained out of action had sent a rocket boat, firing 24-pound rockets, and these caused terrible destruction. The dockyard was the chief object of these missiles, and it was soon in flames. Two new frigates, and from twenty to thirty merchantmen were either sunk or burnt. The seamen of the *Terrible*, which remained on the spot till the following Tuesday, declare that it burnt for two days and two nights, and that this vast collection of naval stores must have been totally destroyed.

The steamers were busily plying the sinking ships with shot and shell, when suddenly from behind some sheds on the low sandy shore near them, a battery of six horse-artillery guns opened out upon the rocket-boats, which were at the moment within musket-shot. Happily nobody was hurt, though a perfect shower of balls fell around them, knocking the oars about, and ploughing up the water all around them. Upon this the rocket-boats and steamers opened upon them, and soon sent them scampering. A few minutes after, the sheds behind which they sheltered themselves burst out into a furious fire. While they were thus engaged, H.M.S. *Arethusa* was ordered to attack the southern side of the Quarantine Mole battery as a diversion,

for its guns had frequently been very troublesome. Nothing could be prettier than the way in which she stood in, hove to, and delivered her fire, filled, tacked, and again delivered her broadside. Shortly after the breeze freshened, and she deliberately reefed her topsails, though under fire, and was then recalled by the Admiral.

At half-past five p.m., when the action had lasted twelve hours and a half, the signal of recall was made. The action ceased; the *Terrible* having lost two men killed and five wounded; the *Vauban* two men killed and one wounded; the *Retribution* three, and the *Sampson* five wounded. These were all the casualties ascertained. As the *Terrible* was the most distinguished in this action, she was received with all honours on passing the fleet. Each ship cheered her as she steamed past on her way to the Bosphorus. She has suffered much in appearance. Her paddle-boxes are a good deal knocked about, and she has twelve shot in her hull. Captain M'Cleverty remained on the paddle-box all the time, and narrowly escaped a shot.

During the fire several English merchantmen slipped out of the Quarantine Mole, and escaped. The poor fellows were very thankful to have escaped. Altogether the punishment was severe, but appropriate. Russian property was destroyed, and much of it must have belonged to Government. The town and neutral ships were spared, though completely in our power; and it cannot be contended that a place with so many batteries on the sea-board was defenceless.

The city is said to have suffered comparatively little, though a few of the principal buildings, and among the rest the Woronzoff Palace, were a prey to the flames. Odessa has, however, completely changed its external appearance. The terrific cannonade and the explosion of the magazine broke all the windows, many chimnies have fallen, and the steeples of many churches have been injured.—*Illustrated News.*

The *Post-Ampt Gazette* of Frankfort has the following letter from Odessa, dated April 25th, which says:—

"The greater part of the outer batteries were considerably damaged, and those at the north angle of the fort were dismantled. The Russians, who fought with great energy, had 200 men killed and 300 wounded, more than half of whom will henceforth be unfit for service. Six warehouses have become the prey of the flames.

Rescue of the American Darien Expedition by Lieut. Forsyth, of H.M.S. "Virago."

The following private letter of the rescue of the American Exploring Expedition is a most interesting narrative:—

Virago, Darien Harbour, April 8, 1854.

When I last wrote to you we were bound for this place, and arrived just in time to pick up Mr. Gisborne and his party, who were five

days in coming across the isthmus. The American Expedition, who had the start of them of about five weeks, had not up to this time been heard of. Of course great doubts were now entertained of their safety. Mr. Gisborne being very anxious to get down to Panama, and again cross the isthmus, we took him there; and, on landing, we learnt that some Indians had been in and reported that Lieut. Strain, U.S. navy, and the American Exploring Expedition, had all been eaten by the wild beasts. Finding an American officer at Panama, who was sent across from the U.S. corvette *Cyane* to inquire after the missing party, Captain Marshall offered him a passage with us to Darien, thinking it the most likely place for him to fall in with them, which he declined, preferring some other route.

On the 16th March we returned back to Darien; the commander, finding that the American Expedition was still missing, determined to rescue them, if possible, and formed an expedition for that purpose, which I volunteered to command; and left the *Virago* early on the morning of the 17th, with a party of nineteen men and officers, all well armed; and taking with us one month's provisions, proceeded up the Chuqunagua River. On arriving near the town of Yaniso, we met Lieut. Strain (who had left his party about a month previously on the banks of the above river in a starving condition) coming down to the *Virago* for assistance. He immediately came on board my boat, and, as you may suppose, was delighted to find the service I was on. On arriving at Yaniso, after some trouble I managed to procure six canoes with twelve natives, now mustering a very strong party. We pushed on up the river into the Indian country.

On the 19th, finding the river fast shoaling, I took to the canoes, leaving the ship's boats to fall back on. We soon passed over the first rapids.

On the morning of the 22nd, we were cheered by coming on an encampment of the missing party, which appeared from a notice they had left, had been occupied by them about three weeks previously, and had called it hospital camp No. 2. One of their men died and was buried here on the 5th, having eaten all the berries, &c. within a circle of six or seven miles. They made up their minds to retrace their steps to Port Escoces, where the *Cyane* was lying. After this almost every step of our way was constantly impeded by innumerable trees and logs of wood blocking up the river. Some of these immense trees we cut through with our axes; others we excavated round the roots, so as to give a passage to one canoe at a time. Difficulty after difficulty was surmounted, and in the afternoon of the 23rd we came to another encampment, where we found buried Senor Castilio, on whose grave we found lying dead Senor Palanco, both the Granadian Commissioners who had accompanied the American Expedition. After interring the remains of the latter we lost not a moment in proceeding, knowing that the party could not now be many miles ahead of us. Our crews gave way manfully, and every nerve was strained to come up with them, if possible, before nightfall; and to our great joy, just before sunset the signal was made from the look-out canoe for smoke

ahead. Two or three human beings were soon discovered on the banks of the river, having been attracted there by the fire of our muskets; these were the missing party. Three cheers were given by our gallant little band, and we were on shore in a moment. On my landing I was perfectly horror-stricken at the sight of these poor starving creatures; this was their 63rd day in the bush, and their 55th day without any provisions, with the exception of a few berries they from time to time gathered in the woods. We found thirteen of them alive, out of eighteen left by Lieut. Strain five weeks previously, and these in a most deplorable condition. Had it not been for our timely aid, four of them could not have existed for more than a day or two, and not a man of them could have lived to reach their ship, they were in such a sad state of exhaustion. That night I thanked my Maker that we had been the means of saving these poor starving creatures. After a little while we had some weak soup, &c., prepared for them; and Dr. Ross, the assistant-surgeon, did every thing in his power to alleviate their sufferings; but notwithstanding all he could do, one of them died on the following night.

The place where we discovered them at, was 134 miles from where the *Virago* was lying in Darien Harbour, and about ten miles from the place our men were murdered in January last. It appears the Americans had not made any treaty with the Indians, but had merely a promise from them that they would not molest them on their route. On landing, they offered themselves as guides, led them into the mountains, and there left them to their fate.

I returned back to the ship on the 30th, after having been away just a fortnight. We have the lieutenant commanding the party with some of his men and officers living on board, and the remainder are encamped on shore near the vessel, who are all fast recovering, and I suppose in about a fortnight after our horrid boilers are put a little to rights we shall take them down to Panama.

Extracts of Letters from the Baltic Fleet.

H.M.S. *Imperieuse*, near the Gulf of Finland, 18th April, 1854.

You have no doubt heard of Sir Charles Napier's signal; it was not made many minutes, when up went our signal to place ourselves in conjunction with *Tribune* and *Dauntless*, under the orders of Rear-Admiral Plumridge, in the *Leopard*. We left Kioge Bay on the 3rd of April, but it was not until the following day that we were made acquainted with the fact that we had been sent to cruise for, and intercept, if possible, some vessels that had lately left Lubeck, laden with lead and sulphur. As yet we have not had the felicity of meeting the said ships, although we have boarded every vessel we have come across, and a pretty state of consternation we have spread amongst the poor men who navigate these seas. The whole of this day (the 5th) we have done nothing but pursue ships, in every possible direction, and, thanks to the noble ship we have under us, we have no difficulty in coming up with them. Those commanded by Swedes tell the boarding officers that we are brothers; the

Dutchman insists upon our taking *schnaps* and cigars, while the Dane wishes us God speed. The weather is and has been remarkably fine, though far too cold to be comfortable, more particularly to those who have served many years in a tropical climate. We are at this moment off the Island of Gottland (April 6th), and it is to be hoped that the remainder of the fleet will soon follow, for if the Russians get out of their ports, we should not be able to do much with our small force; yet I think we might manage, even with the said small force, to give half a dozen of their ships of the line a good deal of trouble, by keeping clear of their broadsides, which might easily be done while the screw continues to act. On the arrival of the fleet, should the Russians attempt to come out and give us battle, I feel satisfied that nothing can save them from utter destruction, but it is generally believed that they will not venture out of their strongholds, and if they don't, I am very much mistaken if we can get at them, however sharp our cutlasses may be.

April 7th.—We are on our way towards Revel, and have had a terrible day of snow and wind, and now (7 p.m.) it is freezing so hard that our decks are covered with ice; the water alongside is nearly fresh. Gulf of Finland.—We are near Revel; I fancy to find out how many, or if any, ships of war are there, and then return with the Admiral, if not taken by the Russians, which is not probable, if our screw holds good; we are accompanied only by Admiral Plumridge, in the *Leopard*, the other two ships, *Tribune* and *Dauntless*, having been left off Dago, to keep a good look out. Before parting the Admiral made signal, "Take care you are not surprised." To-morrow I hope to be able to tell you something about Revel.

8th, off Revel.—This has been certainly an exciting day. At six this morning the Admiral ordered us by signal to overhaul a suspicious looking ship; this was by all on board supposed to be a man-of-war, some thought a liner, others a large frigate; in three minutes' time we had assembled at quarters, guns cast loose and double shotted, with plenty of shell ready for action; the sick bay was deserted by every one, except three who could not crawl, and they would have been at their guns if they could have stood, to have taken part in the anticipated coming struggle. At the time it was blowing hard, our decks were covered with ice, and the sea, washing in at the foremost ports, froze as it came on the deck. All however was forgotten in the excitement of the moment, and in three or four minutes at farthest every gun was loaded, the decks fore and aft completely cleared of everything but the guns, &c. We were carrying double-reefed topsails, and the screw going as it never went before; we must have been going from thirteen to fourteen knots, and every minute brought us nearer to our supposed enemy. The wind howled wildly, as if reproaching us for the eagerness with which we were rushing on to destroy; there was not another sound heard fore and aft, except that of the officers giving their different orders, when all at once the spell was broken; we had approached her near enough to make out that she was a large merchant ship, and had hoisted American colours. There is very little doubt that if she had turned out to have been a line-of-battle ship that Captain Watson would have attacked her, and I am not at all certain that we should not have thrashed her, for the day was most admirably adapted for the use of the screw. People may talk as much as they like of the sailors of "the *last war*," but I can never be convinced that it was possible for men to evince more enthusiasm than was shown to-day by every one on board this ship. After this we passed through some fields of ice—loose—looked into Revel roads, which are blocked up with ice—overhauled several merchant ships.

9th.—Thick fog all day; we nevertheless managed to capture a Russian barque, but we do not know what the cargo consists of, she having been taken by the *Tribune*; it must, however, have consisted of munitions of war, or we could not have made her a prize.

10th.—The ships' heads are again turned towards Revel; looked into a place called Hango, on the north side of the Gulf of Finland, just at the entrance thereto. It is a miserable looking place, but appears to be strongly fortified; saw two or three merchant ships in harbour; as we approached the place hoisted Russian colours.

11th.—This morning we again prepared for action, in consequence of *Tribune* not recognising the private signals until we got close up to her. I trust that this sort of thing will not often occur, as the too frequent preparation for action without effect is liable to damp the ardour of the crew when *real service* might be required. Chased and took possession of a Russian brig called the *Dido*, laden with salt from Setuval, last from Copenhagen, but I think we have done wrong, and will have to let them go again. Our instructions are, I think, vague and indefinite.

12th.—I forgot to say that we have the prize crew on board. They are Fins; they appear to be delighted with everything they see, hate the Russians, and I have no doubt would fight against them if they had an opportunity. A steamer from the fleet joined us this morning; we are ordered to join Sir C. Napier, calling first at Kalmar Sound and Bornholm.

13th.—About one p.m. Sir Charles Napier with the Fleet hove in sight, on their way to Faro Sound; we were reluctantly compelled to join them, for we had hoped to have had a day or two at Copenhagen, with time to replenish our stock and get our clothes washed.

14th.—We now number thirteen liners, six frigates, three sloops, and seven paddles:—*Duke of Wellington*, 131, *St. Jean D'Acre*, 101, *Princess Royal*, 91, *Cressy*, 80, *Cæsar*, 91, *Royal George*, 120, *Neptune*, 120, *Monarch*, 84, *Boscawen*, 70, *Edinburgh*, 58, *Hogue*, 60, *Blenheim*, 60, *Ajax*, 58, *Imperieuse*, 51, *Euryalus*, 51, *Arrogant*, 47, *Tribune*, 30 (absent with prizes or detained vessels), *Amphion*, 34, *Dauntless*, 33, *Conflict*, 8, *Desperate*, 8, *Archer*, 15. Paddles—*Leopard*, 18, *Dragon*, 6, *Magicienne*, 16, *Bulldog*, 6, *Vulture*, 6, *Valorous*, 16 (not with us). We hear this morning from the *Princess Royal* (Lord Paget), that the Emperor of Russia had offered to evacuate the Principalities if we would withdraw our ships from the Black Sea; of this you must be better informed than we can be. Our crews are getting into first-rate order, everything in the fleet goes on well, there is no unnecessary exercise, and a judicious practice of the great guns and small arms observed.

15th.—We have passed Faro Sound, and the Admiral has just made a new rendezvous, viz., Landsort Island, a place to the southward of Stockholm.

16th.—Having reached within about twenty-five miles of Landsort, the Admiral detached Admiral Corry with the ships of his division, but where he has sent them I do not know; we, under Sir Charles, with his division, steered to the eastward, towards the Gulf of Finland. The wind has been high to-day, and very cold. A man fell overboard to-day from the *Princess Royal*, and was drowned. A man fell from the *Magicienne*, he was drowned also. 6 p.m. —The squadron wore to the westward Dago, E twenty-five miles. *Gorgon* rejoined last night.

17th.—Cruizing off the entrance to the Gulf of Finland. Ships in company *Duke of Wellington*, *St. Jean D'Acre*, *Royal George*, *Princess Royal*, *Cæsar*, *Cressy*, *Edinburgh*, *Arrogant*, *Amphion*, *Leopard*, *Dragon*, *Gorgon*, *Magicienne*, and *Porcupine*, the latter will take letters to-morrow, the 18th. I have not received a letter from England since our arrival at Kioge on the 1st instant. What can have become of them, with the papers? You would be doing us all a great service by spurring the post-office authorities to the importance of a regular and certain postal communication between the fleet and our friends. Two or three ships have arrived lately without bringing a letter or paper for any one; surely there must be mismanagement somewhere. We think Revel and Helsingfors must be still blocked up with ice, and of course Cronstadt too.

We are cruising at the entrance of the Gulf of Finland. Our colliers are at Faro Sound, where we shall go shortly. I think we have the weather very cold, but exceedingly fine; an ocasional blow of from twelve to eighteen hours' duration, generally from N.W.

H.M.S. ———, Kioge Bay.

2nd April.—The Admiral has issued several written orders on points relating to the duties of the officers, military as well as naval. Commanders of line-of-battle ships are to be *de facto* First Lieutenants, and nothing more; the Lieutenants are to be in three watches, an additional one on the forecastle, whenever the numbers will admit of it. The strictest attention is to be paid to gunnery; all the officers (Captains of Marines and Masters alone excepted) are to be exercised, and if necessary to be instructed by the Gunnery Lieutenants of their respective ships; the Captains are to make reports of their progress and proficiency. The training of the seamen to military exercises is dwelt on at considerable length; he is of opinion that the superior intelligence of the seamen especially qualifies them for the duties of "Light Infantry," and they are therefore to be trained to act as skirmishers, to know the use and meaning of the bugle sounds, to extend, close, advance, retire, &c.; he then very properly remarks that the officers should first become acquainted with these matters, so as to be able to instruct the seamen, and recommends that corporals of marines be ordered to assist until the Lieutenants and other officers are sufficiently conversant to do it themselves. The seamen are to be formed into companies of seventy men each; a Lieutenant and two Mates or Midshipmen, and a certain number of petty officers appointed to each. The largest class ships are to furnish three companies each when required to land a force, the two-decked ships two companies, and frigates one. The field pieces are to be worked by seamen, and formed into brigades to act with the infantry.

6th.—*Boscawen* came in this morning, and anchored in the berth vacated by the *Imperieuse*. We heard that she lost four men and a boat yesterday while communicating with the *Driver* in the Great Belt. The particulars of the case have not yet reached me, but I believe there is no doubt of the fact. The copy of the *Gazette* of the 28th ult. was received here to day containing the declaration of war with Russia. The signal made by Sir C. Napier you already have. *Arrogant* has just received orders to proceed to sea forthwith: the other ships are now completing her with water and she sails positively before sunset. Her orders are to visit the island of Bornholm (belonging to Denmark), and lying immediately at the entrance to the Baltic and midway between the southern extremity of Sweden and the coast of Pomerania. After visiting the island, she is to cruise to the southward of it, to intercept the Russian trade and keep a look out for (so-called) neutrals carrying cargoes "contraband of war." The *Amphion* is to perform a like duty to the northward of Bornholm.

11th.—*Arrogant* was at Neso, on the east side of Bornholm Island, on the 8th inst., and left again the next morning. *Amphion* was also there. Both these ships have had plenty of occupation in bringing to and examining merchant ships, but, up to this date, nothing contraband has been discovered nor any vessels detained.

13th. *Arrogant* and *Amphion* joined the fleet yesterday evening, the *Magicienne* having been sent to recall them; they have made no captures. *Arrogant* is now stationed on the lee beam of the fleet to look out for and examine strangers. The fleet is now steering along the east coast of the Island of Gottland, the lights of which are in sight. No one appears to know where we are steering to, but there is an idea very generally entertained that some forts guarding the entrance to Hango Sound, an anchorage on the S.W. coast

of Finland, and possessing facilities for watering a large fleet, is the point to which our course is now directed. These forts are said to be very strong and solid, and mounting heavy guns; they have been built since the last war.

16th.—This morning passed in sight of Gottska Sando, a small island to the north of Gottland, about eighty miles from Stockholm. Signal was made to rendezvous at Landsort Road, about thirty miles from Stockholm, and course was cotinued in that direction N.N.W. until about 4 p.m. when the Admiral, after exchanging some private signals with Admiral Corry, made more sail and (leaving Admiral C. with ten ships continuing his course in the direction of Landsorts) altered his course to the E. of N. again in the direction of Hango Sound. The fleet is now divided into two squadrons under Admirals Napier and Corry. The distribution of the ships is as follows:—

VICE-ADMIRAL NAPIER.	REAR-ADMIRAL CORRY.
Duke of Wellington	*Neptune*
Royal George	*Boscawen*
Cressy	*Ajax*
St. Jean d'Acre	*Blenheim*
Cæsar	*Hogue*
Edinburgh	*Euryalus*
Princess Royal	*Odin*
Arrogant	*Valorous*
Imperieuse	*Dragon*
Amphion	*Bulldog*
Leopard	*Hecla*
Magicienne	*Lightning.*
Gorgon	
Driver.	

17th.—Judging from the proceedings of the last two days, it is now very clear that Sir C. Napier's squadron is for the present blockading the Gulf of Finland. The position of the fleet for the last two days has varied but little; during the day the Admiral keeps standing from one side of the Gulf to the other under easy sail, and during the night he keeps them well off the land. The paddle steamers under Admiral Plumridge keep a look out in all directions, and chase every strange sail that heaves in sight. Three or four small vessels, carrying Russian colours, have been detained. As things look at present, the most probable view to take of the Admiral's movements is that he is contenting himself with a blockade until the arrival of the French ships, and that Admiral Corry is performing the same duty in the Gulf of Rigt..

12th.—Admiral Corry's ships rejoined the Commander-in-chief yesterday, still cruising in the Gulf of Finland.

A letter from the fleet, dated at Copenhagen, April 27th, states that:

"Sir Charles Napier, with the line-of-battle ships under Admirals Corry and Chads, were, by the latest accounts, keeping up a rigorous blockade of the Gulf of Finland, which would render the escape of a single Russian ship impossible.

Cruisers are stationed off Revel, Riga, Memel, Dantsic, Stockholm, Gothland, Bornholm, in the Sound, Cattegat, and Gulf of Kiel, so that the whole Baltic Sea and coasts are under strict guard.

The *Tribune* left Copenhagen for England on the 26th of April with one of her prizes, having captured six. The *Magicienne* was at Copenhagen on the 26th coaling, and would leave for the Baltic Fleet with despatches on the 27th. She was literally loaded with provisions and parcels for the Baltic

Fleet, making it a duty to receive anything and everything for the officers and men, and had also a heavy mail from the Government.

The *Magicienne*, *Dauntless*, *Gorgon*, *Imperieuse*, and *Euryalus* had all made prizes, which would be sent to England immediately for condemnation.

The report of the abandonment of Aland required confirmation.

The Danish Government lingers on the side of Russia.

The Swedes are decidedly in favour of England. One line-of-battle ship and four frigates were in commission at Copenhagen. The Swedish Government intend putting several vessels in commission.

Considerable dissatisfaction was caused by the delay in the establishment of the expected semi-monthly communication between England and the Baltic Fleet.

An extract of another letter from the *Duke of Wellington*, bearing date 27th April, states:—We are about to attack Hango Hinch Harbour, which will be the opening of the ball, and of which I hope to render you a good account.

The following animated letter from a young officer, serving in a steam-frigate attached to the Baltic Fleet to his father will be found amusing:—

We arrived here (Elfsnabben, thirty miles south of Stockholm,) on the 21st ult., all but the frigates of the squadron, which are cruising on the Russian coast. The latter have by far the jolliest billet of it, for they are taking prizes as fast as possible, and every now and then getting a pop at the Russian batteries, while all the rest of us are here doing nothing. The *Odin* took a splendid prize a day or two ago, worth, I hear, £4000 or £5000. The English ensign over the Russian mercantile one is becoming quite common, but what we want more particularly to see is English over the Imperial or Russian war ship's ensign. The *Austerlitz* (called 100 guns, but we can only count 86,) joined last evening. She is a lump of a ship, with a very ugly stern, and very curiously painted, but throws a heavy broadside; and I hope the other ten ships coming will prove as serviceable. The *Austerlitz* is a screw, and steams and sails well. We were rather surprised at not being allowed to cheer the French ship as she came in. Her crew appeared to expect something of the sort. The ship steamed all round the fleet, and the compliment was evidently looked for. The *Princess Royal* or *Cæsar* would walk round her like a cooper round a cask. It is the opinion among us subordinates that the *Princess* is the handsomest and decidedly the fastest of the whole fleet. The *James Watt*, 91 guns, joined the fleet on the 27th. This ship is a powerful addition, throwing a heavier broadside than any ship in the fleet, excepting the *St. Jean d'Acre*, which latter ship throws a heavier broadside than the *Duke of Wellington*.

This is a very pretty place and a fine harbour. It is quite land-locked and very spacious, with from twenty-six to thirty fathoms water and good holding ground. It is formed of numerous islets, which are mostly covered with stump firs and brushwood. The herbage is scanty, but there is plenty of moss. There are a few fishing and pilot huts around the bay; but we are not hard up for visitors, as thousands are daily coming here from Stockholm and Landsort. On Sundays especially the steamers are loaded with people, including those of the highest rank. It is still very cold, and for the last few days it has been raining or sleeting, freezing or foggy; and we are suffering much from chilblains. The Admiral has very kindly given an order that at sea the men's hammocks are not to be piped up till a quarter past six, instead of at two bells as formerly, and that our cockpit hammocks should not be disturbed until a quarter past seven. Only think of that! You cannot

imagine how this has raised him (Sir Charles Napier) in the opinion of the junior officers of the Navy.

A subsequent letter, dated May 4th, acknowledges the receipt of a letter dated the 7th of April; so that it appears by the present postal arrangements a letter could reach Bombay in a shorter period than it would take to go to the Baltic.

The *Cumberland* arrived here this morning in the fog; how she got in nobody knows, unless it was by mistake. The *Prince Regent* arrived yesterday. The *St. George*, 120, is outside, with four French line-of-battle ships. We now know that the Russians have evacuated Aland.

May 5th.—1.10 p.m. Weighed (the fog having cleared off) and went out under steam. 1.30 passed the *Leopard*, who made signal, "Russian Fleet is at Helsingfors, ready for sea; twenty in number." There's a go. All I hope is that they'll come out and fight.

6th.—This day it has been blowing like fun, but is now moderating. We shall get into Copenhagen to morrow (Sunday) evening.

We (*Morning Herald*) have letters from the Baltic fleet to the 24th April, then cruising off the Gulf of Finland. After visiting and surveying different harbours, and the coast up to the Gulf of Findland, towards Helsingfors, and round the neighbourhood of Aland Island, the party reconnoitred the harbour of Hango, from the forts of which some guns were fired at them, but without injury. They landed on the island of Uto, and visited a village of about fifty houses. The lighthouse on this island was locked up; the village itself was deserted. They entered the houses, but in one only was found a human being —a poor bedridden old man, too ill to be removed, and who had been left by his relatives and friends to his fate. The feelings of the deserted one may be imagined when the armed party entered his desolate home. He resigned himself to what he supposed must be his inevitable fate—death; he was agreeably surprised when our generous countrymen proved to him that their country wars not against individuals, but the nation, or those found in arms against us; and could not express his gratitude when, instead of death, Captain Hall gave him an orange and a bottle of wine to refresh and cheer his solitude. The party found 50 sheep and some goats on the island. Food appeared scanty, and the land barren. The only trophy carried away was a sprig of furze, which was blossoming in beautiful contrast to the snow with which it was surrounded. The result of the survey has been an assurance that with determination and caution the ships may go into any of the harbours except those strongly fortified; in attacking these strongly fortified places, great caution would be necessary. The fleet was in excellent spirits. The Finlanders are very lukewarm in the cause of the Emperor, and will evidently only do that which may be forced upon them. It was expected the fleet would proceed again northward. The coal depots are in the Faro of Gottland.

Captain Foote, of the "Conflict."

The *Plymouth Mail* gives the following particulars respecting the death of Captain Foote:—

On the 18th April Captain Foote and Mr. Sloggett, surgeon, with five men, left the *Conflict* on duty to call on the governor of the island of Memel. When they left the ship the weather was as fine as had been experienced since their arrival in the Baltic. After paying respects to the governor, Capt. Foote

and Mr. Sloggett dined with the British consul, whose residence they left at 4 p.m. to return to their ship. On leaving the shore Capt. Foote inquired if there was danger in regaining their vessel, when he was assured there was not. The party then left the shore, and shortly after the wind increased and a great sea rose on the bar. When they were about half a mile from the shore and one mile from the ship the boat was struck by a sea and filled, the second sea turning her bottom up. Capt. Foote made strong efforts to swim, but having on a thick great coat was unable to make way. The surgeon, Mr. Sloggett, succeeded in extricating himself from a loose cloak, which he had on at the time, and grasping a pair of oars which fortunately came in his way was by that means kept afloat from twenty-five to thirty minutes. Three men gained the boat, but were soon washed off again. One man was washed off three times, but at last succeeded in keeping his hold, and this was the only man out of the five who composed the boat's crew who was saved. The seaman saved states that Capt. Foote struck out boldly at first, but being encumbered with the heavy coat he was soon lost sight of. The surgeon was unconscious when picked up, and remained so for one hour after he was taken on board his ship.

One of the letters from an officer of the ship, speaking of his late captain, says:—"He was beloved—deservedly beloved—was a thorough sailor, as firm and good an officer as ever held her Majesty's commission." Capt. Foote was the son of the late Capt. Foote, of Stonehouse, and was one of the most promising officers in the service. He had been cruising as near the ice as he could approach, and made his captures off the Russian port of Riga.

Russian Captures.

The *George Jongeblaed* vessel has been declared at Lloyd's to be no prize.

The *Carl Magnus*, prize to H.M. steamer *Conflict*, has arrived at Hull.

The schooner *Victor*, prize to the *Euryalus*, 51 guns, arrived on Tuesday the 9th inst. at Sheerness from Hartlepool, having put into that port in consequence of the prize crew being short of provisions. She was towed to the Nore by the steam-vessel *Adder*, on her way to London.

The *Abo* and *Æger*, prizes to the *Tribune*, anchored at the Nore on the 9th and after the prizemasters had communicated with the *Tribune* they proceeded on for London.

The *Alexander*, which arrived at Gravesend on the 9th, was deposited in the West India Docks.

Three more Russian prizes have arrived at the Nore on their way to London, namely, the *Fidentia*, of 300 tons, and thirteen men, laden with salt, from Cadiz bound for Lovisa. She is in charge of Second-Master William Buck, of the *Tribune*. The ships *Imperieuse* and *Leopard* were in company when the *Fidentia* was taken by the *Tribune*.

The barque *Aland*, taken by the screw steam-ship *James Watt*, arrived at the Nore at midnight on the 11th, and left for the river and docks next day.

The brig *Hyara*, prize to the paddle-wheel steam-sloop *Gorgon*, Commander Arthur Cummings, arrived at Sheerness on the 12th, also proceeded for the river.

A Russian merchant vessel reached Constantinople on the 26th ult., in charge of Lieutenant Jones, of the *Retribution*, eight days from Odessa. This vessel and eleven others were captured eight days previously outside of Odessa by the *Retribution* and *Niger*, and a French steam-vessel, five falling to the *Retribution*, six to the *Niger*, and one to the French steamer. Some of them were in ballast, others laden with coal, linseed, and flour, and had left Odessa to convey these provisions to the Danube.

The Judge of the High Court of Admiralty has given notice that on the

22nd inst. the Court will proceed to condemn the Russian ships *Zeleus*, captured by the *Argus*, and *Kamschatka*, taken by a boat of the Coast Guard off Folkstone—also the *Johanna Emilie*, *Fidentia*, *Amercia*, *Aina*, *Nadescha*, *Fenix*, *Froya*, and *Livonia*.

The Swedish Fleet.—There will be four Swedish line-of-battle ships and six frigates, with four steamers, ready by the opening of the navigation, in addition to a Norwegian contingent. One of these line-of-battle ships will be commanded by Prince Oscar. The officers had orders to join on the 21st of February. To those conversant with the Baltic, the reports of a demonstration before Stockholm by the Russian Fleet are most improbable. The navigation for more than twenty miles is extremely intricate and difficult, and there is at present no symptom of the ice giving.

The naval force that the Scandinavian Powers are capable of bringing to the protection and maintenance of their neutrality is by no means inconsiderable. It may be concisely summed up thus:—

	Denmark.	Sweden.	Norway.
Ships of the line	5	10	—
Frigates	8	8	2
Corvettes and brigs	9	8	—
Schooners	3	6	11
Cutters	2	—	—
Gunboats	80	256	126
Steamers	6	12	5
Screw ditto	1	—	—
Transports	—	22	—

For the manning of this fleet there are no less than 30,000 seafaring men registered in Sweden, and as many in Norway; about one-tenth of these only are in active service. The additional number now called out is 1150.

Destruction of the Steam Gun-Boat "Jasper."

The steam gun-boat *Jasper*, Lieut.-Commander C. G. Crawley, left Plymouth on Saturday, May 13th, for the Downs, and all went well on board until 6.40 a.m. on Monday. When about fifteen miles off Beachy Head, the officer of the watch discovered flames and smoke bursting up from the bulkheads of the gun-room. No notice was given, or any suspicion of fire, until the vessel was nearly in a blaze. In a few minutes all hands were on deck. Officers and men exerted themselves to the utmost to extinguish the flames, and for one hour all human energy was put forward, but to no purpose. Mr. Bate, supernumerary Second-Master, assisted by a few hands, entered the magazine and, with buckets of water, attempted to flood it. They could not remain below long, for the heat was intense and the smoke suffocating. Mr. Bate did his best, and was scorched in his retreat to the deck. The fire had now taken possession of the whole ship, and Lieutenant Crawley had to consult the safety of his officers and crew; and, finding all further efforts useless, gave orders to abandon the vessel in the three boats belonging to her, the party consisting of the Commander; Master, Mr. R. C. Dyer; Engineer, Mr. W. Hall; second, W. Lewis; third, R. Biddle; Gunner, J. Blellock; and supernumerary Second-Master, Mr. Bate, with twenty-five men and three boys. They then pulled away from the burning craft, and lay to. After a time they imagined, by the smoke not appearing so dense and from the

quantity of water they had thrown and by the flooding of the magazine, that they might yet save the vessel. Nearly all volunteered to return to her, when, on nearing, one of the officers discovered that the mainmast was on fire, and the flames running along in dangerous proximity to the spirit-room and magazine. They quickly pulled away from the danger, and not too soon. The fire had licked up the water, had reached the combustibles, and she blew up and sunk, spreading a shower of shells and pieces of timber to a great distance, fortunately without injury to the officers or crew. A vessel was now perceived to bear down upon them, which turned out to be the *Vanguard*, of Liverpool, Captain Crosby. The officers and crew of the lost *Jasper* speak of the great kindness and attention they received from Captain Crosby.

The only conjecture as to the origin of the fire is that the soot might have remained in the flues, have made them red hot, and so communicated to the bulkheads, which, being already heated, must have ignited spontaneously.

The Black Sea.

When it was known that Admiral Dundas would have to enter the Black Sea, Captain Brock, an officer well acquainted with it, was sent out to the Admiral to assist in its navigation. The captain is related to some of the most distinguished families in Guernsey. The following is an interesting extract from a private letter from Captain Brock to a relative in that island:—

Kavarna, Black Sea, March 28, 1854.

We had a most interesting cruise in the Black Sea, and on my return I had circumnavigated the Black Sea, the only Englishman in the fleet that can say so, thanks to my having been kept going. We coasted in the *Sampson* to reconnoitre the Russian forts along the coasts of Georgia and Circassia, and were witnesses of the Circassians burning a Russian fort, which we afterwards learnt had been evacuated by the Russians; it was a beautiful sight, and with the magnificent scenery in the back ground, formed a splendid spectacle. We did not then know that the Russians had evacuated the place; and of course supposed that the Circassians had stormed it and put all to the sword; but we were afterwards undeceived. We saw some other forts in flames, and at last my patience being expended and curiosity excited to the utmost, I prevailed on the captain to give me a boat, in spite of the prognostications that the Circassians would take us for Russians and shoot us. In vain did I try to make the interpreters accompany me; at last, in despair, I was going alone, when the interpreter of the French steamer in company with us went with me. It was then dark, which increased the risk; but it was necessary to obtain some clue to their extraordinary proceedings. We pulled in close for the burning fort; when within musket shot they began firing pistols and muskets to warn us off; but I stood up and waved the boat's ensign over my head, and held out my arms, shouting as loud or louder than they. We pulled right on shore; they seemed uncertain what to do, and after many signs a man advanced on a white horse, and, firing his arms in the air and reloading them before he came near, dismounted and came into the water with an axe in his hand. Before even knowing what I wanted, I jumped on his neck and made him carry me on shore, which he did to his and my great astonishment. I have no doubt I must have astonished his weak mind by my weight, and his comrades by my appearance. Being called, however, they ran to me, and I told them we were friends to them and enemies to Russia. This set them all alive, and such embracing and kissing were never seen. We learnt from them that the Russians had of their own accord evacuated the fort the day

before, and that therefore they had destroyed it as a hatred sign of the oppressor's rule. I never before saw such a fierce-looking set, begrimed with smoke and dust, armed to the teeth, and bearded like Pards; their swarthy countenances lighted up by the flashes of the fire of the burning fort, which, nearly destroyed, sent up at intervals bright flashes of flame, lighting up the surrounding hills, then dying away in utter darkness. Altogether it was magnificent, and, as we parted good friends, all ended well. Of course we were all unarmed, except a revolver carried under my coat, but there was no necessity for that, as, in case of a row, they were too many for us. We gained a good deal of information from them respecting the Russians. The ships remained there all night, and on the morrow, after continuing our examination of the coasts, we returned with all speed to the Bosphorus, when, without an hour's respite, we were packed off to Sebastopol. When we returned from that place, off I went again next day, and here we are in for six months, if not more, unless the Russians come out and shorten our stay.

THE OTTOMAN FLEET.

The Turkish Fleet left Constantinople for the Black Sea on the 4th May, under the command of Caiserli Ahmet Pacha, Mouchaver Pacha (Captain Slade), and Hassan Pacha, and is composed of the following twenty-two vessels:—

Sailing Ships.

	Guns.		Guns.
Mahmoudié	124	*Peiki Messareh*	84
Peiki Zafer	94	*Techrifié*	84
Memdoulié	84	*Nousretie*	74
A Cade Zerad . ..	74	*Myoum*	74
Feuftah Zehad . ..	74	*Behiré*	54
Garan Bahri	54	*Ferakh Numa*	20
Cheref Numa	20	*Shaika*	20
Djai Ferakh	20		

Steam Ships.

Muklibirri Surur ..	26	*Feigi Bahri*	22
Chaiki Chadi	22	*Megidié*	22
Shakkper	8	*Messin Bahri*	8
Peiki-fiz	6		

THE RUSSIAN FLEET IN THE BLACK SEA.

The following is a list of the Russian naval forces in the Black Sea:—

	Guns.		Guns.
Varna (flag-ship) ..	120	*The Three Tsrorchow* ..	84
Twelve Apostles. ..	120	*Uriel*	80
Rostilas	120	*Yagondib*	78
Sviatoslaf	120	*Chabry*	80
Selafond	120	*Czelem*	84
The Three Sviatitely ..	120	*Silistria*	80
Sultan Mahmoud ..	80	*Catherine II.*	80

Frigates.

Midia	60	*Mizifria*	56
Kovarna	56	*Zisopol*	52
Flora	54	*Kagul*	48
Brailow	60	*Agathopol*.	46

Steamers.

Bessarabia	6	*Grosney*	6
Gromonoz	6		

Total guns 1942

Fifteen small ships (such as brigs, corvettes, and schooners.)

All these ships are not supposed to be fully equipped. The Commander-in-Chief of the entire naval force is Admiral Prince Metchikoff. The superior commander, placed immediately under his orders, is Admiral Berch, who has for chief of the staff General the Vice-Admiral Korniloff. The naval forces in commission in the Black Sea are composed of the fourth and fifth divisions. The fourth division is placed under the command of Vice-Admiral Salniapauski, who has superseded Vice-Admiral Jourieff. It is composed of three brigades, each containing three ships and two frigates. The fifth division is placed under the command of Vice-Admiral Nakhimoff. It is in like manner composed of three brigades, each containing three ships and two frigates. The nominal crew of each ship is 1100 men. The Governor of Sebastopol is at present Vice Admiral Lermantoff; the military commandant is Vice-Admiral Stankovitch, and his second in command is Vice-Admiral Rogoulia.—*Hants Advertiser.*

The French Fleet in the Baltic.

The following is the strength of the French marine forces in the above waters, as officially published by the Minister of Marine:—

Squadron of the Baltic Sea.

The Baltic squadron, under the command of Vice-Admiral Parseval-Deschenes, has left the roads of Brest, and sailed for the Gulf of Finland.

This squadron, which has embarked an expeditionary corps of troops, of the marine, infantry, and artillery, is composed of the following ships:—

Ships.	Character.	Guns.	H.P.
Le Taye	Ship of the line, 2nd rank ..	100	
L'Austerlitz	,, mixed 2nd ,, ..	100	500
L'Hercule.....	,, ,, 2nd ,, ..	100	
Le Jemappes	,, ,, 2nd ,, ..	100	
Le Breslau	,, ,, 3rd ,, ..	90	
Le Duguesclin	,, ,, 3rd ,, ..	90	
L'Inflexible	,, ,, 3rd ,, ..	90	
Le Duperré	,, ,, 4th ,, ..	80	
Le Trident	,, ,, 4th ,, ..	80	
La Semilante	Frigate, 1st rank	60	
L'Andromache	,, 2nd ,, ...	60	
La Vengeance	,, 1st ,, ...	60	
La Pursuivante.....	,, 2nd ,, ...	50	
La Virginie	,, 2nd ,, ...	50	
La Zenobie	,, 2nd ,, ...	50	
La Psyche	,, 3rd ,, ...	40	

Ships.	Character.	Guns.	H.P.
Le Darien	Steam-frigate	14	450
Le Phlégéthon	Steam-corvette	10	400
Le Souffleur	,, ,, ...	6	200
Le Milan	Aviso à vapeur	4	200
Le Lucifer	,, ,, ...	6	200
L'Aigle	,, ,, ...	6	200
Le Daim	,, ,, ...	4	120
	Total	1250	2290

Squadron of the Black Sea.

The naval force in the Black Sea, under the command of Vice-Admiral Hamelin, is composed at the present moment of—

La Friedland	Ships of the line, 1st rank ..	120	
Le Valmy	,, ,, 1st ,, ..	120	
Le Ville de Paris	,, ,, 1st ,, ..	120	
Le Henry IV	,, ,, 2nd ,, ..	100	
Le Bayard	,, ,, 3rd ,, ..	90	
Le Charlemagne	,, mixed 3rd ,, ..	90	450
Le Jena	,, ,, 3rd ,, ..	90	
Le Jupiter	,, ,, 3rd ,, ..	90	
Le Marengo	,, ,, 4th ,, ..	80	
Le Gomer	Steam-frigate	16	450
Le Mogador	,, ,, ...	28	650
Le Descartes	,, ,, ...	20	540
Le Vauban	,, ,, ...	20	540
Le Cacique	,, ,, ...	14	450
Le Magellan	,, ,, ...	14	450
Le Sané	,, ,, ...	14	450
Le Caton	Steam-corvette.....	4	260
Le Promethée	Steam aviso	4	200
Le Salamandre	,, ,, ...	2	120
Le Serieuse	Corvette	30	
Le Mercure	Brig, 1st class	20	
L'Olivier	,, 1st ,, ...	20	
Le Beaumanoir	,, 1st ,, ...	20	
Le Cerf	Brigaviso	10	
Le Héron	Steam aviso	2	200
La Mouette	,, ,, ...	2	200
	Total	1120	4900

Second Squadron (Atlantic).

The squadron of Admiral Brouat, destined to act in the Black Sea, in the waters of Gallipoli, and in the Archipelago of the Levant, comprises the following ships:—

Le Montebello	Ship of the line, 1st rank ..	120	
Le Napoleon	Steam-ship, 1st rank	92	960
Le Suffren	Ship of the line, 3rd rank ..	90	
Le Jean Bart	,, mixed 3rd ,, ..	90	450
La Ville de Marseille.	,, ,, 4th ,, ..	80	
L'Alger	,, ,, 4th ,, ..	80	
La Pomone	Frigate, mixed 3rd rank....	40	220
La Caffarelli	,, ,, 3rd ,, ...	14	450

Ships.	Character.	Guns.	H.P.
Le Roland	Steam-corvette.....	8	400
Le Primauget	„ „	8	400
	Total	622	2880

Independent of these three squadrons, and of all the steam frigates or corvettes, collected in the Mediterranean for the transport of the army of the East, all the naval stations have received important reinforcements in the West Indian Archipelago, in the Pacific Ocean, in the Indo-China seas, and in all the quarters where the deep sea fishing is carried on. The Imperial navy possesses at the present moment on all the seas 56,000 sailors embarked.

Hants Advertiser.

Navy Pay and Prize Act.

The following is an outline of the Bill introduced by Sir James Graham for "The encouragement of Seamen, and the more effectual manning of Her Majesty's Navy during the present war."

The preamble recites the proclamations granting general reprisals against Russia, and giving the captors the benefit of all prizes, and declares the objects of the Act to be the encouragement of the Officers and crews of her Majesty's ships-of-war, and to induce all British seamen now in any foreign service to return to the kingdom and become serviceable to her Majesty.

Clause 5 enacts that in case any vessels of her Allies shall be present at the capture, they shall share in proportion to the number of men.

Clause 6 declares that if a ship of war take any fortress on land, all stores, &c., found in it, or vessels in her harbours protected by it, shall be the prize of the captors, and be distributed amongst them.

By the 7th clause, whenever the Army and Navy, acting in conjunction, make any captures, the proceeds are to be divided between the two services.

By clauses 9 and 10, British ships recaptured from the enemy are to be restored to owners on payment of salvage of one eighth of the value, unless they have been used as vessels of war. If recaptured before being taken into an enemy's port, they are to be allowed to prosecute their voyage.

Clause 11 grants, in case of the capture or destruction of any vessel of war or privateer, belonging to the enemy, a bounty of £5 per head for every person on board at the commencement of the action. The succeeding clauses relate to the proceedings for condemnation in the Admiralty Courts. The proceeds of all prizes are to be paid to the account of the Paymaster General, and by him handed over to the Admiralty for distribution. All parties interested may apply to the High Court of Admiralty, in England, for decision on any point.

By clause 32, any captor retaining any part of the proceeds is to pay interest of one per cent per month; and by clause 39, all prize goods and merchandise are declared liable to duty.

Under the succeeding clauses no deserter from her Majesty's service is to be entitled to any share of bounty or prize-money. Any officer in charge of a convoy, who leaves his convoy to capture or carry into port a prize, forfeits his share. Masters of merchant vessels under convoy disobeying the orders of the officer in charge, are to forfeit a penalty not exceeding £500. Any officer in her Majesty's service making a collusive capture is to forfeit a sum not exceeding £1,000. A penalty is imposed on any person who shall attempt to ransom any ships or goods captured by the enemy, and all contracts for such ransoms are declared void.

By clause 49 hired armed vessels are subjected to the some rules as the vessels of her Majesty's fleet.

The concluding section of the Act authorises her Majesty to appoint judges of prize causes, grant them retiring pensions, and regulate the fees and practice of the courts.

The Secretary of State is authorised to grant licenses for the importation and exportation of goods, and the Act is to continue in force during the present war.

The short title of the Act is, "The Prize Act, Russia, 1854."

In connection with the above Bill another has been introduced, "To Facilitate the payment of Her Majesty's Navy, and the payment and distribution of Prizes, Bounty, &c., and the regulation of the accounts relating thereto."

U. S. Gazette.

LAUNCH OF THE ROYAL ALBERT.—The *Royal Albert*, screw three-decker, 131 guns, was launched at Woolwich dockyard at one p.m. on the 13th inst., in the presence of the Queen, Prince Consort, the Royal Family, the members of both Houses of Parliament, and an unusual assemblage of the aristocracy and general public. A ship launch is an ordinary matter of every day occurrence; not so, however, a ship of war, and that ship a first class three-decker, screw-propelled, and in the presence of the Sovereign and her family. There will arise in the minds of the reflective among the myriads of spectators who thronged to see this grand national spectacle, some peculiar thoughts anent the rise and progress of naval (steam) shipbuilding, on contemplating the stupendous floating structure presented by the *Royal Albert*, when compared with such vessels as her designer and builder (the late Mr. Oliver Lang) first tried his hand upon in the shape of a steam man-of-war—the *Comet*, now in commission, and but last week sent round to Portsmouth. The *Comet*, *Lightning*, and *Meteor* (sister vessels) were the first steam-vessels that ever appeared in the British Navy, and the *Comet* was *the* first that ever carried a pennant. They were constructed by Mr Oliver Lang, when Assistant-Surveyor of the Navy in the year 1820, *the three Surveyors who were then in office having refused to take the responsibility of constructing a steam vessel for sea service!* The three vessels above named were all built at Deptford in the course of about three years, from Mr. Lang's own drawings and plans of fittings, without the interference of any one, solely under his own direction and personal superintendence. We subjoin their respective dimensions from Admiralty returns to the House of Commons moved for by Sir Charles Napier in May, 1846:—

Name.	Guns.	Length.	Breadth.	Depth in Hold.	Tonnage.	Class.	H. P.	Character of Engine and Maker.
		Ft. In.	Ft. In.	Ft. In.				
Comet ..	3	115 0	21 3	11 11	238	Paddle	80	Side lever—Bolton & Watt
Lightning	3	126 0	22 8	13 8	296	Paddle	100	Side lever—Maudslay
*Meteor** ..	3	126 0	22 8	13 8	296	Paddle	100	Side lever—Bolton & Watt

Now contrast the size and character of these vessels (and none afloat have

* This vessel has been broken up now some time since.

ever done their duty better—very few so well) with the enormous fabric just launched, the work of the same handicraftsman :—

	Ft.	In.
Length between the perpendiculars	232	9
Length of keel for tonnage	193	6⅛
Breadth, extreme	61	0
Breadth for tonnage	60	2
Breadth, moulded	59	4
Depth in hold	24	2

Burthen in tons, 3726 4·94.

Engines by John Penn and Son, on their patent trunk principle, of 500 horse power.

Simultaneously with the launch of the *Royal Albert* at Woolwich, the French launched from Rochefort the *Ulm*, a screw ship, of 100 guns. The French, it is said, are behind hand with their machinery; but it is announced that the two screw ships of the line, *Jean Bart* and *Napoleon*, were in the roadstead at Toulon.

LAUNCH OF THE "TARTAR."—On Wednesday afternoon, the 17th inst., at four o'clock, the second of the two screw frigates, built for the Russian government in Pitcher's dockyard, Northfleet, and, after being seized by the Customs, purchased by our own government, was launched in the presence of a large concourse of spectators, both in the yard, on the heights adjoining it, and in an immense number of boats on the river abreast of it. The curiosity and desire of the public to see "one of the Russian prizes taken in Pitcher's dockyard," together with the remarkable fineness of the day, contributed no doubt to bring together so unusually great a number of people. The first of these twin ships intended for the Russian service was named the *Cossack*. The one launched now was named the *Tartar*. The *Tartar*, like the *Cossack*, will be ship-rigged, and fitted with the same number of guns. Her measurement is as follows :—

	Ft.	In.
Length between the perpendiculars	155	0
Breadth extreme to a 4-inch plank	88	3
Depth in engine-room to main deck	21	10½
Length of engine-room	42	0

Burden in tons, 1388 87·94.

Engines by Maudslay, Sons, and Field, of Lambeth.

The *Tartar* was towed up to the East India Docks to take in her engines.

The *Phœbe*, screw, 50, was launched at Devonport on the 17th inst. The ceremony of naming was performed by Miss Hillyar, daughter of the late Admiral Sir James Hillyar, whose name is honourably associated with the dashing deeds of the old *Phœbe* in the American war. The *Phœbe* is built on the same lines as the *Indefatigable*, to which she is, in fact, a sister ship. Her dimensions are—

	Ft.	In.
Length of keel	147	8½
Between perpendiculars	180	0
Extreme breadth	57	6
Depth of hold	16	6
Burden	2044 tons.	

The *Hornet*, 16, screw corvette, was launched at Deptford dockyard on the afternoon of Thursday, the 18th inst. The naming was performed by the second daughter of Commodore G. B. Martin, C.B., the gallant Superintendent.

She is a handsome looking ship, like her sister the *Cruizer*. Her dimensions are as follows:

	Ft.	In.
Length from the forepart of figurehead to the aftpart of taffrail	184	0
Length between the perpendiculars	160	0
Length of the keel for tonnage	140	7
Brendth, extreme	31	10½
Breadth for tonnage	31	8¾
Breadth moulded	31	0¾
Depth in hold	17	4½
Burden in tons, old measurement	752	74·94
Burden in tons, new measurement	554·609	
Burden in tons, engine room	193·683	
Register tonnage	360·926	

Captain Sumner's Method of Finding the Latitude and Longitude at Sea.

Greenwich Hospital, May 5th, 1854.

Sir,—I perceive in the May number of your useful Magazine, a suggestion by one of your correspondents of a modification of Sumner's method of finding the latitude and longitude at sea. If, as I have some reason to think, the writer was a pupil here about five and twenty years ago, I am sorry that he should have forgotten his old school habit of demonstrating the propositions which he advances.

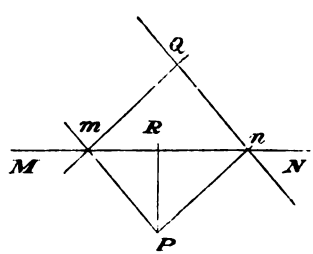
The modification to which his letter refers was in full practice by our little navigators here in 1852, and since that time must have spread far and wide amongst nautical men. Mr. Fitzmaurice has given an unnecessary limitation to the problem, by his direction to "assume a latitude certainly less than the latitude in." The modification, by the way, I do not now consider an improvement on the method given by Captain Sumner.

You will, Sir, perhaps invite your correspondent to furnish his investigations, or it is at your pleasure to publish those which I append.

I have the honor to be, Sir, your obedient servant,

To the Editor of the Nautical Magazine. John Riddle.

Let M N be the assumed parallel of latitude, and *m* and *n* represent the computed places upon it; through *m* and *n* draw *m* Q and *n* Q in the directions of the computed bearings, and draw *m* P and *n* P at right angles to *m* Q and *n* Q; then P is the place of the ship, P R the meridional difference of latitude between P and *m*, and *m* R the difference of longitude between *m* and P.



The proper difference of latitude between *m* and P is $P\ R \times cos.\ (latitude\ of\ m)$ very nearly.

The angles Q *m n* and Q *n m* are the bearings of the object observed, estimated from the east and west points of the horizon, and the complements of these angles P *m n* and P *n m* are therefore equal to the computed azimuths.

Now in the plane triangle *m* P *n*,

$$P\ R = m\ n\ .\ \text{sin.}\ m\ .\ \text{sin.}\ n\ .\ \text{cosec.}\ (m+n)$$

Therefore the correction of the assumed latitude, viz., that of the point m, which is $P\ R$. *cos. latitude* is

$$m\ n\ .\ \text{sin. } m\ .\ \text{sin. } n\ .\ \text{cosec. } (m+n)\ .\ \text{cos. lat.} \ldots . (1)$$

And the correction of the longitude of m, viz., m R, is

$$m\ \mathrm{R} = \mathrm{P\ R}\ .\ \text{cot. } m = \mathrm{P\ R}\ .\ \frac{\text{cos. } m}{\text{sin. } n}$$

Or, $m\ \mathrm{R} = m\ n\ .\ \text{cos. } m\ .\ \text{sin. } n\ .\ \text{cosec. } (m+n) \ldots . (2)$

The bearings have been supposed, the one eastward and the other westward; when both are east or west $(m+n)$ must of course be changed into $(m-n)$ in formulæ (1) and (2).

G. H. S. J. R.

THE SEAMEN'S LIFEBOAT.

SIR,—As wrecks *must* take place and crews must perish unless provision be made to prevent the latter calamity, you will be very glad to find that a means of doing so has been at length found by a Mr. Hawkesworth of Torquay, who has constructed a boat which bids fair to surpass all others, not excepting the celebrated Northumberland boat. But when speed was made the principal quality for a lifeboat, as appears by the report on that subject, in preference to keeping above water at a wreck, when she had reached it in any condition of weather and sea, the disasters which have occurred to these boats need occasion no surprise. There is good reason for believing that Mr. Hawkesworth's boat will maintain the high character she has already obtained, by the following extract which I send you from the *Sunderland Times* of the 20th May last:— Z

To the Editor of the Nautical Magazine.

The *Mary Ann*, the new lifeboat which we last week announced as having been purchased by the Seamen's Association of this port, arrived in the harbour on Thursday week, with all her stores, and drew a large crowd of admirers. She sailed round the coast from Torquay, during which time satisfactory experiments were tried with her. Her price is £200, which is considered to be cheap. She is considerably smaller than the one at present belonging to the port, but we trust that when called into use she will be found, when manned by the seamen, a safe boat on the dangerous wave. On Saturday Mr. Hawkesworth, the patentee, submitted a fine model of the boat, and a carriage, to the inspection of several gentlemen, who spoke in high terms of them. The carriage is elegant and light, and two horses would be capable of drawing the boat with it to any desirable spot for launching. The body of the carriage on which the boat is placed rests on a pivot, and is so balanced as to cant up at one end on the withdrawal of a pin, and thus forms a slipway, from which the boat glides into the water in the same manner as a vessel is launched. When it is desired to land the boat, the carriage is backed towards it and canted up, and one end of it is thus pushed under the boat. A rope from the other end of the carriage is then attached to the bow of the boat, and she can be drawn up on to the carriage by two men winding up the line. The fore axle and wheels are so contrived that the carriage can turn in about its own length. On Monday afternoon a trial of the lifeboat was made in the Victoria Dock, opposite the seamen's office, when a large number of spectators assembled to witness the interesting sight. About half a ton of metal ballast being lashed on her seats, she was capsized by means of ropes and a crane, and righted in a remarkably short space of time. By a few strokes of her pump she was cleared of the water she had shipped. Her sails were then set,

and she was turned over so as to have them filled with water, and with her keel 18 inches out of it; but she again righted, and with such force as to snap the four-inch spar of one of her sails. She was afterwards taken out some distance round the Heugh. The trial was in all respects satisfactory, and the seamen may congratulate themselves on having a boat into which they may throw themselves with the greatest confidence in their anxiety to save the lives of brethren in distress. The society, we understand, have had to advance a considerable sum towards the purchase of the boat, the contributions falling about £50 short of the requisite amount. We trust, however, that now the boat has been obtained, and so far proved, subscriptions will continue to be made to defray the whole cost. A carriage (which would cost £50) and house for the boat to lie in, are also very desirable; but, we fear, cannot at present be obtained.

The Fluid Compass.

It is generally allowed by seamen, who know from experience best on these matters, that one of the first qualities which that important article of a ship's furniture, the compass, should possess, is steadiness under the most violent motion at sea. It is very well known that the late Mr. Dent, to whom the maritime world is indebted for reducing the price of chronometers, (even that of the best that could be made,) to 40 guineas from 80, had turned his attention to the improvement of the compass for several years before his death; and dealing with the principle of it in a philosophical, as well as workmanlike manner, he introduced so many improvements in it as to produce a compass far superior to any of those then in use. His boat compass, it is well known, cannot be surpassed for steadiness, and to have a compass in a boat as steady as in a ship, is a maritime luxury which seamen never knew before.

One of the favourite compasses of the day is the Fluid Compass, which his son, the present Mr. Dent, took in hand, imitating his late father's enterprising exertions in improving the mariner's compass generally, and he has completely succeeded in removing its only objection. Those who are acquainted with this compass are aware that the needle is secured in two hemispherical discs, and, placed in its bowl, is immersed in a spirit, the action of which prevents all undue vibration of the needle arising from any violent motion of the vessel, the discs being hermetically secured so as not to admit the fluid. But in order to allow room for the expansion of the fluid in the bowl, it is never entirely filled, and hence a bubble has always appeared under the glass, an eyesore to the helmsman. This objection Mr. Dent, by a very ingenious contrivance, has completely succeeded in removing, and has fairly rescued this valuable machine from comparative insignificance.

Every one who has crossed the Strait of Dover knows the character of our our packets running from thence to Calais; their excellence as sea boats, and fearlessness of weather—elegant models, with considerable power in proportion to tonnage, and ably commanded, they do their work well, encountering the severest weather and heaviest seas which angry or cross winds can get up. And as they go through or over all, it may be safely concluded that their movements are tolerably quick and violent. On this account they are considered to afford the most desirable test of the wandering or vibrating propensities of the compass, and accordingly have proved the incapabilities of resisting their motions in many a compass placed on board of them for trial. The Fluid Compass of Mr. Dent to which we have alluded, has undergone its full share of this work in the *Vivid*, commanded by Captain Smithett, who is well known as an

intrepid seaman and most able commander, and, therefore, whose opinion may be considered conclusive in favour of Mr. Dent's compass. We can add our own opinion to that of Captain Smithett's, assuring our seafaring readers that either in ships, yachts, or boats, Dent's Fluid Compass is really what they want.

61, Strand, 8th May, 1854.

SIR,—You are no doubt aware that what is called the Fluid Compass, or a compass of which the box is filled with spirits of wine, possesses great advantages in point of steadiness over every other kind of compass of the same degree of sensibility. But the impossibility of preventing the formation of a large air bubble, has hitherto been a serious impediment to their use. Various methods have been resorted to for the purpose of allowing the expansion of the fluid, and its subsequent contraction, without the vacancy in the box becoming filled with air, and among them various kinds of fountains for the supply of fresh fluid, leaving the air to find its way out of the box to the top of the fountain. But none of them, as far as I can learn, have been successful.

The late Mr. Dent it is well known obtained a prize medal at the Great Exhibition for his patent compass, in which he obtained a much greater degree of steadiness and sensibility combined than in any other construction, except the fluid compass, so long as the air bubble can be kept out.

I am happy to say that since his death I have succeeded in making a fluid compass, which is perfectly secure against the air bubble, by means of a modification of the circular, or annular fountain, which had been before attempted without success. And the accompanying letter from Captain Smithett, (of which I have submitted the original for your inspection,) I think shows that this assertion is not without foundation. I need hardly say that I shall esteem it a great favour if you would publish it in the *Nautical Magazine*.

I have the honour to be, Sir,

Your obedient, humble servant,

To the Editor of the Nautical Magazine. FREDK. DENT.

H.M. steam-vessel *Vivid*, Woolwich, 18th April, 1854.

SIR,—Having had your Fluid Compass under trial on board H.M. steam-vessel *Vivid*, under my command, since January last, it affords me great pleasure to inform you that I have found it, without exception, the very best compass I have ever witnessed.

Notwithstanding the quick motion of the *Vivid* during the heavy winter gales of the last three months, under the most trying circumstances, it scarcely, if ever, vibrated a point, when the other compasses were vibrating *from* 6 *to* 8 *points*.

It was also remarkable that in calm, foggy weather, it was equally true and sensitive, which is a quality seldom before known in fluid compasses; and your admirable plan of having a constant supply of liquid to replace any evaporation, or air bubble, to which these compasses have hitherto been subject, renders yours so perfect that I have no hesitation in recommending them for all vessels, whether under steam or sail.

Wishing you every success,

Believe me, Sir, your's very faithfully,

F. Dent, Esq., Strand, London. LUKE SMITHETT, Commander.

Since the foregoing was concluded, we have noticed Captain Smithett's retirement, and the following well deserved eulogy of this officer's services:—

"Captain Luke Smithett, who has been so long known as the Commander, in succession, of the Dover packets *Princess Alice*, *Garland*, and *Vivid*, and who has been in the Dover packet service, under the Post Office, Admiralty,

&c., for no less than 45 years, during which time he has travelled over a greater number of miles than any other commander, has on the breaking up of the service been compensated with a pension of £418 per annum. All the departments bear complimentary testimony to Captain Smithett's great zeal and ability in the discharge of his responsible, arduous, and hazardous duties for so long a series of years."—*Morning Herald.*

Nautical Notices.

Newland Shoal, *off the Northern entrance of Gaspar Strait.*

The following account of a shoal, on which the ship *Asia* struck in October last, has been communicated by Mr. Walker, of Liverpool, and from the report of Captain Newland, as well as the unfinished chart before us, there is good reason for keeping a good look out in the neighbourhood of this shoal.

"About 11 a.m. 31st October, 1853, struck unexpectedly on a shoal, and remained about twenty minutes, when we backed off. When we struck the ship was going about four knots, with smooth water, yet when on the shoal she bumped several times heavily. Hove all aback, and lowered the boat down. The ship seemed to have entered between rocks, for she had her draught of water all round; the least water found on the shoal was ten feet, white muddy bottom, interspersed with large rocks. After the ship backed off, she kept the boat on the shoal till noon, when the latitude, by a good observation, was 1° 52′, and longitude by repeated observations at 7 and 8 a.m., both agreeing, was, by

Norris's chron.	107° 11′ 30″	Corrections to noon 6′ W.	107° 5′ 30″
Walker's ditto.	107 17 30	Ditto	107 11 30
Seven day ditto	107 17 15	Ditto	107 11 15

The boat being on the centre of the shoal at noon, and bearing from the ship S.W.b.W. a small quarter of a mile; would make the long. of the shoal, by means of Walker's and seven day chronometers, 107° 11′ 22″, and by Norris 107° 5′ 15″, as ascertained. At 12·15 wore and stood off E.N.E., thank God! tight by the well. The shoal was about 200 fathoms diameter, black rocks and grey mud. The sun was shining at the time, the reflection but little, and I have many a time passed over coloured patches of water much more like a shoal than this. Indeed we could not see any discolour on the water one mile from the reefs. When aground we could perceive a slight rippling of the sea round the extent of it. The noise in the cabin when she went on was like two shocks of distant thunder, or an earthquake; with the first I was astonished, as there was no appearance of thunder. We may thank God that we got off so easy; had it been blowing hard, we might have left her bones, and probably some of our own.

"Wednesday, 2nd November, commenced with light winds and fine weather. Stood off from the shoal until 3 p.m.; tacked to the southward. At 6, or sundown, saw Gaspar from the deck, but low, bearing S. 4° E., the bearing well ascertained; tacked. At 12 again tacked, and at daylight saw Gaspar, the Peak about S. 10° W. At 7 took sights for chronometers, and at 8·43 took sights; Gaspar Peak S.b.W. 1° S. about 7 or 8 miles. At 9·55 tacked to the N.E., Gaspar Peak S. ¼ W.; Tree Island S.W. 7° W., nearly in one with the rock at the north. The bearings at 9·55, and the run from 8·43, would place , when the sights were taken, in long. 107° 6′ by Gaspar. At 11 tacked to the southward.

"At noon by a good observation, well defined,

Lat. by observation.....	2°	24′	35″
Lat. by Gaspar	2	24	45

This proves my latitude yesterday to be correct, and the latitude of the shore 1° 51′ 45″; and by repeated sights taken this morning, when Norris's chronometer was found by Gaspar Peak to be in error, showing

The Long.	107°	9′	45″
By Gaspar	107	6	0
		3	45

This difference, deducted from yesterday's long. by Norris, places the shoal in yesterday's log, per Norris, 107° 5′ 30″*

By Gaspar, 107 3 45 Yesterday.

107 1 45 Long.

provided Gaspar is laid down right; and at noon the boat bore S.W.b.W. a quarter of a mile—say we were West of the shoal one-eighth of a mile—would place the shoal from Gaspar 107° 1′ 38″, or 107° 1¾′ nearly; the other chronometers then, by corresponding with the sight this day (noon)—Ther. 87°, Bar. 29·80—approaching to cann."

NOTE.—All round the shoal the soundings were found 19, 20, and 20¾, by every cast of the lead, mud and broken shells. If the shoal requires a name, I suggested, and he approved, of its being called Newland Shoal.

Liverpool, 27th March, 1854. WALKER.

LIGHT IN THE BIGHT OF PIAVE, COAST OF VENICE, ADRIATIC SEA.—[No. 158.]—Her Majesty's government has been officially informed that on the 21st of last month a Fixed Light was established on the Eastern point of the entrance of the Sile branch of the river Piave, known formerly as Port Jesolo, but now called the Port Piave-Vecchia (Old Piave) about 11 miles East of Venice. It stands in 45° 28′ 50″ N., and 12° 35′ 30″ E. of Greenwich, and being 109 feet above the sea, will be visible, in clear weather, at the distance of 14 miles.

REVOLVING LIGHT ON CAPE CARBON, COAST OF ALGIER, MEDITERRANEAN.—[No. 159.]—Her Majesty's government has been officially informed, that on the 1st of March a Revolving Light was established on Cape Carbon, the Western point of Bouja Bay. The period of revolution will be once in every minute. The light tower stands in 36° 45′ 30″ N., and 5° 5′ 32″ E. of Greenwich, at 769 feet above the level of the sea, and being 35 feet in height, the elevation of the lantern will be 805 feet, so that the light will be visible, in very clear weather, at the distance of 40 sea miles. The red light at present on Cape Carbon will at the same time be substituted for the fixed light now on Abd-el-Kader point, the eastern side of Bouja road.

KATTEGAT LIGHTS.—[No. 160.]—The Danish government has given notice (dated the 14th March) that all the Floating Lights in the Kattegat have been replaced in their stations, and are lighted.

2. That the light-vessels off the Trindelen, the Kobber Ground, and the Knob of Anholt, will in future remain at their stations until the 31st of December, unless carried away by the ice, in which case they will not be replaced before the 1st of March following.

3. That the light-vessels in the Læso and Drogden channels will also remain at their stations as long as the ice permits, but, if thereby swept away, they will not be replaced before the 1st of March following.

* Lat. 1° 52′ 0·5″.

4. That when the ice prevents the Læso channel light-vessel from keeping her station, a white flag with a blue vertical stripe will be hoisted at the light-houses of Hirtsholm and Skagen; or if absent from any other cause, a red ball will appear on those lighthouses.

LIGHT OFF THE FRYING-PAN SHOALS, CAPE FEAR, NORTH CAROLINA.—[No. 162.]—The Lighthouse Board of the United States has given notice, that a light-vessel will be placed off the Southern extremity of the Frying-pan shoals. The vessel will carry two lights at an elevation of about 40 feet above the level of the sea, on her two masts—she will be painted yellow, as well as her lower masts, but with white topmasts—and she will carry an open work oval day-mark, painted black, at an elevation of about 58 feet above the water line. Her yellow hull will have "Frying-pan Shoals" in large black letters on both sides.

She will be moored in 9 or 10 fathoms at low water, with—Bald Head Light bearing N.N.W. ½ W. 19 miles, Federal Point N.b.W. 23 miles, and the middle of the outer breakers N.N.W. ½ W. The southern edge of these breakers, with only 10 feet water on them, will be about 4 miles inside the light-vessel, but a shoal part of 16 feet will bear N.W. ¼ N., distant 2½ miles; and another shoal spot with 18 feet on it, will bear N. ¼ E., distant 1½ miles.

The depths on the bank, to the eastward of the light-vessel, will be found to lessen gradually from 10 to about 6 fathoms; and to the westward they deepen from 9 to 17 fathoms. Sailing vessels of heavy draught should not be run in bad weather into less than 15 to 18 fathoms water in passing these shoals. Steamers and small sailing vessels may be run with safety, under ordinary circumstances of weather, on the line East and West upon which the light-vessel will be placed.

Notice will be given of the time at which this light-vessel will be placed in her position and the lights exhibited, accompanied by correct bearings and distances, as well as the approximate latitude and longitude.

PLYMOUTH SOUND.—ADDITIONAL LIGHT AT WESTERN ENTRANCE.—[No. 163.]—Notice is hereby given, that in order to guide vessels more effectually by night, in rounding the Black Buoy of the Knap, and the Chequered Buoy of the Draystone, an additional Bright Light will be established on the 1st of June next, in the light tower on the West end of the Breakwater, but 15 feet below the present light, which being 63 feet above the level of high water, the new light will be 48 feet high. This additional light is so placed, that it can be seen only by a vessel when she is between the lines of bearing of the present Breakwater Light, from each of the two above mentioned buoys; and, therefore, whenever the new light is visible, the channel is open, and she may run direct for it.

EASTERN ENTRANCE TO SPITHEAD.—REVOLVING LIGHT OFF THE WARNER SHOALS.—No. 164.]—Notice is hereby given, that a Floating light is now moored on the S.W. side of the channel which separates the Warner Shoal from the Horse Sand. It lies in 13 fathoms at the low water of spring tides, with the following marks and compass bearings:—St. Helen's Water Mill half its breadth open of St. Helen's sea-mark, S.W.b.W. ½ W.; outer end of Ryde Pier, seen between the Towers of Osborne, N.W.b.W.; Nomans Land buoy, N.W.b.N. 1¼ miles; Horse Elbow buoy, N.E. ¾ N. ⅞ of a mile; Dean Tail buoy, E.S.E. 2¼ miles; Nab light-vesssel, S. ¾ E. 2½ miles. This Warner Light revolves, shows a bright flash every minute, and is visible in all directions.

ELECTRIC TELEGRAPH IN THE GREAT AND LITTLE BELTS.—[No. 165.]—Submarine telegraphic cables having been laid across the Great and Little Belts, Notice is hereby given, that, in order to point out the directions of the said cables the following beacons, painted white, have been placed:—

1. *In the Great Belt:*—On Sielland, to the northward of the town of

Korsor, two beacons, in a W. ½ N. and E. ½ S. direction, to show the direction of the cable between Korsor and Sprogo.

On Fyen Island, about half a mile in from Knuds Head, two similar beacons, in a W. ½ S. and E. ½ N. direction, indicating the line of the cable from Sprogo to Knuds Head.

To the southward of Sprogo, buoys have been laid over the cable for the purpose of marking its position.

2.—*In the Little Belt*:—On Fyen, a little to the eastward of Striib Point, two beacons, in a N.b.W. ½ W. and S.b.E. ½ E. direction, indicate the bed of the cable between Fyen and Fredericia.

Mariners are requested to avoid anchoring in the lines of these marks or bearings, lest, by so doing, they damage the electric cable, or lose their own anchors; and to follow the directions given by the pilots or other authorities on this subject. The above bearings are all magnetic.

CHANGES OF LIGHTS AT CAPE HATTERAS, BODY ISLAND, AND OCRACOKE, UNITED STATES.—[No. 166.]—The Lighthouse Board of the United States has given notice, that on the 1st of June next the following changes will take place in the Coast Lights:—

1. The Fixed Light on Cape Hatteras will become a Revolving Light.
2. The Fixed Light on Body Island will be varied by Red and White flashes.
3. The Revolving Light at Ocracoke will be changed into a Fixed Light.

No. 1. The revolving light on Cape Hatteras will be eclipsed three times in a minute; the brilliant light, or flash, is to last 8 seconds, and to be followed by a total eclipse for 12 seconds; but, at the distance of 14 to 18 miles, the duration of the flash will become less, and that of the eclipse proportionally greater. The Tower, to the height of 20 feet, is grey, and the remainder red; it stands about 2 miles from the pitch of the Cape, on the S.E. end of a long ridge of white sand, backed by woods; and that space of two miles is low, flat, and bare sandy beach, very little above the level of high water. The Light is 150 feet above the level of the sea, and in clear weather is visible 6 leagues The position of the tower, by the coast survey, is 35° 15′ 11″ N., and 75° 30′ 33′. W. of Greenwich.

No. 2. The fixed light on Body Island is to stand 50 feet above the sea level, and to be varied by red and white flashes, which will be visible 3 or 4 leagues, but neither the fixed light nor the red flashes will be seen so far. The position of the tower is in 35° 47′ 20″ N., and 75° 31′ 20″ W. of Greenwich, or about 32 miles to the northward of Cape Hatteras.

No. 3. The fixed light of Ocracoke will be 75 feet above the level of the sea, and visible in all directions at the distance of 4 or 5 leagues. The position of the tower is in 35° 6′ 31″ N., and 75° 58′ 27″ W. of Greenwich; or 23½ miles to the S. and W. of Hatteras Light.

NORTH RONALDSHAY LIGHTHOUSE.—The Commissioners of the Northern Lighthouses hereby give notice, that a Lighthouse is being built upon the Island of North Ronaldshay, in Orkney, the Light of which will be exhibited on the night of Friday, the 1st September, 1854, and every night thereafter, from the going away of daylight in the evening, to the return of daylight in the morning. The Lighthouse is in N. lat. 59° 23′ 15″, and W. long. 2° 23′ 38″; it stands on the Northern point of the island of North Ronaldshay, and by compass it bears from Moul-head of Papa-Westra W.N.W. ¼ N., distance, 15 nautic miles; and from Start-point of Sanday Lighthouse S.S.W. ¼ W., distance, 6½ miles. The North Ronaldshay Light will be known to mariners as a Revolving Light, producing a bright flash of the natural colour once in every 10 seconds. It will be visible all round the compass. The Lantern is elevated 140 feet above the level of the sea, and the Light will be seen at the distance of about 18 nautic miles, and at lesser distances, according to the state of the atmosphere.

START POINT LIGHTHOUSE.—The Start Point Light, which is 6½ miles from North Ronaldshay Light, being at present a Revolving Light, producing a bright flash once in every minute, the Commissioners further give notice, that on and after the night of Friday the 1st September, 1854, when the new Revolving Light at North Ronaldshay is to be exhibited, the present Revolving Light at Start Point will be changed to a Fixed Light of the natural colour.

NEW BOOKS.

THE MEDITERRANEAN—*a Memoir Physical, Historical, and Nautical.—By Rear-Admiral William Henry Smyth, K.S.T., &c. London, Parker.*

If we wanted an instance of the variety of useful pursuits which the nautical profession can supply apart from its own legitimate science of ship matters, we might fairly select the work before us. Here the man of science has laid open his collections, and, as the philosopher, has drawn his conclusions. Here he has strung together a multiplicity of facts, the result of tedious, and in many instances difficult investigation, made under circumstances far from encouraging, but all enticing him onward by that love of enterprise

——— "That spurns inglorious ease,
And walks in paths of science o'er the seas"

Devoted as we are to nautical matters of most kinds, there is scarcely a page of this work in which we might not find something to interest our own readers. At present however our space forbids it, and we must be content to take a glance only at their riches.

These are classed under five heads:—First we have a chorographic view of the shores of the Mediterranean Sea, with especial reference to their produce and commerce, in which the coasts of each country are taken in their turn, their principal ports and arsenals and conspicuous works referred to, affording ample scope for historical and classical allusions. The coasts of Spain figure first, and those of Africa last, in this very interesting discussion.

The second part treats of the Currents, Tides, and Waters of the Mediterranean, all literally subjects of professional consideration, and providing abundant matter for investigation. The very threshold of this sea presents the current of the the Strait of Gibraltar, and at the inner part is that of the Faro of Messina, with its celebrated Scylla and Charybdis; while density of the water, temperature, depth, luminosity, evaporation, tides, all these give ample employment in their turn; and ichthiology supplies the naturalist with an interesting field of pursuit for his labours.

We next come, in part 3, to another no less important class of subjects for observation in the Mediterranean Winds, Weather, and Atmospheric Phenomena; all essentially nautical, and demanding their share of attention. Registers are consulted from which may be deduced the amount of rain, prevailing wind, mean temperatures, prognostics of change, with considerations of those interesting phenomena waterspouts produced by electric agency at sea, as Shakespeare's "Fairy rings" on shore, and those of the wonder-working mirage, and various other little matters of this class.

And in part 4, the Admiral becomes still more professional, in considering the Surveys and Geographical Investigations in the Mediterranean. Here, again, is a source of interesting inquiry to mark the progress of geography from the first feeble efforts of the early ages down to the present finished charts of this sea, in which the morning dawn of navigation first appeared, and was destined by the light of science to unlock the portals of the Western World.

The concluding, or fifth, part treats on the important subject of Orthography

and the Nomenclature adopted; the Geographic Positions or Co-ordinates of Latitude and Longitude and Heights of Mountains, with the Variation of the Magnetic Needle and other Notabilia.

Sufficient we think is here noted to indicate pretty clearly that the Nautical Surveyor has quite enough on his hands. The result of the foregoing is appropriately and gracefully dedicated to Admiral Sir Francis Beaufort, the Hydrographer to the Admiralty, in a brief introduction to the details of the work. We hope to return to it in some future numbers.

RUSSIA AND THE RUSSIANS, *Comprising an Account of the Czar Nicholas and the House of Romanoff, with a Sketch of the Progress and Encroachments of Russia from the Time of the Empress Catherine.—By J. W. Cole, Half-pay, 21st Fusiliers.* Bentley, 1854.

A brief but comprehensive history of Russia, her rulers and their government, with a glance at the great political events through which she has passed, is exactly the work that was wanted in the present crisis of affairs in Europe, and is amply fulfilled in the pages before us. The author's style and views are both well adapted to his subject. A scholar and a gentleman well acquainted with the history before, his knowledge as a soldier has enabled him to take those sound views of the great military events on which he treats, and express them in language at once clear and vigorous, while the state of affairs daily transpiring cannot but render them highly interesting. The only addition we could wish for is a small outline map illustrating the second part of the title, and which we hope to see in a future edition.

THE RUSSIANS OF THE SOUTH.—*By Shirley Brooks.* Longman.

One of the shilling numbers of the "Traveller's Library" and one of the most interesting little books we have met with. Mr. Brooks describes the unenviable traits of Russian character, high and low, with a naivete and good humour which secures his reader's attention.

JOURNAL D'UN VOYAGE AUX MERS POLAIRES—*Executé par le Lieut. Bellot à la Reserche de Sir John Franklin,* 1851-2. *Précedé d'une Notice sur la Vie.—Par M. Julien Lemer. Paris, Perrotin,* 41, *Rue Fontaine-Moliere.*

The foregoing is the title under which the daily note book of the unfortunate Lieut. Bellot has just been published at Paris, containing passing remarks in his voyage in the *Prince Albert* in search of Sir John Franklin and the missing crews of the *Erebus* and *Terror.* The disinterested conduct of this young French officer in devoting himself to the cause, is beyond all praise; and with what ardour he did so, he has, alas! given us too sad evidence, having, as our readers are well aware, lost his life, on his second voyage, in August last in the Wellington Channel, whilst attached to Capt. Inglefield's vessel, H.M.S. *Phœnix.*

M. Lemer has given a short narrative of the life of this young officer, who perished at the early age of 27. "Brief, brave, and glorious, was his young career." He has left behind him a name imperishable in *our* Naval Annals—and a character which deserves to be held up as a bright example to the services of both countries. France and England may indeed both feel proud to claim him as their own. The amiability and gentleness of his nature were equally to be admired, as was his character. All who knew him can bear testimony to his merits and it is scarcely possible to overrate his virtues. Lieut. Bellot was in short a universal favourite, and very deservedly so.

The Journal is evidently his note-book, written at the time, and as opportunity offered, and will be found to contain much that will interest, amuse, and instruct. We have no space to quote from it, but we recommend it to the perusal of all who value virtuous and noble conduct, combined with generous and amiable sentiments.

Progress of Shipbuilding.

A return has just been completed, showing the progress of shipbuilding in the United Kingdom during the past year, under the stimulus of the high freights caused by the requirements of Australia, the demand for grain, and the general activity of trade. It appears that the total increase upon the preceding year, when this branch of enterprise was already in great prosperity, has been equal, as far as regards carrying capacity, to 21 per cent., the vessels registered in 1853 having been 853, of an aggregate burden of 233,524 tons against 745, with a burden of 192,949 tons in 1852. The constant tendency towards an augmentation of the size of vessels is also observable, the average of those built in 1853 having been 274 tons, against 259 tons in 1852. At the same time, evidence is afforded that, although the progress of shipbuilding in England and Wales is very considerable, it does not keep pace with the rapid advance made in other parts of the kingdom. Thus while the increase of the tonnage registered in the ports of England and Wales during the past as compared with the preceding year has been 16 per cent, that of Scotland has been 37 per cent., Ireland 85 per cent., and the Channel Islands 64 per cent. Even reckoning this increase, however, the number of vessels constructed out of England is, with the exception of Scotland, insignificant. Subjoined is a table exhibiting the relative figures for each part of the United Kingdom:—

	1852.		1853.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
England and Wales	583	157,326	649	182,489
Scotland	103	30,212	141	41,397
Ireland	28	3,555	31	6,589
Guernsey, &c.	31	1,856	32	3,049
	745	192,949	853	233,524

With regard to individual ports, the following indicates the progress of construction at the places of most importance:—

	1852.		1853.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
London	113	48,214	151	62,745
Liverpool	73	37,250	85	45,682
Sunderland	65	20,221	56	17,892
Shields	58	13,754	41	11,615
Newcastle	33	9,661	28	8,060
Bristol	5	524	17	4,010
Whitby	6	1,110	11	2,471
Stockton	9	2,118	4	1,898
Scarborough	2	285	3	1,809
Goole	18	1,793	16	1,750
Hull	17	2,173	10	1,543
Glasgow	33	16,248	34	15,149
Greenock	10	1,421	26	8,938
Dundee	11	3,332	14	3,872
Aberdeen	4	2,418	9	3,848
Belfast	3	1,161	8	3,328
Jersey	23	4,422	16	1,768

Shipping and Mercantile Gazette.

Tablet to Lieutenant Bellot.—A marble tablet recording the sad event of the loss of this gallant officer has been sent out by Mr. Barrow, in the *Phœnix*, to be placed near the three graves on Beechey Island, at the entrance of the Wellington Channel, where he perished last year whilst nobly aiding in the search for Sir John Franklin.

Saxby's Patents.

2, Lansdowne Circus, South Lambeth, May 24th, 1854.

Sir,—With reference to the remarks you did me the honour to give in your Magazine for January last on my Patent Eccentric Bitts, &c., I beg to state that most severe and *highly satisfactory* experiments on a large scale have been since concluded on my Deck Stoppers. I would have requested the favour of your giving insertion to particulars thereof, but, so late in the month, I shall be but too thankful for leave to give this a place, trusting you will kindly allow me in your next to place particulars before the nautical world.

As comments are being freely made by the press on the usefulness of my inventions, I feel bound to state that in 1851 Captain Swinburne, R.N., kindly lent me (with full permission to make any public use of it) a plan and model of a cleat much resembling in appearance the form which I have adopted, but on the spiral principle, and this plan I used in my sailing boat nearly two years.

In the course of certain experiments on another subject in the last year, a fortunate accident to my apparatus showed me the great advantages of the common eccentric curve, as available for public use, and I found (what I was not before aware of) that it could even be used with CHAIN of any size.

I am, Sir, your obedient servant,

To the Editor of the Nautical Magazine. S. M. Saxby.

Lieut. Rodger's Patent Anchors.—We find the following in a recent number of the *Shipping Gazette*. There is no doubt that amongst seamen Lieut. Rodger's anchor is the favourite. We have long ago expressed our own opinion of it from experience, and are always glad to contribute our assistance in keeping the best of everything before our readers—especially when that opinion seems to be so general.

"In fitting out our ships for the war and the transport service, not the least important consideration is that of good ground tackle; and much depends at all times on the proper supply and efficiency of the anchors. Our readers are aware that we have always expressed great confidence in the superiority of Lieut. Rodger's Patent Small Palmed Anchor; and we have satisfaction in recording, from time to time, the confirmation of our opinion, as furnished by experienced officers in the Royal as well as the Merchant navy. By the following letter from the intelligent commander of the fine ship the *Alipore*, it will be seen that one of these anchors was put to a severe test in going into Table Bay:—

"8, Austinfriars, London, April 10, 1854.

"Dear Sir,—I have again the pleasure of bearing testimony to the valuable qualities of your 'Patent Small Palmed Anchor.'

"The ship *Alipore*, under my command, whilst going into Table Bay on the night of the 8th December, 1853, on rounding Green Point, was assailed by one of the most fiery south-easters I ever experienced in that locality. It blew so hard that we could not carry double-reefed topsails, consequently were obliged to anchor in 14 fathoms, about three miles outside the usual anchorage. We rode with 90 fathoms of cable to your anchor, and did not start an inch during the whole night, although it blew very heavy. We had the other anchor cockbilled, ready for letting go, but it was not wanted; and my faith in your anchor was fully realised.

"I remain, dear Sir, yours faithfully,

"Lieut. Wm. Rodger, R.N. (Signed) B. D. Freeman."

"We understand that several of our screw line-of-battle ships have lately been supplied with these anchors, namely, the *Agamemnon*, *St. Jean D'Acre*, *James Watt*, *Nile*, *Algiers*, *Hannibal*, and *Royal Albert*, and that orders for the several dockyards are now being executed. Testimony such as the following, from the hon. and gallant captain of the *St. Jean D'Acre*, must be sufficiently convincing to every one with respect to the merits of these anchors:—

"H.M.S. *St. Jean D'Acre*, Elgsnabben, April 28, 1854.

"My dear Sir,—The more experience I have of your Small Palmed Iron-Stocked Bower Anchor, the more convinced I am of its superiority.

The one supplied to this ship at Devonport, in July last, has been in constant use, and frequently been put to severe tests.

On one occasion while riding with a short scope in a strong breeze, our signal having been made to prepare for sea, we parted our cable.

In bringing up suddenly in 38 and 40 fathoms water off Madeira, your anchor behaved equally well, biting quick, and holding fast.

I regret we have not more of them, and I should have been greatly annoyed had we failed in recovering the one we parted from in the Baltic.

I am, my dear Sir, yours very truly,

Lieut. Wm. Rodger, R.N. (Signed) HENRY KEPPEL.

THE ARCTIC EXPEDITION.—A Parliamentary paper has been printed containing the instructions issued to the commanders of her Majesty's ships now engaged in the Arctic Regions in search of Sir John Franklin. They are to leave in the summer of 1855, and not to wait the winter of that year. Should England be engaged in hostilities with any other Power, they are to take no part in it, it being the established practice of all civilized nations to consider vessels engaged in scientific discoveries as exempt from the operations of war.

The *Phœnix*, screw, Capt. Inglefield, and *Talbot*, store ship, Commander Jenkins, arrived at Stromness on the 10th, May. *Diligence*, transport, arrived on the 12th; and the squadron, after taking in a supply of coals and fresh beef, started for the ice.

DEATH OF LIEUTENANT HOOPER, R.N.—This distinguished young officer, who commanded the second cutter in the remarkable voyage of the boats of H.M.S. *Plover* from Icy Cape to the Mackenzie, departed this life on Friday last at Brompton from disease of the lungs, brought on by constant exposure and severe hardships and sufferings, having been lost on one occasion in a snow storm for three days, and passed two lonely winters in log huts, with part of his boat's crew, near the northern shores of America, living upon offal fish.

We cannot but regret the untimely loss of so fine a young officer whose amiable qualities had endeared him to many. To the public Lieut. Hooper will be known not only from the remarkable voyage alluded to, but for a smartly written book giving an account of the *Plover's* winter quarters on the Asiatic Coast, under the title of *Ten Months in the Tents of the Tchutsky*, a race of people litle known, and of whom no other account, we believe, is to be found but that given by Captain Cook. He will also be known to thousands who have visited the Great Globe and have derived amusement and instruction from the valuable collection of dresses, implements of the chase, &c., &c., illustrative of the habits of the inhabitants of that remote region of the globe.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

JULY, 1854.

Proceedings of H.M. Steam-Vessel "Spitfire" in the Black Sea.—*T. Spratt, Commander.*

Remarks on the Anchorage off Erekli.

The bottom in Erekli Bay is clay under sand, affording good holding ground; but it is not a safe anchorage against a west and N.W. gale unless anchored well up in the Bay between Cape Baba and the ancient mole, so as to obtain some shelter from those winds. The S.W. gales seem not to blow home or to bring a sea that would endanger a vessel well found in cables and anchors. The light over Cape Baba is visible eight to nine miles distant.

Remarks on the Roadstead of Kosloo.

The accompanying survey of the Roadstead of Kosloo will sufficiently show it to be only a summer anchorage for steamers and coasters. The traders resort to it in May for the shipment of coal, anchoring to the N.E. of the valley so as to get better shelter from the point: the wind being in general to the east of N.E. The bottom is sand under 12 fathoms water, and mud and sand in deeper water. With this plan the lead will be sufficient guide for anchoring, or the extreme west Cape kept open of Alesso Point will lead to a good berth at a quarter of a mile from the shore; but to expedite the embarkation of coal a nearer berth may be taken.

During the month of May the coast is sometimes subject to a N.N.E. gale; which on one occasion caused the wreck of eight or

nine vessels. During June, July, August, and September, the coast is said to be perfectly safe. The locality is best distinguished by the houses near the shore, there being no other village or similar settlement upon the whole coast between Erekli and Amastros, and the land about it presenting no remarkable object, the coast being generally bordered by high bold mountains covered with forests.

Report on the Turkish Coal Mines near Erekli.

H.M. steam-vessel *Spitfire*, Constantinople, 3rd April, 1854.

Sir,—I have the honour to report my return from the examination of the coal mines in the vicinity of Erekli and to communicate the following facts connected with them.

Coal is found in almost every valley opening to the sea from about five miles N.E. of Erekli as far as Amastros, and at distances of from a quarter of a mile to three miles from the shore. In several of these valleys parties of Croats have, for ten or twelve years, been employed in working the coal seams cropping out on their sides; and as some of the valleys contain as many as seven or eight seams, good and bad, these have been indiscriminately worked until a want of capital and skill have obliged them to abandon these localities for others nearer the surface. This coal, being unskilfully worked, from the worst part of the seam, and much exposed before shipping, reached Constantinople in a greatly deteriorated condition, as well as being of an inferior quality through mixing the coals from several seams.

The chief locality for good coal is at the valley of Kosloo, about sixteen miles N.E. of Erekli, where the Turkish Government have an establishment under the direction of two civil engineers, Messrs. Barkley, who are in receipt of a fixed salary with an advantage, in addition, in proportion to the quantity of coal obtained. At this time four Englishmen, miners, belong to the establishment as foremen to the native workers; besides which are some Poles and Hungarians and a few Servians and Bosnians.

The natives employed are Turks from the neighbouring villages, who are forced to work out their taxes by fifty to sixty days' labour at these mines. They are, consequently, obtained with great difficulty, quit upon every opportunity, and labour with no interest; the foreigners employed being the only men paid by the Turkish Government, and these only at intervals of three, six, or nine months.

In this valley of Kosloo there are no less than nine seams of coal, but only four at present worked; the thickest of these seams is eighteen feet and the least about three feet. Some of these would not pay to work and those now worked have only a portion of their coal good. A tram road leads from all these mines to the shore at Kosloo, the extremity being carried out upon the east point of the bay so as to enable boats to lie under eight or nine shutes and receive the coal direct from the trucks. According to the statement of the Engineer and Director, Mr. Barkley, 300 tons can be shipped per day, weather permitting. Some of these mines penetrate three or four hundred yards into the mountain.

Under his skilful engineering and mining operations the Director, when supplied with men in sufficient number, is enabled to procure on an average per month of 2,500 tons from the four Kosloo mines. This amount he can ensure even with the present means at his command, and for a period of three years; thus averaging from the Kosloo mines only about 30,000 tons of good coal per annum.

At the present moment there is lying adjacent to the railway in the Kosloo valley about 9,000 tons of coal in three or four heaps at the pit's mouth. Twenty-five tons of coal was shipped in H.M. steam-vessel *Spitfire* from these heaps, taking a portion from each of what is technically termed "picked near the pit's mouth."

The coal of the three heaps have a close resemblance to each other, and in the furnace, either for steaming or economy, have no appreciable difference, the whole being very like Newcastle coal in weight and appearance also.

The result of the trials of coal from each pit or mine, as given in the Engineer's report, after nineteen hours' steaming on the 1st grade with both boilers, shows that the Kosloo coal is equal to the very best Newcastle coal, having a loss of about 7 per cent only in clinker and ashes. The Chief Engineer of *Spitfire* reports that the coal used from the heaps when "unpicked" would not show a loss of more than from 8 to 10 per cent, the whole being in general large.

Thus there is lying at Kosloo, ready for shipment 9,000 tons of coal equal to good Newcastle, and if shipped into steamers direct from this valley would suffer little or no diminution of its value; but, as the quality of the coal is of a delicate and friable nature, it easily crumbles into small fragments, and would lose much of its value on being often transhipped and long exposed to the air, the condition in which a great portion of it reaches Constantinople.

The coal has been worked at the Kosloo mines at a cost of as little as six shillings per ton; but as the mine is frequently allowed to lie idle, for want of a supply of candles from the Government and the absenting of the forced labourers, the renewing of the operation brings the average cost ten or twelve shillings per ton. Last year the coal was sold by the Turkish Government, or Company acting for the Government, at 17s. per ton at Kosloo and £1 per ton at Erekli; to which place it is transhipped as the depot and residence of the Turkish Director of the mines, who is also the Governor of the place. And as in this transhipment it is liable to be mixed with the inferior coal also sent there from the mines worked by the Croats, it is, therefore, more likely to be of much less value at Erekli than at Kosloo; but in the latter place it can only be shipped in fine weather or with southerly winds, whilst at the former it can be shipped at all times. It is, therefore, most desirable that the coal supplied to our ships from these mines should be shipped direct from the Kosloo valley or selected from the coal heaps stored at Erekli by one of the Engineers, Messrs. Barkley, who have offered their services through me for such a purpose, to prevent the Government being imposed upon with the inferior "Croat coal," as in the case of the *Triton; that very coal* having

been previously condemned by these gentlemen when lying at the mouth of the valley it was worked from, and by them reported to the Turkish Director at Erekli as unfit for use. But as it is to the interest of this official to send to Constantinople as much coal as possible, the report of Messrs. Barkley was unheeded; and the coal, on arrival, not finding a sale at Constantinople, was finally handed over for the use of *Triton* on her application.

The importance of obtaining from these mines a coal to ensure "full speed" when necessary, induces me to dwell upon the above point and to recommend the acceptance of the voluntary services of these gentlemen, under sanction of the Turkish Authorities, whenever Turkish coal is required by our Government.

At Erekli there are at present only two parcels of coal, one of about 450 tons and the other nearly 200 tons. The former is coal procured by the Croats and of an inferior quality; the small parcel of 200 tons is from a seam of coal recently opened by the Turkish Government under Mr. Barkley, at about nine miles from Erekli, and one from the sea. Thirteen and a half tons of this coal was shipped at Erekli by the *Spitfire*, and found to be equal to that from the Kosloo valley.

During the year 1853 about 50,000 tons of coal were exported from this district.

There were found lying at Erekli and moored in the bay west of the town between twenty and thirty vessels, from 100 to 150 tons, which are employed during the summer in the transport of the coal. Small caciques are so employed during the winter, as weather permits, and bring coal to Erekli from all the valleys' mouths where it is piled. Country vessels lie moored, head and stern, here during the whole winter and are said to be perfectly safe from every gale although exposed to some fetch from the S.W.

I have the honour, &c.,

T. SPRATT, Commander.

To Admiral J. W. D. Dundas, C.B.,
Commander-in-Chief Black Sea, &c. &c. &c.

Report of Proceedings.

H.M. steam vessel *Spitfire*, Kavarna Bay,
17th April, 1854.

My dear Sir Francis,—I send the enclosed tracing of the Princes Islands' survey in answer to your inquiries about lighthouses at the entrance of the Bosphorus. You will perceive that the southern lighthouse stands on Fahar Bagtcheh Point, and not on the island off it. The light in both lighthouses may be visible at from seven to eight miles.

My last of the 26th ult. informed you that I was ordered to proceed to Erekli, on the south coast of the Black Sea, to inquire about the coal procured near there.

I enclose a copy of my report to the Admiral, which will also inform you of the resources of this interesting and now most important district, since I found that there was coal procured there equal to good Newcastle coal, under the engineering and mining skill of a few Eng-

lishmen, employed by the Government. But the resources of the district are not properly developed through an insufficient supply of means, long arrears of pay, and the isolation of the position during the winter season, and mismanagement and jobbing of the Turkish officials and Governor, who never visit it, and reside at a distance of twelve hours by land journeying.

I have sent a collection of such fossils as I could procure to my friend Professor Forbes and the Geological Society, so as to have the age of this coal fully understood. And I cannot but believe it to be of the true coal measures, although very incompetent to give an opinion.

After returning to Constantinople I was ordered back to the Black Sea to join the Admiral at Varna or Kavarna, and to survey Bourgas and Kavarna Bays; and arrived at the latter bay on the 4th, finding the fleets anchored off the town of Baljik to the west of Kavarna; and a most splendid anchorage it is for a fleet, perfectly sheltered from the prevailing winds. The depth moderate, viz., 10 and 12 fathoms two and three miles off, and the bottom a tough clay, with the water shoaling gradually to the coast.

On rejoining the Admiral, I was ordered to proceed to Varna to take Capt. Brock to survey the lake and fortifications. We occupied ourselves whilst having this opportunity to survey the bay and interior on a scale double that of the Russian plan, viz., three inches to the mile; this is in progress, and will better show this important place and anchorage, since the fortifications as represented on the Russian chart, are quite wrong.

I returned with Captain Brock on the 11th to the fleet, where he rejoined the *Queen*, to which he is at present attached. I was immediately ordered to commence a survey of the bay to the west of Baljik. But this was prevented from being completed by a gale from the N.E., and by being ordered to recover a barge of one of the ships that had parted during the night, and as she was found stranded near Varna, it detained me two days till the weather moderated. I rejoined the fleet yesterday, and am now ordered back to Varna, and from thence to Bourgas to survey it.

We have it still winter, the thermometer being down to freezing at night, and in the day snow and sleet, with an occasional day of sunshine, when the temperature is up to 70°. This incessant hard work and change is telling upon the *Spitfire's* crew, who have had little rest through the winter: at this moment we have nearly half the officers and men in sick list with diarrhœa and colds, the result of real good hard work and exposure.

The fleets have just sailed on their war mission, with beautiful weather, for it cleared up a splendid day just at starting.

The French did not receive their declaration of war before Good Friday, so it was celebrated on Saturday by both fleets with the ceremony of manning yards, hoisting the colours of the three nations engaged against Russia, with salutes and cheering. But it was done in a snow-storm, such is the variableness and severity of the Black Sea

weather even at this time. But it does not damp the ardour of the men in the fleet, who are ready for anything.

The little *Spitfire* is thus left alone to recruit her crew and continue our surveying of which we have plenty in hand. But unfortunately have no time to complete any on the moment. Nearly all are snatches of surveying work as the opportunity offers in connection with the various missions and duties on which we are sent. Being war-times, we must endeavour to meet all other requirements from us in the best manner. The little tracing of Kosloo was a hurried survey during our visit to the coal mines, but is available for steamers resorting to it for coal. We have a plan of Erekli also on board. My Cretan charts were left at the Ambassador's for safety on entering the Black Sea. The new charts of the Bosphorus, by Captain Legard, enabled me to put into our Princes Island survey the entrance, but between our own points.

The Russians have made no great advances on this side of the Dobrava, but I suppose are only waiting to cross and advance in greater force; unless the arrival of the French and English fleets have caused them to halt.

I am, &c.

T. SPRATT.

Rear-Admiral Sir F. Beaufort, G.C.B., &c.

VOYAGE OF H.M. STEAM SLOOP "VIXEN."—*F. L. Barnard, Commander.*

(Concluded from page 311.)

After leaving Sandy Point on our passage to the eastward, we stood close to Cape Niger, and between it and Elizabeth Island had quarter less 4 fathoms for some time; therefore a large ship should not get in with the S.E. point of Elizabeth Island.

We anchored in Gregory Bay in 13 fathoms, Gregory Point bearing S.b.W. about three quarters of a mile from the north extreme of the high bank which extends from Cape Gregory.

A N.E.b.E. course took us from Gregory Bay to the east shore of the First Narrows. Before getting abreast of the Triton Bank the summit of Mount Aymond became visible over the low land, and in clear weather it is a famous mark for verifying a ship's position.

Off Cape Orange the ebb tide caused a heavy ripple over the shoal, which must be very dangerous for a sailing vessel without a commanding breeze. When the Direction Hill bore W.S.W. an E.b.N. course took us out clear of the Sarmiento Bank.

During a run of forty-eight hours from the entrance of the Straits to Stanley Harbour, Port William, Falkland Islands, we experienced little or no current, and the weather being rather hazy saw no land until we made out the high mountains over the settlement. We passed between Beauchene Island and the Sea Lion Islands without seeing

either, although we had fully expected to do so at daylight. After running our distance we hauled up for Cape Pembroke, not making the land until noon, which caused us some anxiety; however, we found out afterwards, that the coast to the southward is so low that it is at all times difficult to see it at a greater distance than eight or ten miles, and the high land can generally be distinguished first.

The Wolf Rock is an excellent guide, and shows out like a black islet under the land. By following the land along to the right of it with a glass; the beacon on Cape Pembroke will be easily distinguished. A dangerous reef of rocks extends for some distance off Cape Pembroke, and it is better to borrow on the Seal rocks. A sailing vessel must beware of the tide ripples, and not stand too close to either.

When we stood in between Cape Pembroke and the Seal Rocks, the Billy Rock was well above water; when we afterwards stood out it was just awash. This is a very dangerous rock, and unless it can be well distinguished a ship coming from the southward should stand well over towards Port William before hauling up for the harbour. Some time ago a merchant vessel, with the Governor and some of his family on board, was totally wrecked on it, although the master of her had been in and out several times. He mistook the reef off Cape Pembroke for the Seal Rocks, luffed close round them, and ran on the Billy Rock.

On entering Stanley Harbour one is struck with the neat English-looking appearance of the rows of cottages built for the pensioners. Numerous buildings are also springing up in all directions. When the *Vixen* was here in June, 1853, there were about 450 residents, 150 of whom were dependent on the government. They consist of the colonial officers with their families, eighteen or twenty pensioners, and a few artizans engaged in the public works. The other residents are storekeepers, the Falkland Island Company's people, parties employed in cattle-keeping, the cultivation of gardens, fishing, sealing, loading and discharging ships, and artizans chiefly employed in the repairs of shipping. Besides the residents there are usually about 100 strangers, principally passengers and crews of condemned ships, wrecked and discharged seamen, and Guachos. Since 1848 the residents have increased to 300.

The average yearly increase of shipping during the last three years, exclusive of vessels coasting round the islands, has been eleven ships, amounting to 4,350 tons. Since 1848 206 ships had called, viz.:—125 British, 57 United States, 5 French, and 19 of other nations. Some of them have been fitted with new rudders, lower masts, and otherwise repaired, at a moderate cost.

The Falkland Island Company have a monopoly of cattle, and sell them at £2 a head; the fixed price of beef is 2d. per lb. The wild stock on the islands were originally brought by Bougainville in 1760, and by the Spanish Governors who succeeded him at Port Louis. Sheep are imported from England and the River Plate; the former succeed well, the latter do not. Horses are imported from Patagonia, and those bred on the island from imported stock are good. Several

lots of land about the settlement have been sold by auction at an advanced price to the settlers, who build cottages in their leisure hours. The Falkland Island Company possess the east island south of Choiseul Sound, consisting of about 110 square leagues; the price of this was £30,000.

A patent slip in this part of the world would be invaluable, and there appears to be every facility for erecting one. Lieut. Thurburn of H.M.S. *Griffon* was sent in 1848 to report on the subject, and selected the beach in the Government yard, which slopes gradually and evenly. There are hulks available for vessels to discharge, and horses or oxen might draw the vessel up the slip. The rise and fall is from 4 to 7 feet.

Wood, knees, spars for the largest masts, and every requisite for repairing ships, are abundant both in the Government and private yards. A furnace and boiler, with all the apparatus for steaming wood, are ready for erection.

Any ship may water in a day from the Government reservoir, from which the water is led in pipes to the end of a jetty. Vegetables of all descriptions are easily raised, and may be had in abundance.

The climate is healthy; the greater number of deaths among the adults being from dropsy and diseases brought on by drinking. Children suffer from skin diseases, and whitlow is common.

The thermometer is rarely higher than 70° or lower than 30°; but in the middle of summer it is sometimes as low as 36°, and in the middle of winter as high as 50°.

I was requested by his excellency George Rennie, Esq., Governor of the Falkland Islands, to ascertain the truth of a report made by Capt. Walker, of the British merchant ship *Coromandel*, to the effect that he had, on th 6th May, 1852, seen a rock 40 feet high, 40 miles to the eastward of Cape Pembroke. I consequently proceeded to the spot indicated on a fine clear day, steered five miles in every direction, and must have seen any object such as reported had it existed.

Between the Falkland Islands and Cape Corrientes we experienced strong gales and heavy seas from N.W., and between latitudes 45° and 39° S., a current of about a mile an hour to the southward.

We sighted Cape Corrientes on the evening of the 17th June, and ran along the land all night, sounding in from 9 to 11 fathoms. On the morning of the 18th a strong gale set in from the south-eastward, with thick rain.

All the charts of the River Plate, from Cape St. Mary to Buenos Ayres, are wrong, and constantly lead vessels astray. The land and shoals are all laid down in them thirteen miles of longitude too far to the eastward. Knowing this, I drew fresh meridians thirteen miles to the eastward of each degree of longitude, and carried the soundings which corresponded with those on the chart until 3 p.m., when, having run our distance without deepening the water from 4½ to 5 fathoms, as we should have done had we been to the south-westward of Monte Video, we rounded to preparatory to anchoring, when the land was seen through the mist, and a sail was reported on the port bow. Sup-

posing it to be a vessel at anchor, and subsequently a wreck, we bore down to close it. Shortly afterwards it was discovered to be a beacon; the helm was put to starboard, and there being no alteration in the soundings, preparations were made for anchoring, when a second beacon was reported on the port bow; the helm was shifted to port, with the intention of steaming out as we had come in, and the engines were eased and stopped. While coming to, the ship struck heavily forward. As it was blowing hard with a heavy sea, every preparation was made for the worst; the paddle-box boats were turned over ready for lowering, fresh water and bread were got at hand, and hands were kept by the other boats' falls. The engines were reversed, and when the ship's head fell off to the westward, by going ahead full speed we got into deep water. The rudder having bumped up we lost no time in anchoring.

The rudder was hung to a capstan bar across the hole in the upper deck by a lashing through the rings in the rudder head, and steadied by the stern-boat falls hooked to the rudder-chains. The sea was so heavy that I feared it would knock a hole in the stern, so we rove a large hawser through the parts of the lashing, buoyed both rudder-pendants, and lowered it to the bottom. In the morning we got it inboard with the pinnace's purchases, and found that the upper gudgeon on the stern-post was broken. The pintles on the rudder were complete.

During the night, when it partially cleared, we found by the bearings of the light on the Cerro that we had struck on the Panela rock. A temporary rudder was constructed by securing the paddle-box boats' gun-slides to each side of the yard-arm of the spare topsail-yard, with shot between them. This was launched over the stern, and the runners were brought from the outer extreme to outriggers on the quarters. Tackles were brought from the inner end to the wheel. By means of this and the head sails we got to the outer roads of Monte Video. The temporary rudder seemed to have but little effect on the ship; but she is at all times difficult to steer with a strong wind on her beam when under steam.

On the following morning the wind was in, and we threaded our way through the shipping into the inner roads without any rudder. By steaming astern we got stern to wind, set all head sails, and went ahead until she came up to the wind, then astern again until before the wind.

The ship at first made about two feet water in twenty-four hours, and we found it very inconvenient having no other pumps excepting Downton's, the brasses of which wear rapidly with constant use. The principal leaks seemed to be in the stem and stern; but we afterwards ascertained that some of the timbers under the port coal bunker were broken, and that there was a considerable leak there. As we entirely succeeded in stopping the leaks, it may be useful to describe the methods employed.

The spaces between the diagonals were filled in with two-inch and three-inch fir crossing each other, and coming up flush with the diag-

onals, this was caulked and payed. Four-inch plank were then laid fore and aft over the filling, extending over the diagonals a considerable distance beyond the wounded parts, the whole was drawn together by means of powerful screw-bolts fitted with eyes to receive a long lever, and reaching an inch into the outside planking. A beam of hard wood, nine inches square, and sixteen feet long, was screwed down over the ceiling, the screw-bolts going through the ceiling to the timbers. The upright stanchion reaching to the upper deck beams was scarfed and stepped on it. This effectually stopped the leak. The leaks forward and aft were diminished by filling pieces, caulking, Roman cement, and screw-bolts. Everything gradually settled into its original place until the leaks ceased altogether.

A new gudgeon was cast on shore at Monte Video; the pintles having been bent were shifted, and the rudder was shipped in a few minutes without the least difficulty.

On working up our reckoning, we ascertained that we had been set fifteen miles to the north-westward in a few hours.

In compliance with orders received from Rear-Admiral W. W. Henderson, C.B., K.H., Commander-in-Chief, I surveyed the Panela Rock, accompanied by Mr. Duncan Louttid, Master, and Mr. John Dailey, pilot, in the pinnace of H.M. steam sloop *Vixen*.

At noon we anchored on it in nine feet, took a set of bearings, dropped a buoy, and sounded round it in all directions. It is much greater in extent than is generally supposed; it appears to consist of a series of pointed rocks, the lead frequently falling from nine feet into two, and two and a half fathoms. Its position with respect to the land is correctly laid down in the Admiralty chart of the River Plate.

There are two beacons bearing from each other W.N.W. and E.S.E. from three to four cables' length apart, the shoal being about midway between them.

On approaching the eastern beacon on a W.N.W. course with the beacons in a line, the soundings did not vary from 4 to 4¼ fathoms, mud, brought from the mount, until within three cables' length of the beacon, when it shoaled a quarter of a fathom. After passing close to the said beacon on the same W.N.W. course, the water deepened a little until about midway between the two, when it shoaled to 3 and 2½ fathoms, rock, the beacons still being in a line.

We now steered to the northward, and a little within the beacons found nine feet, with 2½ and 3 fathoms close to, rocky uneven bottom; this we conceived to be the shoalest part, and took the following bearings (all compass). Cathedral dome E.b.N. Lighthouse on the Cerro, E.N.E. Westernmost white patch, which is remarkable, on Point Espinilla, N. ½ W. Easternmost beacon, E.S.E. one and a half cables. Westernmost beacon, W. ½ S. one and a half to two cables.

We then steered in different directions from the above position. About fifty fathoms W. ½ S. from it, we had 3½ fathoms, rock. South from it for a cable's length we found no more than ten feet, rocky bottom; after this it deepened suddenly to 2½, 3½ fathoms, rock; and then one cast of 4 fathoms, rock, the next being 4 fathoms, mud.

White house in a line with the top of the Mount: East beacon E. ¼ N. West beacon, N.W.b.W. ¼ W. The Dome and S.E. Tower of Cathedral in one.

From the above it will appear that on approaching the shoal from the E.S.E., little or no warning is given by the lead. But in steering from the southward, if the soundings change from 4 fathoms, mud, to 4 and 3½ fathoms, rock, a ship will be within a cable's length of the shoalest parts.

Steering from N.E. to E.b.N. inside the line of beacons from the shoalest part, we found 2½ fathoms, rock, for two cables' length at least; we then had irregular rocky soundings in from 2½ to 4 fathoms, on an E.b.N. course.

When the soundings became soft again, the East beacon bore S. ½ W. three cables, West beacon W.S.W. five or six cables, the soundings then continued 4¼ fathoms, soft mud, on an E.b.N. course.

It is difficult to give any general directions for avoiding this shoal in *thick* weather, the tides being entirely governed by the winds, and the safest plan is to anchor whenever there is the least doubt.

A ship coming from the southward with a strong S.E. wind, should not hesitate to anchor after running her distance if she does not see the land, for although the soundings may vary from a quarter to half a fathom, it is difficult to perceive it in the high short sea thrown in.

In fine weather it may easily be avoided by keeping the Cerrito (a hill in the middle of the Bay of Monte Video) open with the Lighthouse, or the Cathedral well open with the Point under the Mount. The Light should not be brought to the eastward of N.E.b.E.

To pass inside between the shoal and the Santa Lucia Bank, the Lighthouse on the Mount should bear E.b.N., and the Cathedral should be shut in with the land under the Cerro.

Directions for the Navigation of the River Plate.

Between Cape St. Mary and Monte Video there appear to be no dangers which are not laid down in the chart, at least in the channel through which men-of-war should keep. In making the river at night or in thick weather, it must be remembered that the currents set strongly in and out with strong winds, independent of the tides, and ships frequently find themselves to the north of Lobos when thinking themselves in mid-channel. This uncertainty of the tides, combined with the error of the chart, which but few people seem to remark, although the latitudes and longitudes are correct in the Book of Directions, has caused numerous disasters.

The course from Lobos to Flores is W. ½ S., and care must be taken to bring Lobos to bear E. ½ N. before the W. ½ S. course is steered, otherwise a ship will get too far to the southward.

Passage from Monte Video to Buenos Ayres.

Steer from the outer roads of Monte Video until the Mount bears N.E. thirty-two miles, (generally about S.W.b.W.,) then W.S.W. five miles, the Lightvessel should then bear from you west nine or ten miles.

The soundings increase to 5 fathoms nine miles from the Mount, and then decrease to a quarter less 4 fathoms. When close to the Flats of the Ortiz, you should have 3¼ fathoms, soft mud. Whilst running the five miles on a W.S.W. course, the water will shoal a quarter fathom, then deepen two or three feet, and the bottom will become sticky.

In the above the ship is supposed not to have been influenced by current; but in crossing to Point Indio, the tides are strong and uncertain. The lead is the sole guide, unless the Mount or Lightvessel are in sight, and the following rules will be found useful.

With a flood tide the ship may be set to the north-westward. If the water shoals to less than 3¼ fathoms, and the bottom does not feel like "hard tosca," you may be sure that you are shoaling on the Ortiz on its northern edge. It lies in a S.E.b.S. direction, and you must steer off from S.E.b.S. to E.S.E., and feel your way round the south extreme of the Ortiz, which bears N.E.b.N. seven miles from the Lightvessel.

With a strong ebb tide you may be set into a bight below Point Indio. Should you get 3¼ fathoms, "hard tosca" bottom, steer off N.N.W. or north into a quarter less 4 fathoms, between soft and sticky bottom. (With a N.W. course, being in the bight below Point Indio, you would shoal the water.) If the Lightvessel is not in sight, steer W.N.W. five miles, then N.W. ten miles, and if the water does not deepen to 4½ fathoms, keep more to the northward until in 5 or more fathoms, then N.W. again.

It sometimes happens when a ship has been set down by the ebb tide, and hauls off to the northward after getting hard soundings, that the ebb tide takes her on the port bow, and sets her to the eastward. Should the water shoal to 4 fathoms, stiff bottom, steer west into 4½ fathoms, then N.W. as if you had deepened your water into 5 or more fathoms, as mentioned in the preceding paragraph.

In steering up N.W. should you not deepen the water to 5 or more fathoms before it shoals to 4 fathoms on the Ortiz, keep off W.N.W. for six or eight miles; and if the water shoals to less than 4 fathoms keep off west or W.½N. When it deepens to more than a quarter less 5 fathoms, keep up N.W. again into four fathoms, then steer west or W.½N. for Buenos Ayres.

In steering west or W.½N., should the water deepen suddenly to 4½ or a quarter less 5 fathoms, after running two or three miles, steer W.N.W. until it again shoals to 4 fathoms, then west or W.½N. as before. Should the water deepen when steering W.N.W., keep more to the northward until in 4 fathoms, then west or W.½N.

If the Lightvessel is in sight, and does not bear to the southward of W.S.W., steer for her. When abreast of her or she bears S.E., keep N.W. sixteen or seventeen miles, and if you have a quarter less 5 fathoms, continue the same course until it deepens to 5 or 5¼ fathoms.

After steering N.W. fifteen miles, if it does not deepen from 4½ to 5 fathoms, the only means of ascertaining your position is by the quality of the bottom. If the ship has been set to the westward, it will

be soft and slushy; if to the northward, it will be sticky. If it is soft and slushy, steer more to the northward; if sticky, more to the westward.

If the water deepens on a west or W. ¼ N. course, before you are nearly abreast Ensenada, keep more to the northward; if it shoals, more to the southward.

If the water deepens when off Ensenada to 5½ fathoms, steer W.b.N.; but if there is not more than 4½ fathoms, steer west.

There are flats extending below the outer roads of Buenos Ayres for four or five miles, with from sixteen to seventeen feet water, the river being in a mean state; the shoalest part is from half a mile to a mile below the guard-ship.

There is a bank between the Ortiz and the light-vessel not laid down in the chart. It extends in an E.S.E. and W.S.W. direction for two miles and a half, and bears N.¼E. to N.N.W.¼W., three miles from the light-vessel. When there is a quarter less 4 fathoms at the light-vessel you will get on it from 16 to 17 feet, hard sand.

The S.E. end of the Chico Bank bears N.W.b.W., nineteen miles from the light-vessel. Hard fosca soundings extend off the south shore for at least seven or eight miles, sometimes in small patches with very soft bottom between them. The S.E. end of the Chico bears N.b.E. from the eastern clump of Embudda trees above Point Indio.

The above remarks may facilitate the navigation of this part of the River Plate, but it is impossible to give any general rule for the distance to be run on each course, constant practice with and attention to the lead will alone enable a pilot to ascertain his position under all circumstances, and I should strongly recommend a Captain to anchor immediately should he perceive the slightest hesitation or confusion on the part of the pilot.

Passage from Buenos Ayres to Monte Video.

Courses from the guard ship in the outer roads E.b.S. nine or ten miles, and east thirty-five miles. If you deepen your water on an east course to more than a quarter less 5 fathoms off Ensenada, which is about nine leagues below the outer roads, keep more to the northward until in 4½ fathoms, then east again. An east course from 6 fathoms off Ensenada would take you on the Chico.

About thirty-six miles from the guard ship you may shoal to a quarter less 4 or 3½ fathoms on the flats of the Ortiz; in which case keep more to the southward into 4 fathoms to avoid getting into a bight on the west end of the Ortiz. You will then carry from 4 to 4½ fathoms until abreast of the N.W. end of the Chico, when it will deepen to 4½ or a quarter less five fathoms. After this, when you shoal to 4 fathoms on an east course, keep away S.E.b.E. If you deepen your water quickly on a S.E.b.E. course to a quarter less 5 fathoms, keep E.S.E. five or six miles until in 4½ fathoms, then keep off S.E. for the light-vessel.

As a general rule it is not advisable to pass over 5 fathoms when

off the N.W. end of the Chico, but you should steer more to the northward into 4¼ fathoms.

The distance to the light-vessel from the guard ship is about seventy-six miles, but it is not possible to give the exact distance to be run on each course. It depends entirely on the set of the current, and one must be guided by the soundings. The more you run on an east course the less you will have to make on a S.E. course.

There is a patch of fosca, about four miles square, in the channel. About twelve miles N.W. of the light-vessel you will get hard soundings and keep them for four miles.

To avoid a small shoal, not in the chart, between the Ortiz and the light-vessel, she should not be brought to bear to the southward of S.E.b.S.

When the light-vessel bears W.S.W. steer E.N.E. ten miles, then N.E.b.E. until you see the Mount, then steer accordingly.

The light-house on the Mount should not bear to the eastward of N.E.b.E. in order to avoid the Panela Rock. Or the dome of the Cathedral open with the S.E. tower will take you clear.

NOTES AND REMARKS ON A HURRICANE EXPERIENCED BY THE SCREW STEAMER "LADY JOCELYN," IN THE INDIAN OCEAN ON MARCH 5TH AND 6TH, 1854.—*By J. H. Miller, a Passenger on board.*

Cape of Good Hope, April 10th, 1854.

Dear Sir,—Having settled down at Moulmein, after a service of more than thirty years at sea, I have dropped out of the list of your correspondents because, like the Knifegrinder, "Bless you, Sir, I had no story to tell." Having, however, been again obliged to traverse the deep, in a voyage to the Cape, I had the ill luck to be caught by a hurricane on my way thither, but also the good luck to have underfoot the good ship *Lady Jocelyn*, Captain Bird, one of the G.S.S.S. Cos' steamers on the India line, by the Cape. This noble vessel brought us all out of the storm scatheless, albeit she did not come off quite "scot free" herself, as you will see by the perusal of the accompanying notes should you think them fit for the pages of the *Nautical Magazine*.

Yours, very sincerely,

J. H. MILLER.

To the Editor of the *Nautical Magazine*.

In drawing up these notes I was kindly allowed a free perusal of the ship's log book, but as they were not put into a connected form until after arrival at the Cape, they were not seen by Captain Bird or his officers and may differ in some points from what came under their observation; but notes by independent observers have sometimes a value, as what may have escaped one person may be noted by another. I only made use of the log book for observations for latitude and longitude, barometer, course, and distance, and direction of the wind; but it will be observed by the frequent use of the word "about" that

I have not aimed at exactness, leaving a rigorous examination of these various points to Dr. Thom, Mr. Piddington, and others of "Stormy Jack's" family, who, I have no doubt, will have been furnished with a copy of the log book during this storm.

On leaving Ceylon, on the 24th February, we carried the usual severe weather of the N.E. monsoon to within about 2° of the equator, when we entered a belt of calm and rain extending to about 2° south of the equator; after crossing this equatorial belt of calm we had westerly winds and cloudy weather, which I took for the N.W. monsoon which prevails here but not very regularly, being subject to long interruptions of calm and clear weather. There was something, however, about the weather now that did not correspond with my former experience in these latitudes (having made my experience the measure of my judgement, I may as well state that, in the present case, it is based on upwards of ten years constant sailing between Calcutta and the Mauritius,) that the N.W. monsoon, when it does blow, blows freshly with a good deal of rain; but the weather we had in the *Lady Jocelyn* was neither the N.W. monsoon, the calms, nor the S.E. trade-winds that I had been accustomed to find here at this season of the year. The wind was westerly and the weather cloudy and sometimes rain, but the atmosphere, even when it was fair, was damp, close, and dull, and the surface of the sea had, to my mind, a sombre look about it, and the whole had the effect of depressing the spirits, yet there was nothing to indicate an approach of bad weather, the barometer kept high and steady. Steaming and sailing at our usual speed of 200 to 220 miles a day brought us, on the 28th February, at noon, to lat. 7° 33′ S., long. 78° 21′ E.

March 1st, (old sea time,) p.m., course S.W.b.S., wind at W.N.W., weather squally, with rain, but still the same damp, close, dull feeling about it, not the right sort of weather at all; every one felt dissatisfied with it and yet it was difficult to say what was the matter, the "clerk of the weather" was at fault somewhere but nobody could tell in what. Going on at our usual rate of 200 to 220 miles at noon we were in lat. 10° 18′ S., long 76° 45′ E. Barometer steady at about 29·75.

2nd.—p.m., course about S.W., wind light at N.W., weather squally and unsettled, close "muzzy" atmosphere as before or rather worse, no appearance of S.E. trade, everybody looking dull and uncomfortable, spirits depressed; barometer unsteady, rising and falling from 29·70 to 29·80 several times during the day. Noon's lat. 12° 46′ S., long. 75° 5′ E.

3rd.—p.m., course about W.S.W., wind drawing round more to the northward, freshening and threatening to blow, same feeling of closeness and dampness as before, rather increased than otherwise. Barometer at noon 29·72, tending to fall. Lat. 14° 12′ S., long. 71° 37′ E.

4th.—p.m., course about S.W.b.W.; during this afternoon the breeze freshened and the weather looked threatening, sent down royal and top-gallant yards and reefed the topsails. At midnight the barometer was 29·54 and falling, the wind blowing a fresh "single reef" breeze still drawing round more northerly. At daylight wind in-

creasing and the weather looking a little wild, a "double reef gale." Barometer falling and the weather looking bad during the forenoon, the close reefs were taken in and by noon she was under the main topsail, foresail, and trysails. The wind had drawn round to north and seemed fixed there. Barometer at noon 29·31 and falling rapidly. No observations but say we ran 220 miles from yesterday at noon; close, unpleasant, atmosphere foul.

5th.—p.m., the state of the weather left no doubt now that we were in the neighbourhood of a cyclone. By 2 p.m. the gusts of wind, accompanied with torrents of rain, were such as I have only witnessed in a hurricane, the wind still at north. Kept away to the south dead before it so as not to approach any nearer to the centre. During the afternoon the main topsail and foresail were blown away. About sunset she either broached to or was laid to under bare poles, and then the "spirit of the storm" commenced to work its wicked will on topgallant masts, topmasts, quarter-boats, and everything that could be laid hold of, and made sad havoc. About 10 p.m. it suddenly abated to a calm and some stars were seen; bar. had now fallen to 28·30 and still falling more. About 11 p.m. the wind came on again with all its former violence from the westward, say at west, for I fancy no one could tell to a point or two how it was. By midnight the bar. was down to 28·10, I was told that it went so low at one time as 28·05; it stood at its lowest mark till about 3 a.m. and then began to rise, but no abatement whatever in the force of the wind took place, the same furious gusts, tearing away everything that came in the way, and the same torrents of rain pouring not *down* certainly but *along* so that you could neither open eyes nor mouth in the face of it. By daylight it was thought that the gusts were less severe, but it must be borne in mind that our upper spars being now all gone there was less roaring noise; the barometer was, however, rising fast. By 9 a.m. the gusts were certainly less severe and less frequent. By noon the heavy gusts and rain had both gone and there was a steady strong gale blowing drawing round more northerly, say at W.N.W.; bar. up to 29·10; the atmosphere a thick white haze that contracted the visible horizon to about half a mile where the haze and salt water spray blended into one. Anything like a correct reckoning of the course and distance under the circumstances is out of the question, but the following estimate may be taken subject to correction by a closer examination of the log book and judicious allowances made for drift and currents: say, from noon to 2 p.m., S.W., twenty miles; from 2 till 6 p.m., scudded south, seventy miles; 6 to 10 p.m., drifted south twenty miles; and from 11 p.m. to noon drifted E.S.E. fifty miles. These estimates are intended as the effects of the wind alone, independent of storm waves or currents.

6th.—p.m. a steady head gale at W.N.W., no gusts or rain; a haze as thick as fog but causing a kind of glare to the eyes. During the afternoon this very remarkable haze assumed a redish or orange tint which deepened considerably towards evening, and there were apprehensions entertained that it foreboded another blow, but nothing came

of it. The wind gradually abated and drew round to the northward and the bar. continued to rise. At daylight the wind N.N.W., a steady "single reef" gale. At noon, a "top-gallant breeze" and the weather looking fine, wind north, barometer 29·52. From this time the weather became settled and fine, and I took no further notes.

Having again occasion to allude to my former experience, in comparing notes of this hurricane with others that I have seen, I may as well here state that my experience of hurricanes embraces the May gale that passed over Saugor in 1823 (writing from memory and away from home I may mistake dates but that is of little consequence); I was in Calcutta river in the October gale of 1831, this was not a very severe one; again in December, 1831, or January, 1832, to the eastward of the Isle of France when the *Arabian* of Bristol and other ships were dismasted; in that of 1833, the "*Duke of York's*"; off Madras in 1836, when the *Earl Clive* and others suffered; and, lastly, in 1841 off Madras, when the *Lady Clifford*, thanks to our "Storm Lawyers," did not suffer.

Comparing the *Lady Jocelyn* with these, it blew as hard as any of them. My impressions are that there is a great similarity both in the force of the wind, the rain, and other general appearances during the main strength of hurricanes, and there is an unmistakeable *something* about them that once seen cannot be forgotten; they are as different from a gale as a white man is from a black. Hence, when some one on board the *Lady Jocelyn* asked me, a little after noon on the 5th, what I thought of the weather? I replied without a moment's hesitation, that we were in a cyclone; there was no mistake about it, I recognized its features at once.

This storm was not felt at the Isle of France, nor did the barometer give any indication of its passing near it. The *Earl of Balcarras* and *Euphemia* were both dismasted in the Mozambique Channel, but *prior* to the date of the *Lady Jocelyn* Can that cyclone have travelled to the eastward? or what became of it? Again, the shifting of the wind from north before the calm to west after is altogether unlawful, at least I cannot reconcile it with received opinions and theories to which I have leaned ever since the Madras gale of 1836 and had my faith confirmed in the *Lady Clifford*, in 1841. It further backed round to the north again by west, equally unlawful. These are stumbling blocks to my faith which I will look to Dr. Thorne and Mr. Piddington to remove, to prevent my relapsing to my former unregenerated state of darkness and doubt on the subject. Again, from 2, on the 5th, to 10 p.m. we must have scudded and drifted at least 100 miles due south, probably much more as I have made no allowance for wave or current, and I am of opinion that the *Lady Jocelyn*, from her fine after body, could scud at the rate of twenty miles an hour without the rudder losing its power. During this run it may have been expected that the wind would veer a little to the eastward, and as we were not nearing the centre its own lateral motion would increase our distance from it and it would abate. It did neither, and I supposed it to be a very "big one" and stationary, or nearly so, to

reconcile these points. But the calm and subsequent westerly wind beats me dead. I can make nothing of it, unless it be to suppose another and smaller cyclone to have come up from the S.E. and entered the big one just where the *Lady Jocelyn* was lying, giving her a whisk from its northern edge in passing, and finally being swallowed up or annihilated by its "big brother," the wind in the eastern quadrant of which might then resume its circular course at north after the interruption from the new intruder. What say you to this opinion, "Sir Stormy Jack?" You must try to clear the matter up somehow or other; but as your branch of natural history requires subjects to experiment on that come closer home to our sympathies than the four-footed and feathered tribes sacrificed by Buffon, McGillivray, and others in the advancement of science, one can hardly wish you success in it.

I have noted that for several days previous to the cyclone, and before we began to think or talk of the probability of meeting one, there was an indefinable *something* about the weather that was not satisfactory; there was something uninviting in its features that caused a depression in the spirits and a kind of uneasiness and anxiety without any assignable cause. I dare say many seamen have felt this before, I know that I have often done so, although I cannot remember any connection it had with subsequent events. Can our philosophers of the storm make anything of this? are they "in re naturæ" or the airy beings of imagination, the lingering remains of the superstitions of the "old school" that paid due regard to sailing on Fridays, and such like omens of good and evil. By the way the *Lady Jocelyn* sailed on a Friday! what think you of that my philosophic friends?

Another remarkable feature of this storm is the rapidity with which we got into it. I have made a distinction between a gale and a hurricane that most seamen will admit of. To make use of my simile of a white man and a black, this storm underwent the change with hardly an intermediate shade; in fact, we seemed to jump out of the one into the other at a bound. I do not remember so sudden a change taking place before; the edge of this cyclone seemed to be as well defined as that of a mill-stone revolving. It might be well to bear this in mind and to make a ship snug before hand, for after the cyclone has been entered nothing can be done above the deck. There was plenty of time to have struck the *Lady Jocelyn's* topgallant masts, and topmasts too, during the forenoon of the 4th, and, as the sequel proved, less damage would have been sustained; but the circumstances did not seem to call for it, and there is something *un-English* in taking fright at a shadow. She might have bore up and run away to the eastward and avoided it, but the *Lady Jocelyn*, carrying the mail, was tied to time, and it may be questioned if Captain Bird would have been borne out in running back and avoiding a storm that he did not feel, more especially as nothing of this storm was felt at the Isle of France. I think he would not. If, by so doing, he saved his ship from a storm he would have encountered one of a different sort about his own ears. But this is digressing and somwhat impertinent. I think this fact of

the suddenness of getting within the sweep of a cyclone is deserving the attention of those in command of heavily laden ships, which require careful and cautious management in a storm.

I was happy to find that Captain Bird was a disciple of Stormy Jack, and navigated the ship on the principles of Storm Law in an orthodox manner. I could say something more on this subject but personalities are not generally agreeable to men of a certain standing. I may be allowed, however, to express a hope that my next voyage may be made under a similar commander.

I am happy to bear testimony to the excellent qualities of the *Lady Jocelyn* as a safe sea boat. I not only never saw but I never conceived so easy a ship in a storm. I don't think the heaviest sea that ever rose could injure her, as she seemed to float like a piece of cork without letting a drop of water on deck. I don't know what her relative proportions of beam to length are, but she is one of the, to me, new class—a "long ship." I had never sailed in a long ship before, and confess that I had great doubts of their good behaviour in a very heavy sea, but these doubts are now dispelled. My fears were that a long and sharp ship would pitch heavy, and in lifting the forebody out of the water would strain and break her sheer, or break in two in an extreme case. But the *Lady Jocelyn* did not pitch at all, although I saw several very heavy seas take her right ahead. I don't think she plunged the head rails under. No water came over the forecastle; but these heavy fellows struck her rather heavily in passing aft under the counter or overhang of the stern; hence I should think a round stern and un upright was the safest for a very long ship. She rolled deep but very easy; not the least jerk was felt in recovering from the roll. She did not take a spoonful of water over the deck, a circumstance that of itself proves her excellent buoyant qualities. Being so easy in her motions her strength could not be much tested; but it is looked on as a good proof of strength when the bulkheads keep quiet during a gale. The *Lady Jocelyn's* lower deck is full of cabins, and there was not a squeak heard; in fact, the gale was not felt below at all,—an advantage which can be duly appreciated by those who have been in a storm and tried to obtain a little ease and peace below in the cabins without success.

The question of scudding or lying-to in a gale, seems to me one that should occupy the attention of seamen. When caught by a cyclone, and the principal object in view being to get out of it with the least possible damage; and the position of the ship as regards the direction of the centre from her, and other circumstances, leave it optional to scud or lie to, I am in favour of scudding as long as the ship will steer. The objections are the fear of being pooped, and the danger in broaching or rounding to. Judging from my own experience, I do not see much chance of the sea pooping a ship that is running at say 10 knots an hour, and the faster she goes there is of course the less chance of it. I do not admit the danger of a sea breaking on board to be more on rounding to than when lying to. The direction of greatest danger is right abeam, and when it is kept in mind that a

square-rigged vessel will only lie within six points of the wind under all sail, it will be manifest that a ship under bare poles must fall off to eight points or more, thus bringing the direction of the sea to the worst point (it must be borne in mind that I am supposing a hurricane that no canvass can stand in). Scudding lessens the force of the wind on the ship considerably, and she has only the rolling motion to bear, hence less chance of injury to hull and masts.

Assuming that there is no more danger in rounding to than in lying to, and the object in view being to escape out of the storm with the least damage, the time to lay to is when the ship will no longer obey the helm, which will be the case when the water in her wake becomes so frothy as not to afford sufficient resistance to the rudder; in other words, the rudder is in a partially formed vacuum by the ship's rapid progress through the water, and has nothing to act in: the ship will then round to herself, as both the wind and sea give her a tendency to do so. In the case of a laden ship, stiff enough to bear the blast on her broadside, she had then better be allowed to lie to, which most ships will do, even without sails, with the helm a "turn down." It would serve no purpose to attempt to put her before it again, as in all probability she would repeat the same thing. In the case with a ship in ballast, or laden with cotton for instance, where it may be doubted if she will stand up to it, preparation must be made for cutting away the masts should she go over. Cut away first the mizenmast, and then the mainmast, when she will *certainly* pay off and righten, and then will probably be found to scud well enough. Should the cargo or ballast not shift in such a quantity as to destroy her equilibrium entirely, which it does not often do, there is little immediate danger to be apprehended, and this can be easily judged of, as when all holds fast below, the ship will show a disposition to right again, in spite of the force of the wind; she will be lively even when on her broadside. The danger to be apprehended then is from making water through her over strained sides and deck, or the recoil of a sea may have stove in the hatches on deck. Cutting away the masts is a serious matter in a *sailing* ship, and it is well to avoid it if possible; and as there is no immediate danger it need not be done in a hurry. When the time comes for it, which will depend on several circumstances, and not the least of these is the *nerve* of the captain and crew, and the axes are *at hand*, a few minutes will suffice to send both mizen and mainmasts over the side. As to the mode of cutting them away, I can only say, cut the lee rigging first *if you can!* If not, get rid of them in any way that seems easiest, which those employed about the job will readily discover. I am in favour of scudding in preference to lying to, when circumstances will admit of it; but considering the subject as one of importance, that ought to be well understood by all seamen, I hope that some of your correspondents will favour your readers with their opinions.

PROCEEDINGS OF H.M.S. "HERALD," *Capt. H. M. Denham.*—*Hydrography.—Western Pacific.*

Taking Lord Howe Island on the way, to confirm its meridian distance with Sydney, we adopted a route which should embrace the assigned position of Lady Nelson Shoal, and passing over it could not detect its presence throughout a circle of 25 miles diameter. The winds disappointed us of also testing in our forward passage the long doubted but not yet expunged Sir Charles Middleton Island. On the passage back, however, we sailed directly over the south easternmost of its assigned positions, and it certainly does not lie upon that parallel within a circle of 12 miles radius.

On our outer passage, still going towards the Isle of Pines, we profited by a slant of wind to pass over the reported, indeed charted, position of an island, 26° 11′ S., 163° 13′ E. This certainly does not exist within a sweep of 12½ miles, which our main topgallant yard commands, allowing nothing for the height of the island. Moreover a course was shaped on our return which passed 12 miles due North of its assigned meridian, and then obliquely cut through its parallel 30 miles due West of it, by which it seems there cannot be an island thereabouts. Thence we stood to the N.N.E., and when in a proper position for testing the existence of a charted reef, 23° 49′ S., 164° 12′ E., we passed 18 miles due West, then due North, and then South-eastward, and directly through its assigned position. All this time the weather was clear, and our deep sea lead going to at least 200 fathoms, and as deep as 600 without finding bottom, or any irregularity in the temperature. The existence, therefore, of this reported reef is rendered most unlikely. In due course, with the deep sea lead constantly going, we picked up the very south-eastern and sharp elbow of the Great Barrier Reef of New Caledonia, which with its contiguous soundings we fixed then, as well as on our return, both astronomically and trigonometrically, in relation with the Peak of the Isle of Pines, from which it bears S. 63°, W. 35 miles.

Arriving at the Isle of Pines and ascending the Peak, (alt. 879 ft.,) intersections verified the true bearing we had obtained of the peak from the reef elbow.

We entered the excellent harbour at the southern projection of the Isle of Pines, and took up a mooring berth without pilot or chart. It was deemed worthy of the honour of being called Port Albert, more particularly so because the only other harbour of the island, at its northern extremity, had been called Victoria Harbour. As our various observations and swinging ship demanded a certain interval of time, and admitted of a survey of two-thirds of the island and of its many islets, and the coral reefs and lagoons which beset it, this was effected; and we then proceeded in quest of La Brilliante Shoal, as reported to have been *sounded upon*, and said to have as little as 10 feet water on its summit. Such a circumstantial matter demanded credence, and a dili-

gent and ample search. No less than six days were therefore employed in passing over all the assigned positions, (23° 14′ S., 169° 55′ E.,) and cutting up the ground in 200 fathoms over a space of 60 miles diameter, without tracing either discoloured water or a breaker. Easterly winds, with a south-westerly current, prevailed from the time of our leaving the Isle of Pines, (Oct. 22,) and such was the disposition of wind and current when we left the space said to be endangered by La Brilliante Shoal on the 2nd of November. The whole area, therefore, from the Isle of Pines embraced by the parallels 23° and 25° S., and meridians 167° and 170° 30′ E., and which lies right in the path of ships as they arrive off the south-east breakers of New Caledonia on their way from Sydney to Fiji, has been closely traversed under a beating wind and found to be clear. The easterly winds still prevailing, our north-easting towards the Fiji group was impeded, and eventually the remainder of the cruize devoted to such portions as the season admitted.

That huge cinder called Matthew Island was found to be situated 7 miles North, and 9 miles East of its assigned position (22° 27′ S., 171° 13′ E.) We ascertained that there were no outlying dangers nor soundings at 200 fathoms within biscuit throw of it, and that its altitude was 466 feet, which height confirmed the opinion that Captain Wilkes had mistaken Hunter Island for Matthew Rock. At the time of clearing Matthew Rock, (Nov. 4th,) the want of fresh chronometer rates took us to the New Hebrides, and the 7th, by 4 p.m., found us moored in the tranquil and only ship harbour of Anatom or Aneiteum. A most satisfactory series of observations for latitude and longitude, as well as for magnetic variation and of tidal action, were obtained, whilst a plan of Aneiteum Harbour, and a detail survey of the island, was effected, both as regards its natural history and hydrography. The island afforded us two living specimens of the *Nautilus Pompilius*, or Pearly Nantilus.

During our stay at Aneiteum we had abundant evidence of the happy results of Christian Missionary influence. We were quite at home with the natives, and I left them cutting and stacking cords of firewood at two shirts, or eight yards of calico, equal to four shillings, a cord. We experienced an earthquake shock in Aneiteum Harbour; but though simultaneonsly felt by the *John Williams* missionary brig in the offing, it did not affect our chronometers. The Islands of Tanna and Erronan, with the very active volcano of the former, were sufficiently defined from our observatory and other stations at Aneiteum to admit of astronomical bearings.

The repeated accounts of smallpox raging at Tanna deterred us from visiting that island for a while; but a landing was effected at that almost inaccessible island Erronan or Footoona, and by obtaining deliberate observations for fixing its position, the three most prominent islands of the New Hebrides in regard to Fijis, are now relatively settled on our chart. Here the word Missionary became our passport also, and for twelve hours at a time, and to do any work, unbounded civility was paid us from a set of as savage-looking people as one can

conceive. The native teacher informed us that he had 100 converts out of the 1000 souls forming the population.

A complete survey of this island was effected, and in proceeding from Footoona towards the Loyalty group no bottom could be found at 500 fathoms depth. After passing midway between Aneiteum and Tanna, with deep sea lead actively going, from Footoona I shaped a course that should test the much doubted existence of Burrows Island, laid down in a chart of South Pacific of 1847-48 by Laurie, and rather minutely described at page 831, part ii, of Findlay's Directory. In due time, and exactly at noon of a bright day, December 6th, we were within five miles of the alleged position, 21° 59′ S., 168° 30′ E., but nothing in sight from the deck, though Burrows Island was stated to be well-wooded, and twenty to twenty-five miles in extent; the mast-head look out, however, descried land due west of our position, which hauling for and eventual observations proved to be Mari, thirty miles from us, the known island as the south-easternmost of the Loyalty, but which having hitherto been laid down twenty miles of longitude westward of its actual position, must, allowing for a little error perhaps in position of ship, have led the discoverer of Burrows Island to give that name to the previously known Mari. At this island we were landed through the surf by native canoes, and heartily received by the whole assemblage, and guided to the chief's land, and throughout treated with the most confiding civility, all arising from our claiming, as well as them, a knowledge of the great and good Bishop Selwyn of New Zealand!

From this most satisfactory visit as another important salient feature in our extensive field of work, we stood over to the north-eastern barrier reef of New Caledonia; then to the Isle of Pines; burying in the deep a fine young sailor lad, named John Church, on the way, who died under inflammation of the lungs: this was the only casualty we were visited by in our first cruize amongst the islands. Resuming our former berth at the Isle of Pines, in Port Albert, we rated chronometers, and completed the survey of the island; then revisited the south-eastern elbow of the Great Caledonian Reef, passed *over* Middleton Island and the vigia Golden Grove, took sights of Lord Howe Island, and in a four days' run from the latter was obtaining time at Garden Island, Port Jackson.

BERTHON'S COLLAPSING BOATS.

The rapidly increasing commerce of this great nation; the astonishing numbers of ships of great burden daily launched; the mighty tide of emigration ebbing from our shores; and the multitudes of ocean voyagers of every class; are amongst the wonders of this eventful age. And in proportion to the magnitude of these considerations rises the importance of providing sufficient means of saving human life in the awful calamities of fire, wreck, or collision.

There now no longer exists any physical impediment in the way of supplying to every ship, however crowded she may be, the most ready, efficient, and trustworthy lifeboats to receive with ease every soul on board; and this, too, in so compact and convenient a manner that the troop-ship, for instance, with its thousand or more soldiers shall carry lifeboat accommodation for every one of them, and yet no boats shall be seen either on the booms or quarters.

This most desirable result is obtained by the use of the Collapsing Boats invented, perfected, and patented by the Rev. E. L. Berthon, M.A., of Fareham. We published a description of this invention in an earlier stage of its developement three years ago, and now that it has been brought to perfection so as to receive the unanimous and unqualified approbation of all the best-informed officers of the Royal and Merchant Navies who have seen the boats or models, we recur to this principle with increased and increasing satisfaction, desiring to assist in bringing into general use an invention which all must regard as a great boon and blessing to mankind.

The only reason of the slowness with which this new system has appeared before the public is that the inventor was determined to test thoroughly the principle and to allay all doubts about the efficiency and durability of the material he employs. All this is now most satisfactorily decided, and the specimens of the flexible skins which we have seen inspire the greatest confidence.

As lifeboats, these new and really beautiful structures are second to none in any essential quality: they are perfectly insubmergible, handy, lively, and surprisingly fast under sail, and more weatherly than any other description of boat; at the same time their collapsibility is so great that a boat ten feet wide, when open, may be stowed in a space only eighteen inches in width. When required their expansion is instantaneously effected by the weight only. Their enormous extra buoyancy and insubmergibility are obtained by a vast volume of air contained in many separate air cells or compartments which inflate themselves in the act of opening. Should an accident happen to any part of the boat it involves the destruction, at the worst, of that compartment only upon which the injury was inflicted, while the others remaining intact are more than enough to keep the boat lively.

The same principle is equally adapted to many other purpose. We will mention some:

Troop-boats built on this plan of the largest size, capable of carrying two or three hundred men in each, may be carried in abundance by every transport, stowed under a strong flap or cover outside the bulwarks, ready at any instant and projecting from the ship's side only eighteen inches. These would furnish the ready means of landing or embarking all the men at one trip, besides affording a sure refuge in case of accident at sea.

Gun-boats, either made expressly or troop-boats thus applied, may be constructed on this principle of any size and almost in any number, to be carried by all our ships and steam gun-boats. They are admirably adapted to bear the concussion and recoil of the heaviest guns

now in use; and, being extremely wide and perfectly flat, their draft of water will be extremely small. Of what terribly important service might a few hundreds of such gun-boats prove at the present moment in the Baltic and Black Seas.

Another advantage of the great yet closely-stowing boats would be found in the event of a ship getting ashore, to receive her weights till she floated again.

But, not to multiply instances of utility when almost every conceivable boat service might be named, how profitable would these immense boats become as lighters for our merchant ships in foreign and colonial ports. At this moment two or three pounds are paid per ton for the hire of lighters to land cargoes at Melbourne. Now, each ship might carry with ease two boats in her waist which, when open, should sustain a burden of fifty tons each, and with these the crew would discharge their cargo themselves.

This elegant contrivance was explained and illustrated with several models by the inventor in a lecture given at the United Service Institution on Friday, June 2nd. And the same subject was discussed in its various bearings with great animation and the most unanimous conclusions by a very influential and experienced body of Members on Friday evening 23rd inst.

We heartily desire to see this new system of boats in the course of general adoption; and we predict the day as not very distant when we shall smile at the recollection of sending our vessels to sea hung round with little solid wooden boats.

Commerce, Tonnage Dues, etc., at Kingston, Jamaica.—*By Richard Leighton, Master Mariner.*

We have had many discussions about our tolls for lights, buoys, and beacons, and they are certainly oppressive in their operation, and if those being supported out of the national funds in the United States be justice to the whole population, it would certainly be more so in our sea-girt isles. But, heavy as our charges are, we have many conveniences in the guides for navigating our dangerous coasts and when we enter natural harbours we pay very little, and we have scarcely one that has not more artificial structures than Kingston, Jamaica, and even our unrivalled dock accommodation we get at sixpence and ninepence per ton.

There cannot be the shadow of justice for taxing "transients" without giving them adequate accommodation or facilities in return, and not to raise funds for the payment of salaries and other matters in the administration of the country that they have no connection with and derive no benefit from. The West Indies are not celebrated for harbours, and Kingston is certainly one of the best; but it should be

remembered that Madam Nature made it so and not the few wooden beacons that art has put there. What use is the wooden beacon upon Plum Point, when it is so low and deceptive in the night that the pilots dare not attempt to come in unless very favourable indeed? It is mockery after imposing such burdens upon ships not to afford them facilities for entering so good a channel and harbour in the night. The wharfs are pretty good and the only piece of liberality to ships that I know of is that the wharfage is charged upon the goods. In the harbour, when the sea breezes are strong, craft can only with great difficulty be kept alongside, if at all. And, for such facilities, here is a batch of charges that would lead you to think that it was a *Spanish* and not a *British* colony:

	£	s.	d.
Tonnage dues, 3s. 10d. per ton, register 248 tons .	47	10	8
Pilotage in and out	6	0	0
Morant Point Light	3	2	0
Harbour Master's Fees . . .	1	12	0
Island Secretary	0	15	0
Health Officer	0	12	0
Manifest and Contents	0	10	0
Fort Pass	0	8	0
Boarding Officer's Report . . .	0	8	0
City Dues on Cargo, 4d. per ton, Coals 385 tons .	6	8	4
	£67	6	0

Charges in Great Britain upon the same ship, at Glasgow, inwards from the Mediterranean, *viâ* Queenstown, and outwards to the West Indies, full cargo both ways, port charges, pilotage, and city dues, sum total £30 8s. But how was this sum divided? The whole charges connected with Glasgow were £8 17s.; lights, buoys, and beacons were £21 11s. The sums expended upon the Clyde for the safety and accommodation of ships are enormous, as may be judged from the fact that I found four feet more water at Glasgow in 1849 than I did in 1844; showing the bed of the river to have been sunk that depth. The Clyde has also lights, buoys, and beacons, and can be entered and navigated, by day or night, to the City of Glasgow.

But in Kingston, for its few wooden beacons, how are the charges divided? The one solitary light at Morant Point gets £3 2s., whilst £61 2s. is pocketed by the City of Kingston.

Again, the business charges remain the same as when sugar paid £4 per ton freight; now it is £2 10s., and they still exact their 7½ and 10 per cent upon sales; and, in these days of free trade, the merchants of Kingston are protected by a transient duty of 10 per cent, so that you cannot sell a venture of £50 or £60 without paying an exorbitant commission to a resident. Although I paid £62 commission upon freight and sales of cargo, yet I was saddled with a charge of 5 per cent upon the disbursements for doing the custom-house business, and was told that it was cheap as 10 guineas was the proper charge.

No wonder that the Americans ask if "that is reciprocity or free trade" when we enter their ports for a few dollars. Our North Ameri-

can colonies make no such charges, and they have safer harbours and more facilities. Why, then, should our West Indies be allowed to cripple commerce? they can bawl about retrenchment and economy, but are like too many flaming patriots, "don't bring it home." Israelites are numerous, but the low practice called "jewing" is not confined to them. I found some honourable exceptions, but, as a rule, they are the most illiberal and grasping set that ever I met with. It is an old place with such a trade as should exempt it from the extreme fluctuations of chance supplies, but you cannot ascertain the price of the commonest article of trade. I used to say they were good hands at "mental arithmetic:" took your measure and then calculated what they could extort as a price and what they could jew you. This is not likely to be improved by the frequent visits of Californians, whom they make a practice of charging double, or even treble. This they can do as it is the first place that they reach where things can be got that they require to go home with, and they have been used to still more exorbitant prices.

In the development of the country they are certainly crippled by the idleness and insolence of the negroes. There is certainly no desire shown by the whites to domineer over or ill treat them; but the most absurd scenes may be witnessed every day of the pride and insolence of the intermediate shades, to which the bad footing that society was placed upon has given rise, and to which the other may, in part, be attributed. The progressive element appears to be very weak in the creole character; a tendency to extravagance and want of perseverance are defects in it. Their forefathers cultivated sugar and rum and made fortunes, and why should not they? They are not protected.

Some attention is now being called to the undeveloped resources of the Island, with what success remains to be seen; but there is a radical defect in the management of colonies, and I have both seen and felt a tendency in their officials to commit acts that dare not be attempted in Great Britain.

The Marine Artificial Horizon.

It is due to the readers of the *Nautical*, as noting those events of the day in any manner connected with maritime subjects which concern them, to record in those pages which first introduced our inventions to the world the recognition of them by H.M. Government; and we therefore throw aside all feelings of delicacy as our duty is to record facts, albeit they may concern ourselves, disavowing all pretensions to exaggeration or conceit of any kind which we cannot fairly claim. We are alluding to that important instrument the Marine Artificial Horizon; the invention of which on the principle of the fluid is described in our May number, as well as that on the pendulum principle described long ago in these pages, and well known also to the readers of the *Nautical*, belong exclusively to the Editor of this work. From a su-

periority of the latter over the former for *night observation*, a novelty, we believe, not before attempted, it was taken up in preference to it and adopted extensively; and we have recorded in these pages numerous observations made abroad with it, as well as the opinions of those who have made them on the advantage of possessing it. We have others besides in letters; which we carefully preserve and shall be thankful if any of our readers will, at any time, take the trouble to send us more, knowing the difficulty that everything new has to encounter, but believing that its own merits, as we have been repeatedly assured, will eventually secure its general adoption.

It has been most justly observed by the highest authority we can boast on these matters, that of Sir Francis Beaufort, the Hydrographer to the Admiralty, that "unspeakably valuable as was the invention of the sextant,—its value would at once be doubled if it could be rendered independent of the visible horizon at sea." The same high authority has given his opinion that, although the instrument is acknowledged to be imperfect, yet that the inventor "has made a step in the right direction."

It is a satisfaction to the inventor to know that the imperfection of his instrument is much less in some hands than it is in others; and, moreover, that practice in using it, as as been said by many high authorities, will greatly overcome its imperfection, indeed sufficiently to obtain a result that will be valuable to the seaman. In fact, like the sextant itself, it depends for giving a good observation on the management of a good observer; and, to become a good observer, practice is as necessary with the artficial horizon as it is with the sextant.

The inventor having submitted his instrument to the Lords Commissioners of the Admiralty, has had the gratification of receiving the following letter.

Admiralty, June 14th, 1854.

Sir.—My Lords Commissioners of the Admiralty have had under their consideration your letter of the 5th inst., and have directed the Accountant-General of the Navy to cause £100 to be paid to you on account of your invention of the Artificial Horizon for astronomical observation at sea or on shore; and I have it in command to acquaint you that my lords have had much pleasure in acknowledging this addition to your many contributions for the practical improvement of navigation.

I am, Sir,
Your very obedient servant,

Commander A. B. Becher, R.N. R. OSBORNE.

We have now to return sincere thanks to our many unknown friends who, by their observations, recorded in these pages, have contributed to this result; friends to science and advocates of improvement afloat as well as on shore; to the continuation of whose exertions we look for that further support on which all inventions must mainly depend for advancement.

EVAPORATION AT SEA AND CURRENTS PRODUCED OR AFFECTED THEREBY.

The wonderful effects in the general system of nature by the evaporation of moisture from the surface of the earth or of the ocean, scarcely seems of late years to have met with the attention it deserves; and the following extract from a paper by Dr. Buist of Bombay will convey probably information that is new to most of our readers.

Mr. Glaisher states the evaporation at Greenwich to have amounted to five feet annually for the past five years, and supposes three feet about the mean

evaporation all over the world. On this assumption, the quantity of water actually raised in the shape of vapour from the surface of the sea alone amounts to no less than sixty thousand cubic miles annually, or nearly 164 miles a day. According to the observations of Mr. Losely, the evaporation at Calcutta is about fifteen feet annually: that between the Cape and Calcutta averages in October and November nearly three quarters of an inch daily: between 10° and 20° north in the Bay of Bengal, it was found to exceed on an average an inch every day. Supposing this to be double the average throughout the year, we shall instead of three have fifteen feet of evaporation annually, and 300,000 cubic miles of water raised in vapour from the ocean alone at above 800 miles a day.

Admiral Smith gives the area of the Mediterranean at somewhat above a million square miles, and in the assumption that no more than a tenth of an inch is evaporated daily, it will afford above five hundred cubic miles of water drawn off in vapour annually from this one inland sea. Dr. Buist, assuming three times this as the amount of evaporation in the Red Sea, shows that one hundred and sixty cubic miles of water must be drained off annually from its surface by that great pump the sun. A very simple formula for computing this mentally may be given in the following assumptions, which although not all of them exactly correct, are sufficiently near the truth for the present purpose. First assume that a square degree contains 3,600 statute instead of nautical miles, which is pretty near the truth on an average betwixt the 40th parallels north and south. Then suppose a statute mile 1800 in place of 1760 yards, and the year 360 in place of 365 days long. On Mr. Glaisher's assumption, three feet, or 36 inches, annually will correspond to one tenth of an inch daily, and of course the converse of this will hold too, and will take 1800 square miles so acted on to afford a cubic mile of water raised in vapour annually, and this will be equivalent to two cubic miles raised in vapour over each square degree. From this the following very simple table may be constructed.

Daily Evaporation.	Annual Evaporation.	Cubic Miles Per Sqr. Deg.	Daily Evaporation.	Annual Evaporation.	Cubic Miles. Per Sqr. Deg.
·050	18	1	·300	108	6
·100	36	2	·350	126	7
·150	54	3	·400	144	8
·200	72	4	·450	162	9
·250	90	5	·500	180	10

From this it will appear obvious that there must be a constant set of current from the main ocean, the air over which must be comparatively damp, and the evaporation small towards those continents or islands where large supplies of vapour are not required; and in accordance with this view we find currents making all around for the northern shores of Africa, one of the driest regions in the world. One limb of the Gulf Stream comes down upon it near the Azores, and serves it to the Equator, where it crosses over, in obedience to the trade winds, to the other side of the Atlantic; this bears the name of the North African and Guinea Current. The South Atlantic Current again bends around the Cape, and hugs the shore to near the Equator, where, like the other, it sweeps across towards America. A current sets up the Mozambique Channel and sweeps around the African and Arabian shores, encircling two thirds of the Arabian Sea, and throwing off a branch which, passing through the Gulf of Aden, supplies the Red Sea. The current which enters the Gut of Gibraltar, keeps close by the southern shore, and so feeds the African pump along to Alexandria, where it is obliterated by the Nile. A second current becomes established along the shores of Sierra, till, stretching to the south of Asia Minor, it becomes extinguished by the surplus supplies of the Dardanelles.

Nothing can be more beautiful in this case than the exact accordance betwixt fact and theory, masked and obscured as many of these currents must be by others being by the friction of the trades and other winds blowing permanently or for long periods of time in the same direction. Even these obscurities we trust shortly to see cleared up, through the assiduous use of the submarine current measurer invented by Dr. Buist, now in the hands of the hydrographer, and which was exhibited at Lord Ellesmere's soiree at Bridgewater House a fortnight since.

Admiral Smith, in speaking of the evaporation over the Mediterranean, proceeds on the assumption that no better means in determining the fact of being adopted than those resorted to by Halley a century ago. In reality, the evaporating dial, when properly constructed and used, gives us just a fragment of the ocean, cut off and isolated from observation, the same things taking place over a limited and well-defined space that occurs over the great surface of the ocean itself, and it is to be hoped in the investigations now being organised, this division of the subject will form sufficient matter of attention.

The most perfect analogy prevails betwixt the currents of the sea and air as affected by solar heat. The sea breeze rushes inwards to, and the land wind outward from the shores of a tropical island in all directions and lines radiating from its axis or its centre. Currents of air are always making for these regions, over which the sun is for the time being vertical, and by keeping this constantly in mind, nearly all the winds between the tropics may be understood. It is a great fallacy to maintain that wherever there is a current, though it be on the same horizontal plane, it must be a counter current. Unless in the case of whirlwinds, nearly all our great aerial currents are merely the lower portions of great vertical eddies. Our sea currents again, in so far as they are affected by evaporation, are simple rushes of water to supply the place of what has been pumped off, and no more require a continuation or a counter current than does the water rushing into the lock of a canal or a wet dock to bring up the level previously reduced.

Mr. Saxby's Patents.

20th June, 1854.

Sir,—A heavy responsibility rests upon the introduction of novelties on board ship, when those novelties are in connection with operations on which the safety of life and property mainly depend. When hundreds of lives and tens of thousands of pounds' worth of property are hanging (perhaps in some peril) by a chain, a fault or defect in the apparatus by which that chain is managed, might be fatal.

I trust, therefore, my silence in your pages for five months (and this after your very kind notice of my patents in January) was not wrongly construed; and it is good for the community that a *Nautical Magazine* has so long existed and still opens cautiously its interesting and useful pages to well-digested experiments and well-founded opinions. As regards proposed innovations in maritime affairs, prejudices might well be excused in a class of men whose safety has for so many years seemed to depend on a long tried system of operation, and sailors are supposed to be peculiarly liable to prejudice; but such supposition ill accords with my experience of them. I had, it is true, only a plain simple intelligible fact to submit to their consideration; but when in two or three instances fears were expressed as to the complete efficacy of my prin-

ciple, I am bound to state that these fears were expressed in such a manly and consistent manner, and with such an evident desire to protect the public from the possibility of danger, that a consequent delay of five months on my part in further experiments, might be taken as a proof of the proper deference and anxiety felt, and unwearied care taken by me to remove every doubt before the public was again troubled with remarks on my patents; to say nothing of the expense of time and money necessarily incurred by such delay.

I shall less culpably intrude on your pages if, among many testimonials received, I confine my promised particulars to the contents of the following letter from a person who is to me a total stranger, one whose barge of 100 tons, with the identical Deck Stopper on board, may be seen in the Thames about once in a fortnight, and whose letter can be corroborated in all points by many persons at Nine Elms, Harwich, Sheppey, &c.

Nine Elms, 2nd June, 1854.

Sir,—Your Deck Stopper has proved so useful to my barge, the *Charles and Alfred*, of 100 tons burden, that I think it my duty to make it publicly known. I do not believe that any other contrivance would serve as bitts and stopper too, which a boy could easily manage, and besides it saves labour. If the chain comes in muddy, the stopper prevents it slipping round the windlass, and requires no one to hold on. The barge has rode by it, blowing half a gale of wind, on the high land of Sheppey, and we have brought up by it with 100 tons of stone in the barge on a heavy spring tide.

I remain, &c.

Mr. Saxby. GEORGE MAYNARD.

I never intended a stopper to be used to ride by, but in the circumstances above referred to, where a heavy bluff bowed sailing barge, with 100 tons of stone on board, rode through half a gale of wind, and where repeatedly the chain (718lbs.) is snubbed in bringing up, and on one very recent occasion when the strain even brought the anchor home, I submit a most powerful test has been repeatedly and most satisfactorily afforded of the strength and simplicity of the Deck Stopper, for immediately after the most sudden check, a child may lift the tail of the cleat and give cable, and a man may prevent shock altogether by a slight lifting of the cleat, either by hand or by a lanyard, at any distance from the stopper; the chain remaining perfectly unmarked and uninjured.

In justification of the opinions kindly appearing in your Magazine for January, I beg to acquaint you that during the past fortnight I have taken my working models and some of the articles themselves to the Mersey, the Clyde, and the Tyne. At Liverpool they were thoroughly scrutinized, not only in the Underwriters' Rooms during a whole day, but in numerous private counting-houses by special request afterwards; and the highest authorities at each of these three widely separated districts, as well as those of London, will see in your Magazine, this my open declaration that only one general and approving opinion exists as to the extreme simplicity, and importance of my humble arrangements for facilitating the working of ground-tackle on board ships and vessels of all sizes.

I am, Sir, &c.,

S. M. SAXBY.

To the Editor of the Nautical Magazine.

The Azimuth Compass.

Liverpool, No. 31, Falkner Street.

Sir,—In Captain Walker's report of his investigation into the loss of the *Tayleur*, which came to my hand during my recent voyage, I perceive great stress is laid on the fact of that ship not having an azimuth compass on board, and without which Captain Walker says "the error of the compass cannot be ascertained with accuracy." Now I believe this to be a mistake, which, coming from such a source, is liable to mislead many masters, giving them the idea that if they have no azimuth compass on board there is no alternative than to go whithersoever a mad compass is disposed to carry them. I therefore beg, if at all practicable, the wedging of this letter in your valuable Magazine, believing it may be of some use to the navigator, and with the wish to show that the means for ascertaining the error of the compass, or the direction of the ship's head, is within the reach of every captain, even without an azimuth compass on board. The azimuth compass to the navigator is unquestionably a useful instrument; but as it is only required in the present case to get the bearing of the sun, it can be dispensed with, and the sun's bearing got without it. I manage this by the following simple plan:—To my binnacle compass I have a needle about three inches long standing vertically over the centre of the compass card, attached to the glass, but not touching the card. It will be evident to every one that the sun will throw the shadow of this needle along the surface of the card, in the same way as the centre piece of a sun dial points out the time. The sun's altitude is taken, and the degree or half degree on which the shadow falls is noted, and the corresponding one on the opposite point of the compass is, of course, the sun's bearing, or magnetic azimuth, with which the error of the compass is worked out in the usual simple way. The plan is altogether so simple, and the deviation of the compass got with such accuracy, that I think it has only to be once tried to ensure its being generally adopted. As a further check on the compass, the position of the shadow is observed the moment the sun is on the meridian; and as that luminary then bears true south, he will of course throw the shadow of the needle true north. The number of degrees between this shadow and the magnetic north will be the error of the compass, thus secured without the trouble of calculating. The above plan I have been using for now nearly two years, and in preference to the use of the azimuth compass, as it is done by the very compass by which I have to steer.

Much importance is also attached to the swinging of ships in dock before going to sea. I do not wish to lessen the importance of this act. Every means ought to be used to understand the mad humours of an iron ship's compass. But experience has taught me that compasses adjusted by magnets, and the table of errors taken by swinging the ship in dock, are unsafe guides, and unworthy of full confidence at sea. I have had three compasses adjusted, a table of errors taken, and have no sooner been at sea than each compass had its own particular idea as to the position of the north pole, one telling me to go this way, and another telling me to go that. Of course, such a difference of opinion existing among those which ought all to see alike, I have been compelled to believe in none. Now, strange to say, the next time the ship has been swung in dock the compasses have given a table of errors very much the same as when swung before. I name this fact lest too much confidence be placed in compasses adjusted by magnets, and in a table of errors taken in dock. While these adjustments have been of use to me, I should often have been ashore had full confidence been relied on them. Again, as I take daily observation on my compass, I by this means get its error in different latitudes; but I seldom find it the same for two voyages running. The error seems to be constantly changing; and as

my voyages are only seven weeks' average, it shows how long a table of errors ought to be trusted. Much more might be said on this subject, but as I have already trespassed in length, I will now conclude with recommending to all masters who, like myself, command an iron vessel, the adoption of this simple check, feeling fully persuaded that if any attention is paid to it, such a frightful catastrophe as that which has so recently taken place, may never again owe its origin to the captain not knowing which of his compasses are in error.

Yours, &c.,

JOHN MILLER, Commander (s.s.) *Arabian.*

To the Editor of the Nautical Magazine.

EXTRACTS FROM LETTERS ON PROCEEDINGS IN THE BLACK SEA.

On the afternoon of the 11th of May, H.M.S. *Tiger*, *Vesuvius*, and *Niger*, were detached from the fleet with orders to reconnoitre Odessa. Immediately after, a dense fog led to their separation, and on the following morning, at half-past six, the *Tiger* grounded close to the lighthouse, and under a high cliff. They immediately got out her boats, laid out anchors astern, and lightened her by throwing guns overboard. Some time afterwards the Russians discovered her misfortune, and brought down field pieces, with which they attacked her, defenceless as she was, when they surrendered, but not until young Giffard, a midshipman, and Captain Giffard were wounded, and three men killed. The enemy gave them permission to remove their effects, but unfortunately for them the *Niger* and *Vesuvius* hove in sight a few hours after their capture, when, to avoid a recovery of the vessel, the Russians recommenced firing on the *Tiger*, and succeeded in blowing her up. The *Niger* and *Vesuvius* beat to quarters, and commenced firing shell at the enemy with good effect. The *Niger* had three men slightly wounded, but they are now at their duty.

The following letter from Mr. Henry Jones Domville, late Surgeon of the *Tiger*, confirms the melancholy report. His letter is dated May 15th, in the quarantine ground at Odessa, in which he states that he has been wonderfully preserved, and able to benefit his more unfortunate shipmates. He says:—

On the morning of the 12th, at 6 a.m, he was awoke by the crash of the ship going on shore, and when the dense fog cleared a little they found themselves about five miles S.E. of Odessa. Guns were fired to attract the attention of the other steamers, but without avail. About 9 o'clock the guns from the shore commenced firing. In less than ten minutes the *Tiger* was on fire in two places, the Captain and others frightfully wounded. They could only use one gun, the others having been thrown overboard, or removed to lighten the ship. He performed four amputations before they left the ship, which he did almost the last, in care of the wounded. Poor Captain Giffard lost his left leg, and has a severe wound in his right. His sufferings were most intense for three hours under a hot sun. The Surgeon's knowledge of French proved a great blessing, for some of the Russian Officers understood it, and he was able to send into the town for medicine, &c., which greatly relieved the Captain. The Midshipman, who lost both his legs, and is a relative and namesake of the Captain, died on the beach, and one man on the road. The Surgeon says the kindness of their captors is beyonds words to tell. Everything they want is procured at once, and he says he has only to ask and to have. Leave was given them to save what they could, and the Surgeon had a few clothes with

him. His last words are, "The Captain is doing as well as can be expected. The amputation is progressing favourably."

Officers of H.M.S. Tiger.

H. W. Giffard, captain; Alfred Royer, senior lieutenant; Webb E. Stone, Alexander Hamilton, lieutenants; Francis Edington, master; John C. Solfleet, second master; C. H. Wilkinson, acting mate; John E. Scudamore, acting second master; H. J. Domville, surgeon; Peter Wood, acting engineer, first class; Edward Lawless, assistant surgeon; George Kent, assistant engineer, second class; George H. Beaton, ditto, third class; John G. Barnes, N. G. Simmonds, passed clerks; Timothy Sullivan, naval instructor; George A. Lance, paymaster; A. E. Rowden, Frederick Hammond, John Giffard (dead), Percy B. Nind, midshipmen; Richard T. Ansell, first lieutenant, Marine Artillery.

Warrant Officers.

John Quin, gunner; Wm. Beckford, carpenter; Matthew Delany boatswain.

Accounts have been received from Vice-Admiral Dundas, stating the particulars of the loss of the vessel.

The following is the report from the surgeon of the *Tiger* of the killed and wounded:—

Captain Giffard, loss of left leg above the knee, wound of right leg, and various contusions; doing well.

William Tanner, ordinary, lacerated wounds in the front of both thighs, gunpowder laceration and compound fracture of little finger of left hand, and other contusions; doing well.

Charles Hood, boy, second class. This poor lad is riddled with grape and canister shot, one of which has penetrated the abdomen. He has also a severe compound fracture of the left leg. I entertain no hope of his recovery.

William Trainor, aged 38, gunshot wound of left knee; amputation was performed on board, but he died, during the transit from the shore to the town, of exhaustion.

John Giffard, aged 18, midshipman. Had both legs shot away; amputation was performed on board; from the shock to the system and hemorrhage, combined with exposure to the sun and unattended on the beach, he died shortly after being landed.

The surgeon adds, that every possible attention that humanity can suggest has been shown by the authorities at Odessa, and that the survivors are under his own especial care.

The melancholy death of Captain Giffard, late in command of the *Tiger*, has given rise to a deep feeling of regret among all classes. Among the reports it is said that Captain Giffard shot the Greek pilot in revenge for getting the ship on shore. This we believe to be pure, or rather an impure and monstrous fiction. Captain Giffard, according to more credible information, was ill in bed at the time of the disaster. To have quitted a sick bed, armed with a pistol, and to have deliberately shot an unfortunate pilot, who could not have been a whit more culpable than the Master or the Officer of the Watch, is too preposterous to admit of credence. Yet there are journals which, to their shame be it recorded, scruple not to give currency to such a foul statement.

The funeral of the unfortunate Captain at Odessa was conducted with much pomp on the 2nd June. Baron Osten Sacken does not, however, deserve any remarkable praise for his condescension. The object was, no doubt, to impress the minds of the Russians with the high rank of the deceased, and to enhance their so-called triumph, by making a great deal of the vanquished. The absurd

vaunt contained in the Grand Prince Constantine's order relative to the *Tiger's* flag is too rich to be omitted :—

His Majesty the Emperor has been graciously pleased to entrust the flag of the English steam ship *Tiger* to the Corps of Marine Cadets. I, therefore, order that this flag be kept by them along with the other hostile flags.

CONSTANTINE.

Had the *Tiger*-been captured in fair fight, the flag would have been a trophy of value; but lost, as she was, by unquestionable mishap, the smallest possible amount of merit only is due to her captors. We trust that an exchange of the prisoners may shortly be effected, when this, to all appearance, most untoward event, will be thoroughly sifted. Till then it is most reprehensible to repeat the idle tales, and to indulge in speculations which may, upon inquiry, be proved entirely groundless.—*United Service Gazette.*

The Flag of the Tiger.—We read in the *Patrie* :—The following detail relative to the affair of the *Tiger* shows to what an extent the Russian generals will carry their system of lying and deception. The officers and crew of the frigate landed in their own boats after having burnt their flag. The Russians never boarded the vessel, and consequently could not gain possession of the English flag. The Russian general sent as a trophy to Marshal Paskiewitsch the flag of an English merchant vessel which had been detained in the port before the bombardment, and which he represented as being that of the English frigate the *Tiger*.

OFFICIAL DESPATCHES.—*Prizes.*—From Vice-Admiral Dundas to the Secretary of the Admiralty :—

Britannia, off Odessa, April 21st, 1854.

SIR,—I beg you will acquaint the Lords Commissioners of the Admiralty that the combined squadrons left Baljik Bay on 17th, and anchored off Odessa on 20th inst. This morning *Retribution* and *Descartes* rejoined, and I transmit copies of Captain Drummond's reports of proceedings since he was detached on 11th inst; and I trust that the zeal, activity, and judgment displayed by Captain Drummond and Commander Heath will meet their Lordship's approval. *Sidon*, *Firebrand*, and *Inflexible* are still watching the coast between the Danube and Varna, and in consequence of an attempt by some Cossacks to carry off the grain and forage at Kustenjeh, Captain Goldsmith set it on fire. The forts at Soulina mouth of the Danube have been dismantled, and the guns and gunboats removed to Ismail. The Russian army by the latest intelligence is still stationary.

I have, &c.,

J. W. D. DUNDAS, Vice-Admiral.

The Secretary of the Admiralty.

Retribution, April 17th, 1854.

Rendezvous, 15 miles East of Fidonisi.

SIR,—I have the honour to inform you, that in pursuance of your instructions, dated 11th inst., I proceeded off Odessa, having under my orders Her Majesty's steam sloop *Niger*, and in co-operation with me the French steam frigate *Descartes*. The morning of 13th inst., off Cape Fontan Light, I prevented a Danish ship from entering into Odessa, she having on board at the time contraband for the enemy—namely, a cargo of coals. On arriving off Odessa *Niger* captured two Russian merchant brigs lying at anchor outside the mole; one of them slipped, and was within range when *Niger* captured her. The crews I have detained on board as prisoners, subject to your further in-

structions. I made an exception in favour of some passengers; these I sent on shore in a small captured vessel previous to my departure. The Governor of Odessa sent off an officer with a flag of truce to make some explanations respecting the boat of *Furious* having been fired upon on a late occasion. I declined to receive any verbal explanation on this subject. The following day an Aide-de-Camp of the Governor came off, but again, as his communication was verbal, I declined accepting it. Subsequently, about four in the afternoon of the 14th, the officer returned with a letter from the Governor to your address, which I have the honour to forward. The number of vessels captured and destroyed is enumerated in the inclosed list:—Total, 13. Crews, 51; of which 23 are prisoners in this ship, and 28 in *Descartes*.

Commander Heath, who was detached on 14th inst., to reconnoitre towards the Dneiper, observed a Russian transport in tow of a steam-tug; he chased the vessels, but after following them as far as the first beacons at the entrance of the Dnieper, and into three fathoms water, he deemed it not advisable to detach his boats without the support of the ship. The transport was at a distance of five miles, and had got within the entrance, and under the protection of the forts of Kinbourn and Nicholaef; the former fort fired several shots at *Niger*, but at a distance of four miles. On return, Comm. Heath captured six country vessels, two with a full cargo of English coal on board, a third with a small quantity, all bound up the Dneiper to Nicholaef. I thought it advisable to take possession of this coal for Her Majesty's service, and therefore purchased it for Government, and supplied the several quantities, as per receipts, to *Retribution*, *Descartes*, *Sidon*, and *Niger*. The price of coal at Odessa, as stated by the master of a British merchant ship, was £4 sterling per ton, and the prices at Constantinople on the 6th inst. had been quoted nearly as high. I have the honour to enclose a letter for the information of the Lords Commissioners of the Admiralty on the subject, as the proceeds of these captures are due to the officers and crews of the ships serving under my command, and the French frigate *Descartes*, as belonging to Her Majesty's ally. The several small vessels having been cleared, I thought they might be most useful at this moment for the service of Her Majesty's fleet, as they are well adapted to be used as coasters for the carrying of coal at Heraclia. I examined carefully the position off Odessa, and there appears to be nothing in the way of fortification to prevent the fleet anchoring within two miles, or even less from the shore; the total number of guns does not exceed between 60 and 70, and from the north side a position might be taken which would enfilade the moles, but no firing could take place on the moles without the entire destruction of the merchant ships anchored within, and of the storehouses situated near the water's edge; within the Imperial Mole were anchored three steamers (two very small). I also observed three skeleton vessels in frame, apparently gun-boats; a very large depot of coal was seen between the moles. I detached *Niger* to examine the coast about Tendra; Comm. Heath stood well inside the bay, and found the soundings as laid down in the chart perfectly accurate; as he did also within the Three Fathoms Bank at the entrance of the Dneiper. As respects the enclosures contained in your instructions to me of 11th inst., I have the honour to inform you that Her Majesty's Consul-General quitted Odessa ten or twelve days previous to my arrival there on the 13th inst. I could learn nothing of the two vessels alluded to in the inclosure from an Ionian merchant, as forwarded to you through Her Majesty's Ambassador at the Porte. The exportation of grain had been stopped, and all loaded vessels obliged to re-land their cargoes; this proved to be a detention to merchant ships of all nations. During my stay off Odessa I had communication with some masters of British merchant ships anchored within the Mole, who were all anxious to get away, but complained of their consignees not getting them a clearance. I was also informed by the master of *Mordecai* that he had heard something said of a certain

time having been allowed to them to get out, and added that he had asked for, and had not succeeded in getting his clearance. There were fifteen vessels with the British ensign, and about ten French. I was told the latter, being loaded vessels, were all detained. One British vessel and two Ionians came out of Odessa on 13th inst. It has been very gratifying to me the cordial co-operation of the Captain of the French frigate *Descartes*, and I have been much indebted to Comm. Heath, of *Niger*, for his examination of the Dneiper entrance and Tendra Bay, and of his efficient assistance in enabling me to carry out your instructions relative to capturing and destroying the enemy's vessels. I left my position off Odessa on the night of 15th, at the expiration of sixty hours. At daylight observed *Niger* standing towards the land; Comm. Heath reported to me, on rejoining, that he chased on shore, burnt, and destroyed a Russian schooner, laden with salt; the crew escaped on shore in their boat. I reached the rendezvous off Serpent Island at 5 a.m. this morning, with *Descartes*, *Niger*, and nine prizes, to await further instructions. Ten, a.m Exchanged pendants with H.M.'s ship *Sidon*; reported myself at noon to Captain Goldsmith, senior officer.

I have, &c,

J. R. Drummond, Captain.

P.S.—H.M.'s ship *Sidon* is taking the remainder of coal out of the colliers; the receipts for entire quantity of coal taken on charge for the use of Her Majesty's Government will be forwarded as soon as receipts have been furnished to me. The quantity of coal will amount to about 215 tons, north country coal.

Vice-Adml. Dundas, C.B., Comm.-in-Chief. J. R. D.

A List of Russian Vessels captured by H.M.S. *Retribution* and *Niger*, and the French Imperial frigate *Descartes*, between 13th and 16th April, 1854.

No.	Name of the Vessel.	How rigged.	Cargo.	Remarks.
				Captured by
1	St. Constantine	Brig ...	Empty	Niger
2	Graphonite	Brig ...	Linseed & oatmeal	Niger
3	St. Peter & Paul	Brig ...	Empty	Niger
4	St. Constantine	Lugger .	Oatmeal	Retribution
5	St. Nicolas	Lugger .	Oatmeal	Retribution
6	St. Nicolas	Schooner	Empty	Niger
7	St. Nicolas	Lugger .	Empty	Niger
8	Annee	Lugger .	Coals	Niger
9	St. Speridon ...	Lugger .	Coals	Niger
10	Proce Bragenia.	Lugger .	Coals	Niger
11	Elchina	Brig ...	Salt	Descartes
12	St. Nicolas	Lugger .	Linseed	Niger—Discharged into No. 2; sent into Odessa with passengers, women, and children.
13	Unknown	Schooner	Salt	Chased and destroyed by Niger.

Nos. 5 and 6 were destroyed.

J. B. Drummond, Captain and Senior Officer present.

Blockade of the Danube by the Allied Fleet.—Successful Operations on the Circassian Coast.

Official Dispatches from Admiral Dundas.

Foreign Office, June 13th.

It is hereby notified that the Right Honourable the Earl of Clarendon, her Majesty's Principal Secretary of State for Foreign Affairs, has received a despatch from Vice Admiral Dundas, commanding her Majesty's naval forces in the Black Sea, addressed to the Lords Commissioners of the Admiralty, and dated the 1st of June, announcing that the Danube was blockaded by the combined naval forces of her Majesty and of the Emperor of the French.

Admiralty, June 10th.

Despatches, of which the following are copies or extracts, have been received from Vice Admiral Dundas, C.B., Commander-in-Chief of her Majesty's ships and vessels in the Mediterranean and Black Sea:—

Present State of the Forts on the Coasts of Circassia and Georgia.

Britannia, off Baljik, May 25th, 1854.

Sir,—I beg you will acquaint the Lords Commissioners of the Admiralty, that the *Mogador* arrived yesterday from Redoubt Kale, on the coast of Georgia, having left Sir Edmund Lyons with the *Agamemnon*, *Charlemagne*, *Sampson*, and *Highflyer* there, on the 20th instant, and I expect him to-night or to-morrow morning.

I have not yet received Sir Edmund Lyons' official despatches, which will be forwarded as soon as I get them; but the result of the movements appears to be, that from the entrance of the Sea of Azof to the Turkish Asiatic boundary, the flag of Russia only flies over the fortresses of Anapa and Soujak, and the only two vessels that were on that coast have been captured.

All the places were evacuated, and the forts and material more or less destroyed, (many of the guns, however, being serviceable,) except Redoubt Kale and Poti, from which the Russian soldiers were driven by the fire of the French and English ships, and they were then garrisoned by a battalion of Turkish soldiers, who, with three field pieces, had been previously embarked on board our vessels at St. Nicolai (Chefketil). The Russians, about 700 or 800 men, are supposed to have gone in the direction of Khutais, where also the garrison of Soukhum Kale, 2,000 or 3,000, is supposed to have directed its march.

The *Sampson* is on the coast, and last night the *Sans Pareil* and two Turkish steamers left Redoubt Kale, with arms, ammunition, and 200 to 300 Circassians.

I am happy to say that there is an appearance of more unity and stronger feeling among the different tribes against the Russians.

I have, &c., J. W. D. DUNDAS, Vice Admiral.

The Secretary of the Admiralty.

Britannia, off Baljik, May 28th, 1854.

Sir,—I acquaint you, for the information of the Lords Commissioners of the Admiralty, that Sir E. Lyons rejoined me this morning, from the coasts of Circassia, Georgia, and Anatolia; and I have very great pleasure in transmitting, for their lordships' information, Sir E. Lyons' official reports of the proceedings of the detachments placed under his orders.

The operations therein detailed, as well as the intelligence as to the state of the coasts he has visited, are very important and interesting; and I trust my

lords will consider I have done right in expressing my entire approval of the great skill and judgment displayed by Sir E. Lyons and his colleague, Viscount de Chacannes; and I beg to add my testimony to the ability and conduct of the *Agamemnon*, of whom Sir E. Lyons has made such honourable mention.

I have. &c.,
J. W. D. Dundas, Vice Admiral.

Agamemnon, at Redoute Kaleh, May, 21st, 1854.

Sir,—I have great pleasure in reporting to you that the small squadron placed under my orders by you and Admiral Hamelin, have been the means of expelling the Russian garrison from the only place on this extensive coast, with the exception of the strongholds of Anapa and Soujak Kaleh, near the Crimea, that the Emperor Nicholas exempted from the general abandonment two months ago.

At Soukoum Kaleh I learned that the Russians were still in possession of Redout Kaleh, and that they attached great importance to maintaining themselves there as long as possible, in order to forward to their army at Kutais a large quantity of ammunition and stores still in the magazines; and at the same time to intercept the communications of Selim Pacha at this critical juncture, and prevent his occupation of so favourable a port for the introduction of supplies.

The squadron left Soukoum Kaleh on the morning of the 18th and as we passed Redout Kaleh we observed a body of about 1000 infantry under arms, and that the few guns on the sea defences were manned. If we had opened our broadsides we could have obliged the enemy to retire, but he would, no doubt, have returned to occupy the place on our disappearing, and I, therefore, went on with the squadron as fast as possible to Chouruksoo, in hopes of inducing the general commanding there to aid me with a sufficient number to occupy and maintain the place after we should have driven the enemy out of it with our guns; he sent an express to Selim Pacha, whose reply arrived early on the following morning, and who placed at my disposal a battalion of 300 infantry and three field pieces, which were immediately embarked on board the ships of the squadron with a degree of alacrity I have never seen surpassed.

At 4 p.m. the squadron re-appeared off Redout Kaleh, where the troops were disembarked, under cover of the steam-vessels, about two miles from the batteries, and at the same time a summons was sent to the Commander of the Russian forces by Vicomte de Chabannes, the senior officer of the French division of the squadron, and myself, under cover of a flag of truce, and in charge of Lieutenant Maxse of this ship, by whom it was delivered to an officer who spoke French fluently, and alleged as a reason why an answer could not be given without considerable delay, that the commandant was not on the spot.

After a delay of nearly half an hour, Lieut. Maxse left the shore without an answer, and consequently the *Agamemnon* and *Charlemagne* stood in, as close as the depth of water would permit, and opened their fire on the quarter occupied by the Russian troops as well as on the sea defences, which tried an ineffectual fire on the boats. The enemy soon retired out of reach of the ships' guns, and the Turkish troops advancing along the beach, took possession of the batteries, when the firing ceased.

The enemy retreated so precipitately from under the fire of the ships, that he failed in his attempt to ignite the combustibles which were laid for the destruction of the military quarter, but when out of gun-shot, and his retreat secured by crossing the river and destroying the bridge, he set fire to the magazines and storehouses, and at nightfall the commercial town, which commenced at some distance from the sea and extended about a mile and a half up each bank of the river, was in a blaze, so that in the morning the flourishing place

of the evening presented an awful scene of desolation; the Mingrelian inhabitants, who had rendered themselves very obnoxious to the displeasure of the Turks, having retired with the Russians.

This devastation is, no doubt, deeply to be deplored, but it is some consolation to have deprived the enemy of a depot of military stores, and to have driven him from a place of so much importance, without any accident, or any irregularity arising from success.

Nothing could exceed the cordial co-operation and assistance I received from my French colleague, the Vicomte de Chabannes, as well as from Commandant Wailly, of the *Mogador*, Captain Jones of the *Sampson*, Captain Symonds, of this ship, and Captain Moore, of the *Highflyer*, and, indeed, from every officer in the combined squadron, during this fatiguing day; but I should be doing injustice to a highly deserving officer, if I did not particularly mention the senior Lieutenant of the *Agamemnon*, William Rue Rue Rolland, (a Lieutenant of thirteen years standing, twelve of which he has been in active service afloat,) on whom a large share of the toil and responsibility of the day devolved, as he had the management of the embarkation and disembarkation of the troops.

Yesterday and to-day working parties from the combined squadron have been assisting the Turks in putting the place in a good state of defence, and I am highly pleased with the quantity of work they have accomplished; but, as the Russians are probably not far distant, I think it would not be prudent to leave the Turkish garrison without some support, I therefore venture to consider it your pleasure, that, on my quitting this anchorage to-night in the further execution of your orders, the *Sampson* should be left behind for that purpose; and I enclose a copy of the instructions I have given to Captain Jones.

I have also the honour to enclose the copy of a letter which the Vicomte Chabannes and I have addressed to the Muchir Selim Pacha, and I have directed Captain Jones to draw his attention to Poti and Agysoo, the dependencies of Redout Kaleh, which were also set on fire by the enemy on the evening of the 19th inst.

I have, &c.,
EDMUND LYONS, Rear-Admiral.

Agamemnon, at Baljik, May 28th, 1854.

Sir,—With reference to my letters of the 17th and 21st instant, I feel that my report of the visit of the allied squadron under my orders to the coast of Circassia would be very incomplete if I were not to relate that we were everywhere welcomed as deliverers by the remarkable race by whom it is peopled.

The weather was fine, and the water deep, so we approached very near the land, and always by daylight; and as we opened each beautiful valley, with our English and French colours flying, the Circassians flocked to the beach, and testified their joy by firing muskets and waving flags and handkerchiefs.

On landing at the principal places the natives assisted us out of our boats, and after giving expression to their delight for a few minutes, formed a circle around us, preserving the most perfect order, while their chiefs came forward and addressed the Vicomte Chabannes and me, speaking fluently and sensibly, with an air of self-esteem, which, combined with their handsome and lofty mien, and their manner of carrying their weapons, was exceedingly striking. They invariably said, that while they turned towards England and France with gratitude and admiration, as the instruments in the hands of Providence for delivering them from their invaders, they confessed that they considered it the just reward of their patriotism and constancy.

They are certainly a fine intelligent race, and I can readily believe them to be second to none in desultory mountain warfare.

I have, &c.,
EDMUND LYONS, Rear-Admiral.

The Baltic Fleet.

The *London Gazette* contains the following despatches from Vice-Admiral Sir Charles Napier;—

H.M.S. *Duke of Wellington*, off Hango Head, May 20th, 1854.

Sir,—I beg to enclose a letter from Capt. Yelverton, of the *Arrogant*, giving an account of a smart operation he performed at Ekness, twelve miles in the interior of the country. Great credit is due to him for his perseverance in threading up so narrow and intricate a navigation; and it will show the enemy they are not safe even in their country towns.

Capt. Yelverton very properly abstained from damaging the town.

He speaks very highly of the gallantry of Capt. Hall, of the *Hecla*, (who I am sorry to say is slightly wounded,) as also of Lieut. Haggard, First of the *Arrogant*, and Lieut. Crew Read, the Senior Lieutenant of the *Hecla*, which gallant officer has received a severe wound, which I fear has endangered the sight of his eye. All the officers and men behaved as British seamen and marines were wont to do.

I enclose a list of killed and wounded on this service.

I have, &c.,

Charles Napier,
Vice Admiral and Commander-in-Chief.

I also enclose a sketch of Eckness, and one of the *Hecla's* funnel.

The Secretary of the Admiralty.

H.M.S. *Arrogant*, Skagaedsleuden, May 20th, 1854.

Sir,—I have the honour to inform you that I came into the inner passage yesterday, in company with the *Hecla*, for the purpose of examining the channel.

At three in the afternoon, just as I was about to anchor a little beyond Teverminne, a strong force of the enemy's troops opened their fire upon both ships from behind an extensive sand bank; the effect, however, of a few broadsides from *Hecla* and this ship soon dispersed them. No one, I am glad to be able to say, was hurt in either vessel. I did nothing to provoke this attack on the part of the enemy. I ascertained from a pilot who lives here that three large Russian loaded merchant ships were at Ekness, eight miles to the northward. I lost no time in proceeding there early this morning; but did not expect to find the enemy so well prepared to receive me. Owing to the *Hecla's* light draught of water, she led the way; a task not easy to perform in a narrow and intricate passage, exposed as she was to the first of the enemy's fire.

In addition to a field battery of five guns (two of which I dismounted) and one mortar, they had created a strong battery which they supplied very efficiently. Capt. Hall succeeded in dismounting and bringing off three of the guns. The engagement lasted longer than I expected, as they returned to their guns twice in the midst of our fire, and were only compelled to leave them when their guns were destroyed by our shot.

On reaching the anchorage of Ekness, I found that two of the merchantmen were aground, but Captain Hall brought out one under the fire of a battery, which my draught of water would not allow me to near sufficiently to completely destroy. I most carefully avoided firing one shot in or near the town of Ekness, directing the whole of the fire of the guns exclusively to the batteries and troops attacking us, which consisted, in addition to the brigade of horse artillery, of a considerable body of cavalry and infantry, moving abreast of the ship as she advanced.

I cannot give sufficient credit to Capt. Hall for the assistance he rendered me on this, as on all occasions, since he has been under my orders; the admirable way in which he went in and brought out his prize, under a galling fire from the enemy, deserves the greatest praise.

I beg also to call to your favourable notice Lieut. H. V. Haggard, Senior Lieutenant of this ship, whose most zealous services at all times were particularly displayed on this occasion; and also that of the whole of the officers, seamen, and marines of H.M.S. under my command.

I regret to say that I had one man killed, and five wounded. I must not omit to mention how very highly Capt. Hall speaks of Lieut. Crew Read, First Lieutenant of the *Hecla*, for the support he had from him through the engagement, (until he was unfortunately wounded and carried below,) as also from the officers, seamen, and marines of H.M.S. under his command. I beg leave to enclose herewith a list of casualties on board the *Hecla* and *Arrogant* in the engagement.

I have, &c.,

H. R. YELVERTON, Captain.

A List of Casualties on board H.M.S. *Arrogant*, on the 20th May, 1854, when engaged with the enemy.

Wm. Dingle, A.B., killed instantaneously; shot through the heart. Wm. Vincent, Stoker, mortally wounded; since dead; shot through the abdomen. Wm. Glover, captain mizen-top, slightly wounded; contusion of back. Fergus Thomas, private R.M., severe contusion of foot. Joseph Brown, A.B., slight contusion of loins. Thomas Brunner, ordinary, contusion of hand.

J. GALLAGHER, M.D., Surgeon.
H. R. YELVERTON, Captain.

List of Wounded on Board H.M.S. *Hecla*, 20th May, 1854.

Capt. W. H. Hall, Captain, slightly wounded; bruise of right leg from a spent rifle ball. O. Crewe Read, First Lieutenant; a severe but not dangerous wound of left eye and cheek, from a spent rifle ball. T. Brock, pilot, slightly wounded; bruise of right thigh from a splinter. T. Lamborne, boy, 2nd class; a severe but not dangerous flesh wound of left arm, from rifle ball. John M'Carthy, ordinary; hit by round shot and afterwards drowned.

ROBERT POTTINGER, Surgeon.

H.M.S. ———, Memel, Prussia, May 17th.

The *Archer*, 15, screw corvette, Capt. Heathcote, came to get water on the 16th of May, having passed in signal distance, with *Amphion*, Capt. A. C. Key, on Monday the 15th, having completed her water here, and returning to her cruising ground off Riga. The authorities here are very civil, but as this town is joining to Russia, all shipping now, and cargoes, are consigned to Memel. Ten coal barques have arrived these last few days, and though it is pretended that the transit of coal is tedious and difficult through to Russia, I feel confident that there is where it will eventually go to, either by small steamers or coasters, close in shore, or else by carts to Riga, and on in the winter by sleighs, when roads are good for sleighing. On this part of the coast we have a detached blockading squadron, under Capt. Key's orders, consisting of:—*Amphion*, 34, Capt. Key, cruising off Riga; *Archer*, 14, Capt. Heathcote, cruising off Oesel; *Conflict*, 8, Capt. A. Cumming, cruising off Libau; *Cruizer*, 14, Commander Douglas, cruising off Lyserort; *Desperate*, 8, Capt. D'Eyncourt, cruising off Dago; *Arrogant*, 47, Capt. Yelverton, cruising off Helsingfors; *Vulture*, 16, and *Valorous*, 16, paddles, cruising off Aland Island; *Hecla*, 6, Capt. W. H. Hall, and *Lightning*, 3, Capt. Sulivan, examining and sounding anchorage off Hango Head.

I don't know the names of two paddles cruising off Winga Bay, entrance to Kattegat, but hear they get most prizes. *Archer* has been cruising for thirty-five days off Oesel; *Desperate*, the same off Dago. All the prizes are stopped before they reach us, so we have none. The lighthouses are not lighted, except Dagerort, and that they play all sorts of tricks with—one night a tide light; another, revolving; another time, a flash light. The fleet cruising off and on Gottska Sandoe, near Gottland. We occasionally saw them as we stretched across in chase from Oesel, about ten days ago, in the evening; a fog, or mirage on the horizon. We distinctly saw and counted the fleet, *inverted* in a cloud, far above the horizon, nineteen in number; every officer and man came aft to look at it. We met *Amphion* next day, who told us she left the fleet that evening, and there were nineteen sail. You hear guns in the atmosphere, at a very great distance, booming over the waters. *Cruiser* fell in with a Norwegian Squadron the day before she relieved *Archer*, off Oesel Island, composed of line-of-battle ships, frigates, &c. We do not yet know here if the French Fleet has joined Sir Charles Napier's Fleet or not; they had not on Saturday, the 13th. Everybody is asking, "What are we going to do?" "Rien de tout" would rhyme with it. Take a look at an atlas, the map of Europe will give you the position of all I have written. You will see on the right side of the Baltic Sea:—Dago, *Desperate;* Oesel, *Archer;* Lyserort is the lighthouse on the point south entrance to Riga, *Cruiser;* Windau, Libau, Memel, *Conflict*. *Arrogant*, off Sveaborg, or Helsingfors; Aland Isles, above Stockholm, *Vulture*, *Valorous*, and *Odin*. Fleet cruising just to northward of Gottland. They have painted the backs of the houses at Revel black, which shows to seaward, and are working night and day at the fortifications.

Destruction of Russian Dockyards.—*Capture of Gun-boats.—Lubeck.*—Rear-Admiral Plumridge has been punishing the Russians. He has destroyed their dockyards at Uleaborg and Brahestad, burning 10,000 barrels of tar at one place, and 18,000 at another. He has also taken several of the gun-boats which had been prepared to oppose the English fleet. Uleaborg and Brahestad are not far distant from each other in Finland, on the upper part of the Gulf of Bothnia. Uleaborg is, next to Abo, the chief commercial town of Finland. Its exports are tar, fish, and salted provisions. It has a good harbour and salmon fishery, and has also a castle, built in 1590, and standing on an island not far from the town itself.

Duke of Wellington, 131, flag of Vice-Admiral Sir Charles Napier; *Edinburgh*, 58, flag of Rear-Admiral Chads; *St. Jean d'Acre*, 110; *Austerlitz*, 100; *Princess Royal*, 91; *Cæsar*, 91; *Cressy*, 80; *Blenheim*, 60; *Hogue*, 60; and steam frigate *Penelope*, 16; and a few smaller steamers remained at anchor in Hango Roads, Finland, for a longer period than was intended, in consequence of the prevalence of dense fogs. The navigation of the Gulf of Finland in the most favourable weather is attended with difficulty, especially for ships of great draught of water. At the present time it is rendered more hazardous from the fact of the Russians having removed the various buoys and beacons which denoted the usual channels. The lighthouse on the island of Hango, which is situate at the north-western entrance of the Gulf, has been pulled down, and the usual marks for vessels entering the roadsteads have been removed. Throughout the whole length of the Gulf similar proceedings have been adopted by the enemy, but which, however, will not have the effect intended. By sending in advance two or three small steamers to take soundings and bear-

ings, the large ships will be able to shape a safe course to Sveaborg, and thence to the vicinity of Cronstadt.

No further bombardment of the forts commanding Hango Udde has taken place. Their complete destruction would have been easily effected, but attended with no advantage. The fortresses of Sveaborg mount 800 guns of large calibre, one half of which, it is stated, could be brought to bear on any ships attempting to pass through the narrow channel. In the garrison are several thousand artillerymen. It is not, therefore, probable that any attack on Sveaborg will be made. But admitting that the fleet succeeded in demolishing these fortresses, they could not be retained without a large body of troops.

While at anchor in Hango Roads, the crews of the various ships were exercised aloft in reefing and furling sails, shifting topsail yards, and similar evolutions. A squadron of observation, consisting of the *Imperieuse*, 50; *Arrogant*, 46; *Dauntless*, 33; and *Basilisk*, 6, have been cruising in the vicinity of Sveaborg. Rear-Admiral Corry, with the sailing ships and a few steamers, is reconnoitring between the island of Gottska Sando and Port Baltic. The paddle and screw steamers under the orders of Rear-Admiral Plumridge are among the Aland Isles. The *Amphion*, 36, has captured several merchant vessels. The *Desperate* anchored in Hango Roads on the 27th ult., and the *Hecla* was despatched to Stockholm, to procure fresh provisions for the fleet. The *Driver* arrived from Copenhagen, having on board Lieut. Naylor, R.M., the bearer of despatches for the Commander-in-Chief. On the 28th the *Driver* was sent to look after a Russian steamer reported cruising outside, and the *Lightning*, Captain Sulivan, to the Gulf of Bothnia. The *Alban*, paddle, joined company on the 29th; and the *Cruiser* proceeded to Gottska Sando. During the 31st, and the greater part of the subsequent day, a dense fog prevailed, by which all communication between the ships was prevented. Two Dutch galliots came into Hango Roads bound up the Gulf of Finland, but were not allowed to proceed on their voyage. Early in the morning of the 2nd inst., the *Gorgon*, *Dragon*, and *Desperate*, (the latter with the English yacht *Myrtle*, Colonel Corfield, in tow,) steamed out of the roadstead to examine the shoals, &c., in Baro Sound. The *Alban* brought in a Russian gun-boat and a merchant brig, and the *Porcupine* a brigantine, as prizes. At noon the fleet weighed under steam. After clearing Hango Roads the fires were banked, and all necessary sail made to a fine breese from the north-west. In the evening the ships anchored in Baro Sound, about eight miles off the shore of Elgso, the *Penelope* remaining off Hango to watch the movements of the enemy on that part of the coast, and to wait the arrival at that anchorage of the squadron in company with Rear-Admiral Corry. The *Lightning*, while in the Gulf of Bothnia, will reconnoitre Bomarsund, the principal of the Aland Isles, for the purpose of ascertaining the strength of its fortifications. Mr. Nugent, one of the officers of engineers attached to the fleet, accompanies Captain Sulivan to assist him in this important service. The *Hecla* arrived in Baro Sound on the 3rd from Stockholm, with a large number of live bullocks and vegetables for the fleet. The *Imperieuse*, 50, and *Arrogant*, 46, hove in sight in the forenoon, and were ordered to cruise in the offing, to intercept all merchant vessels bound up the Gulf of Finland with supplies for the enemy. The *Pigmy*, steam gun-boat, joined company on the 4th, fourteen days from the Downs; and the *Gorgon* was despatched to Stockholm. The French squadron of eight sail of the line have united with the division of the English fleet cruising off Gottska Sando. On leaving Baro Sound the allied squadrons will proceed further up the Gulf of Finland, near to Sveaborg, and thence to the island of Hogland.

A later account, dated the 7th, from Baro Sound, says:—The *Belleisle*, hospital ship, made her number last night, and was towed in by the *Basilisk*. At 6 p.m. yesterday a small vessel was observed about five miles from the squadron, making for an inlet about three miles from the flag ship. Two boats

were sent to cut her off, which they succeeded in doing, and anchored her near the Admiral. Her crew, and three or four women, all Finlanders, were taken on board the *Duke*. The Admiral treated them very kindly, and gave the women presents, as did also Commodore Seymour, and then let them go, much to their astonishment.

Admiral Corry's division is cruising off Gottska Sando, an island about thirty miles north of Gothland. The *Austerlitz* is a very fine ship, and in excellent order. Our line of communication extends from the southern part of the coast of Courland to Revel, and from Aland to Helsingfors—so that in the event of the Russian fleet coming out the Commander-in-Chief would soon be aware of it, for all the ships on detached service are steam ships. The squadron is ready for a move, and could be at sea in an hour. I have no doubt the arrival of the squadron here was known at St. Petersburg an hour after we anchored. We can trace their signal stations to the eastward of Hango Head, and it is only 300 miles by land; the distance by sea is 220 miles.

ROYAL NAVY IN COMMISSION.

Steamers.	Guns.	Men.	H.P.	Commanders.	Stations.
Advice	1	12	80	.....	Queenstown
African	1	12	90	Second-Master Gill ...	Sheerness
Agamemnon ..	91	850	600	Capt. T. L. Symonds ..	Mediterranean
Ajax	58	600	450	Capt. F. Warden	Baltic
Alban	3	52	100	Com. H. C. Otter.....	Baltic
Alyiers	91	850	500	Capt. C. Talbot	Devonport
Amphion	34	320	300	Capt. A. C. Key.....	Baltic
Antelope	3	55	260	Lieut. C. H. Young...	Gibraltar
Archer	14	175	202	Capt. G. Heathcote ...	Baltic
Argus	6	160	300	Com. Rich. Purvis....	West Indies
Arrogant	47	450	360	Capt. H. R. Yelverton.	Baltic
Avon	1	160	160	Second-Master Veitch .	Portsmouth
Banshee	2	60	350	Lieut.-Com. Reynolds .	Mediterranean
Barracouta ..	6	160	300	Com. George Parker ..	East Indies
Basilisk	6	160	400	Com. H. F. Egerton ..	Baltic
Black Eagle ..		38	260	Master J. E. Petley...	Woolwich
Blenheim	60	610	450	Capt. Hon. F. Pelham.	Baltic
Brisk	14	160	250	Com. F. B. Seymour ..	White Sea
Bulldog	6	200	500	Capt. W. K. Hall	Baltic
Buzzard	6	160	300	Com. W. H. Dobbie ..	West Indies
Cæsar	91	850	400	Capt. J. Robb.....	Baltic
Caradoc	2	63	350	Lieut. S. H. Derriman.	Mediterranean
Columbia	6	70	100	Com. P. S. Shortland..	Bay of Fundy
Cressy	80	750	400	Capt. R. Warren	Baltic
Cruizer.....	17	160	60	Com. Hon. G. Douglas	Baltic
Conflict	8	176	400	Capt. A. Cumming....	Baltic
Cuckoo	3	35	100	Lieut.-Com. Murray ..	Baltic
Cyclops.....	6	83	320	Mast.-Com. Roberts ..	Mediterranean
Dasher	2	34	100	Capt. H. Lefebvre	Channel Islands
Dauntless	33	390	580	Capt. A. P. Ryder....	Baltic
Dee	4	70	200	Lieut. C. T. Smith	Cape of Gd. Hope
Desperate	8	175	400	Capt. D'Eyncourt	Baltic
Devastation ..	6	160	400	Com. A. F. de Horsey.	West Indies
Dragon	6	200	560	Capt. J. Willcox	Baltic

Steamers.	Guns.	Men.	H.P.	Commanders.	Stations.
Driver	6	160	280	Com. Hon. A. Cochrane	Baltic
D. of Wellngtn.	131	1100	780	Capt. G. T. Gordon...	Baltic
Echo			140	Master Hardman (a) ..	Tender, Portsmth.
Edinburgh ...	58	600	450	Capt. Hewlett.....	Baltic
Elfin			40	Master A. Balliston ...	Tender, Portsmth.
Encounter ...	14	180	360	Capt. G. O'Callaghan .	East Indies
Euryalus	51	530	400	Capt. G. Ramsay	Baltic
Fairy		28	120	Master D. N. Welch ..	Portsmouth
Firebrand ...	6	200	410	Capt. Hyde Parker ...	Mediterranean
Furious	16	222	400	Capt. W. Loring	Mediterranean
Fury	6	160	515	Com. E. Tatham	Mediterranean
Gladiator	6	160	430	Capt. Broke	Channel
Gorgon	6	160	320	Com. P. Cracroft	Baltic
Hannibal	91	850	450	Capt. Hon. F. Grey...	Sheerness
Harpy	4	35	200	Lieut. C. G. Lindsay ..	Portsmouth
Hecla	6	135	240	Capt. W. H. Hall	Baltic
Hermes	6	120	220	Capt. E. Fishbourne ..	Portsmouth
Highflyer	26	230	250	Capt. John Moore (d) .	Mediterranean
Hogue	60	610	450	Capt. W. Ramsay	Baltic
Horatio	24	300	250	Com. Robert Jenner ..	Hull
Hornet	16	160	100	Com. F. A. Campbell..	Woolwich
Hydra	6	135	260	Com H. G. Morris ...	Cape of Gd. Hope
Imperieuse ...	51	530	350	Capt. R. B. Watson ..	Baltic
Industry			80	Mast.-Com. Bradley ..	Blackwall
Inflexible	6	160	375	Com. G. O. Popplewell	Mediterranean
Intrepid	1	20	60	Com F. L. M'Clintock	Arctic Expedition
James Watt ..	91	850	600	Capt. G. Elliot	Baltic
Janus	4	35	220	Lieut.-Com. C. Kane..	Downs
Leopard	12	300	560	Capt. G. Giffard.....	Baltic
Lightning	3	52	100	Capt. B. J. Sulivan ...	Baltic
Lizard			150	Sec.-Master Winnecott.	Sheerness
Locust	3	55	100	Lieut. G. Day.....	S.E. Cst. of Amer.
Magicienne ..	16	200	400	Capt. T. Fisher	Baltic
Majestic	81	850	400	Capt. James Hope	Baltic
Medea	6	160	350	Com. A. Phillimore ...	Jamaica
Megæra	8	162	350	Com. J. O. Johnson ..	Mediterranean
Minx	4	35	100	Lt.-Com. H. T. Ryves.	Woolwich
Miranda	14	175	250	Capt. E. M. Lyons ...	White Sea
Monkey	2	20	80	Mast. G. Syndercombe.	Woolwich
Myrmidon ...	3	50	150	Lieut. W. H. Jolliffe ..	Coast of Africa
Niger	4	170	400	Com. L. Heath	Mediterranean
Nile	91	850	400	Commodore Martin ...	Baltic
Odin	16	270	560	Capt. Francis Scott ...	Baltic
Otter.....	3	35	120	Lieut. W. A. J. Heath.	Baltic
Penelope	18	311	650	Capt. J. Caffin	Baltic
Phœnix	8	60	260	Capt. E. A. Inglefield .	Arctic Expedition
Pigmy	3	35	100	Lieut. James Hunt ...	Baltic
Pioneer.....	1	30	60	Com. S. Osborne	Arctic Expedition
Plumper	9	110	60	Com. J. A. L. Wharton	Coast of Africa
Pluto.....	4	60	100	Lieut. N. Bedingfield..	Coast of Africa
Polyphemus ..	3	100	200	Com. C. Phillips	Coast of Africa
Porcupine ...	3	60	130	Lieut. G. Jackson	Isle of Man
Princess Royal	91	840	400	Capt. Lord C. Paget ..	Baltic
Prometheus ..	6	100	200	Com. E. B. Rice	Lisbon
Prospero	1	10	140	Master R. Rundle	Pembroke

Steamers.	Guns.	Men.	H.P.	Commanders.	Stations.
Rattler	9	130	200	Com. A. Mellersh	Hong Kong
Retribution ..	28	300	400	Capt. Hon. Drummond.	Mediterranean
Rhadamanthus	2	68	220	Master J. Belam.....	Particular Service
Rifleman	8	60	100	Lieut.-Com. Christian .	South America
Rosamond ...	6	160	280	Com. G. Wodehouse ..	Baltic
Royal George.	120	970	400	Capt. H. Codrington ..	Baltic
Salamander ..	6	145	220	Com. J. Ellman	East Indies
Sampson	6	200	467	Capt. L. T. Jones	Mediterranean
Sanspareil ...	71	626	350	Capt. S. Dacres	Mediterranean
Scourge	6	200	420	Commodore Adams ...	Portsmouth
Sharpshooter .	8	60	202	Lieut. J. E. Parish....	South America
Shearwater ..	3	54	160	Lieut. W. Horton	Mediterranean
Sidon	22	300	560	Capt. G. Goldsmith ...	Mediterranean
Simoom	10	200	460	Capt. H. Smith (b) ...	Mediterranean
St. Jean d'Acre	101	900	600	Capt. Hon. H. Keppel.	Baltic
Sphinx	6	160	500	Capt. W. J. Clifford ..	Portsmouth
Spitfire	2	60	140	Com. T. A. B. Spratt..	Mediterranean
Sprightly		29	100	Master J. Allen	Portsmouth
Stromboli	6	160	280	Com. R. Hall	Malta
Styx	6	160	220	Com. F. Woolcombe ..	East Indies
Supply			80	Mast.-Com. Penn	Blackwall
Tartarus	2	60	180	Lieut. R. Risk	Elbe
Teazer	2	40	50	Lieut. F. D. Rich	Woolwich
Terrible.....	21	300	800	Capt. J. J. McCleverty	Mediterranean
Torch.....	1	49	200	Lieut. W. Chimmo....	Tender, South Seas
Tribune.....	30	300	300	Capt. Hon. S. Carnegie	Mediterranean
Trident	6	60	350	Lieut. R. Harvey	Brazils
Triton	3	65	260	Lieut. H. Lloyd	Mediterranean
Victoria & Alb.	2	118	430	Capt. Hon. J. Denman.	Portsmouth
Valorous	16	250	400	Capt. H. M. Buckle ..	Baltic
Vesuvius	6	160	280	Com. R. A. Powell....	Mediterranean
Virago	6	160	300	Com. Edward Marshall	Pacific
Vivid.....	3	35	160	Master H. W. Allen ..	Woolwich
Vixen.....	6	160	240	Com. F. Barnard	Rio
Vulcan	8	163	350	Com. Von Donop	Mediterranean
Vulture	6	200	470	Capt. F. H. Glasse ...	Baltic
Wasp.....	14	170	100	Com. Lord J. Hay....	Mediterranean
Wildfire	2	23	75	Sec.-Mast. Brockman	Sheerness
Zephyr	3	35	100	Lieut. C. G. Crawley..	Woolwich

Ships.	Guns.	Men.	Commanders.	Stations.
Albion	90	820	Capt. S. Lushington	Mediterranean
Amphitrite	24	240	Capt. C. Frederick	Pacific
Apollo	8	94	Mast.-Com. G. Johnson .	Mediterranean
Arab	12	130	Com. G. Ogle	Coast of Africa
Arethusa	50	500	Capt. W. R. Mends	Mediterranean
Assistance.....	2	60	Capt. Sir E. Belcher	Arctic Expedition
Athol.....	2	60	Lieut.-Com. W. Pearse ..	W. Coast of Africa
Belleisle	6	240	Com. J. Hosken	Baltic
Bellerophon	78	650	Capt. Lord G. Paulet....	Mediterranean
Bermuda	3	44	Lieut. A. D. Jolly	Newfoundland
Bittern	12	130	Com. E. W. Vansittart ..	East Indies
Bonetta	3	63	Lieut. C. Wake	S.E. Cst. of Amer.

Ships.	Guns.	Men.	Commanders.	Stations.
Boscawen	70	686	Capt. W. F. Glanville	Baltic
Bramble	10		Lieut. G. P. Heath	Tender to *Calliope*
Britannia	120	970	Capt. T. W. Carter	Mediterranean
Britomart	8	80	Com. A. Heseltine	W. Coast of Africa
Calliope	26	200	Capt. Fitzgerald	Sydney
Calcutta	84	750	Capt. J. J. Stopford	Devonport
Ceylon	2	40	Lieut. J. S. Rundle	Depot ship, Malta
Calypso	18	195	Capt. A. Forbes	North America
Cockatrice	4		Master J. Dalton	Tender, Valparaiso
Comus	14	130	Com. W. A. Fellowes	East Indies
Conway	26	85	Capt. John Fulford	Queenstown
Crane	6	76	Com. C. W. Bonham	Coast of Africa
Crocodile	8	26	Com. W. Greet	Receiv. sh., Tower
Cumberland	70	625	Capt. G. H. Seymour	Baltic
Daring	12	130	Com. G. A. Napier	West Indies
Dart	3		Second-Master McClune	Cape of Gd. Hope
Diamond	28	200	Captain W. Peel	Mediterranean
Dido	18	175	Capt. W. Morshead	Pacific
Dolphin	3	65	Lieut.-Com. Webber	Coast of Africa
Electra	14	130	Com. W. Morris	Austalia
Enterprise	4	68	Capt. R. Collinson	Bhering Strait
Espiégle	12	130	Com. G. Hancock	West Indies
Eurydice	26	200	Capt. Onmanney	White Sea
Excellent	46	693	Capt. Sir T. Maitland	Gunnery s. Ptsmth.
Express	6	76	Com. Henry Boys	Falkland Islands
Fanny	4	19	Sec.-Mast. J. Scarlett (a)	Portsmouth
Fantome	12	125	Com. J. H. Gennys	New Zealand
Ferret	8	80	Com. R Macdonald	Coast of Africa
Fisgard	26	200	Commodore J. Shepherd	Woolwich
Frolic	16	130	Com. M. S. Nolloth	Cape of Gd. Hope
Gipsy	1		Second-Master G. North	Tndr., Queenstown
Grecian	12	130	Com. Hon. D. Keane	East Indies
Herald	10	100	Capt. H. M. Denham	South Seas
Illustrious	26	74	Capt. R. Harris	Portsmouth
Imaum	72	111	Commodore T. Henderson.	Port Royal
Impregnable	104	207	Capt. A. Low	Devonport
Indefatigable	50	550	Capt. T. Hope	Devonport
Investigator	4	65	Capt. R. McClure	Mercy Bay
Juno	26	230	Capt. S. G. Fremantle	Australia
Leander	50	500	Capt. G. St. V. King	Mediterranean
Lily	12	125	Com. J. Saunderson	China
Linnet	8	80	Com. H. Need	Coast of Africa
London	92	345	Capt. C. Eden	Mediterranean
Madagascar		30	Com. J. W. Finch	Store ship, Rio
Mariner	12	130	Com. F. E. Johnstone	Devonport
Meander	44	330	Capt. T. Baillie	Devonport
Modeste	16	145	Com. W. H. Stewart	Mediterranean
Monarch	84	730	Capt. J. E. Erskine	Baltic
Naiad	6	21	Master S. Strong	Callao
Nautilus	6	150	Lieut. S. Dolling	Devonport
Neptune	120	960	Capt. F. Hutton	Baltic
Nerbudda	12	130	Com. H. C. Kerr	Cape of Gd. Hope
Nereus	3	25	Master M. P. Mackey	Valparaiso
North Star	3	40	Com. W. Pullen	Arctic Expedition
Pandora	6	63	Com. B. Drury	New Zealand

Ships.	Guns.	Men.	Commanders.	Stations.
Penguin	6	60	Com. T. Etheridge	Cape of Gd. Hope
Philomel	8	80	Com. Skene	Coast of Africa
Pique	40	360	Capt. Sir F. Nicolson	Pacific
Plover	4	52	Com. R. Maguire	Arctic Expedition
Powerful	84	750	Capt. Mansell	Portsmouth
President	50	450	Capt. Burridge	Pacific
Prince Regent ..	90	820	Capt. H. Smith (a)	Baltic
Queen	116	970	Capt. F. T. Michell	Mediterranean
Racehorse	12	130	Com. E. K. Barnard	East Indies
Rapid	8	80	Com. G. Blane	China
Rattlesnake	8	80	Com. H. Trollope	Arctic Regions
Resistance	6	85	Master M. Bradshaw	Baltic
Resolute	2	60	Capt. H. Kellett	Arctic Expedition
Rodney	90	820	Capt. C. Graham	Mediterranean
Royal William ..	120	490	Capt. Kingcome	Devonport
Royalist	6	50	Com. W. Bate.....	Portsmouth
Saracen	6	34	Mast.-Com. J. Richards ..	East Indies
Saturn	10	32	Capt. R. Smart	Pembroke
Scorpion	6	50	Mast.-Com. Parsons	West Indies
Sealark	8	150	Lieut.-Com. Fenwick....	Portsmouth
Speedwell	1	10	Master E. Calver	Humber
Spartan	24	230	Capt. Sir W. Hoste	East Indies
St. George	120	960	Capt. H. Eyres	Baltic
St. Vincent	101	400	Capt. C. Elliot	Portsmouth
Star	8	80	Com. William G. Luard..	Chatham
Sybille	40	350	Capt. Hon. C. G. Elliot ..	East Indies
Sylvia	6		Capt. G. Bedford	Galway
Talbot	22	40	Com. R. Jenkins.....	Arctic Expedition
Tortoise	12	92	Capt. W. H. Kitchen	Ascension
Trafalgar	120	960	Capt. H. Greville	Mediterranean
Trincomalee	24	240	Capt. W. Houstoun	Pacific
Tyne	4	60	Master J. B. Tucker.....	Baltic
Vengeance	84	730	Capt. Lord E. Russell ...	Mediterranean
Vestal	26	230	Capt. T. P. Thompson ...	West Indies
Victory	101	176	Capt. J. C. D. Hay	Portsmouth
Waterloo	120	200	Capt. Lord F. H. Kerr ..	Sheerness
Wellesley	72	316	.....	Chatham
Wellington	72	300	Capt. C. Wyvill	Sheerness
Winchester	50	450	Capt. I. F. Wainwright ..	East Indies
Wizard	6	100	Lieut. Henry Bacon	Tender, Cork
Wolverine	12	130	Com. J. Corbett	Chatham

U. S. Gazette.

NAUTICAL NOTICES.

NANTUCKET NEW SOUTH SHOAL LIGHT, COAST OF MASSACHUSSETS, UNITED STATES.—[No. 167.]—The Lighthouse Board of the United States has given notice, that a Light-vessel is to be placed at the southern extremity of the Nantucket New South Shoal. The vessel will be 200 feet long, 24 feet beam, gunwhale 11 feet above water, and burthen 250 tons. She will be painted Red, with "Nantucket South Shoal" in large White letters on both sides, but her

two masts will be Yellow with White mastheads, on which will be shown an oval black day mark of open work 5 feet in diameter, at an elevation of 68 feet above the water. She will carry two Fixed Lights, one on each mast, at an elevation of 44 feet, and visible at a distance of 12 to 13 miles.

The position of the Light vessel will be in 40° 56′ 30″ N., and 60° 51′ 30″ W. of Greenwich, or a long mile to the southward of the southern extremity of the New South Shoal, in 13 to 15 fathoms water. The following bearings and distances will be sufficient to guide vessels in shaping their courses near the light:—

The middle of "Old South Shoal,"	N. by E.,	distant 8	sea miles.
"Tom Nevers Head,"	N. 26° W.,	„ 21	„
"Block Island Lights,"	W.N.W.,	„ 78	„
"Sandy Hook Light-vessel,"	West,	„ 180	„

Vessels bound to Boston or that vicinity, when the weather is moderate, may, after passing this light, steer E.N.E. for 18 miles, leaving Fishing Rip to starboard; and from thence a N.b.W. ½ W. course for 38 miles will bring them to the Chatham Lights. The mariner must be careful to allow for the set of the currents in the vicinity of these shoals, as shown in the new Coast Survey Charts of the United States, when adopting any of the above courses.

Notice will be given of any further particulars about these lights. The above bearings are magnetic, the variation being 8° 18′ W.

Beacon Buoy on the Whittle Rock, False Bay, Cape of Good Hope. —[No. 168.]—Mariners are hereby informed, that on the 31st of March last a Beacon Buoy was placed at the distance of 40 fathoms E.b.N. of the shoalest part (11 feet) of the Whittle Rock in False Bay The buoy is made of iron, painted red, carries a staff 13 feet long, with a basket, which is visible to the distance of two miles, and is moored in 10 fathoms water, with the following marks, viz.—

The Upper or Black Beacon, in Buffals Bay, a little open to the Southward of the White Beacon, bearing about W. ¾ S.; and

The White-washed Mark, seen over Red Hill, a little open to the Northward of the lower Beacon, bearing about N.W. ¾ N.

There are several rocky heads, carrying from 4 to 6 fathoms, within the circuit of 40 fathoms from the Whittle Rock.

Fixed Light in Tralee Bay, South West Coast of Ireland.—[No. 169.] —Notice has been given by the Corporation for preserving and improving the Port of Dublin, that on the 1st of July next a Fixed Light will be established on the western Samphire Island, which lies on the North side of the Channel into Tralee Harbour.

This Fixed Light will appear Red when seen from seaward, or between the bearings of S ¼ W. to E.S E.; but when seen from the Southward, or between the bearings of E.S.E. to W.N.W. ¼ W. it will be Bright.

The Light stands 56 feet above the level of high water, on a circular tower of Bluish Stone, and in clear weather may be seen 9 miles.

It bears from Mucklaghmore Rock S. ¼ W. 4½ sea miles: from the Rocky Shoal, to the eastward of Mucklabeg Rock, S.b.E. ¼ E. 5¾ miles: from Mucklabeg Rock, S.S.E. 5½ milee: from the Black Rock, at the North side of the Inner Channel, N.W.b.W. ½ W. 2½ miles: from the South Point of Great Samphire Island, N.W. ¼ W. half a mile.

Towards the Harbour, the Light will be seen as far as the northern limits of the anchorage within Great Samphire Island; and if kept open to seaward, it will lead clear of the Mucklaghmore Rock. The above bearings are magnetic, and the variation is 29° 15′ W.

Revolving Light at Campbelton, Argyleshire, West Coast of Scotland.—[No. 170.]—The Commissioners of Northern Lights have given notice

that, on the 10th of July next, a Revolving Light will be established on the N.E. point of Devaar Island, at the entrance of Campbelton Bay, in 55° 25′ 45″ N. and longitude 5° 32′ 16″ W. of Greenwich.

The Light will stand about 120 feet above the level of high water spring tides, and will Revolve twice in every minute, presenting a Bright Light every half minute, which, in clear weather, may be seen at the distance of about 15 miles, when between the bearings of N. ¼ W. and E.b.S. At a short distance the Light will never wholly disappear.

HARBOUR LIGHTS AT PORT SAN LUCAR, SOUTH WEST COAST OF SPAIN.—[No. 171.]—Official information has been received that the Spanish Government, on the 21st of January, established the following Lights at the Port of San Lucar-de-Barrameda.

1. A Fixed Light on Malandar Point, on the north shore of the Port, at an elevation of 36 feet above the sea, and visible at the distance of 6 miles.

2. A Fixed Light in a high building at the northern end of the village of Bonanza, in the interior of the port on its eastern shore, at an elevation of 53 feet above the sea, and visible at the distance of 8 miles.

3. A Red Light in an elevated position to the southward of the Castle of Espiritu Santo, the point of which forms the southern limit of the port.

In order to enter this port, the wind being free, a vessel having passed to the Westward of the Salmedina Shoal, should steer N.E. ¼ E. for 2¾ miles, when she will be in about 5½ fathoms water, sand, and will have the two Lights above mentioned of Malandar and Bonanza nearly in one, the bearings of these Lights should be taken correctly, and the course altered for them to East. Having run 1¼ miles on this course, the Red Light on the Southern shore will be seen bearing S.E. ½ E., and when so far advanced as to bring it to bear S.S.W., the vessel will be in the narrowest part of the channel, (which is not two cables across,) and this Red Light will be eclipsed; on which taking place, an E.S.E. ½ E. course is immediately to be steered, until Malandar Light bears N.W. ½ N. and Bonanza Light E.N.E., when she will be in 6 to 8 fathoms water, on sand. She may then steer N.E. ½ E. for Bonanza Road, and when that Light bears S.E. ¼ E. anchor in 4 to 6 fathoms water, on a sandy bottom.

The many rocks and shoals, both inside and outside of this port, render it difficult and dangerous to enter with a beating wind without a pilot; and no vessel should attempt it at night, but keep the sea until daylight, or anchor to the N.N.E. of Chipiona, if the weather should permit.

It is high water, full and change, at Chipiona, at 1h. 34m., and at Bonanza at 2h. 0m., and he greatest spring tide range is 12½ feet. The above bearings are magnetic.

WHALSEY OUT SKERRY LIGHT, SHETLAND.—A Light has been determined on by the Board of Trade, in confirmation of the decision of the Commissioners of Northern Lights; but we are informed that with respect to those proposed on Unst and Bressy, the conformation of the coast presents unusual difficulties in the selection of a site for the building, and the decision respecting them has, therefore, been suspended until a Committee of the Trinity House have visited the locality and reported upon the subject, and no temporary lights will be established yet in consequence.

NEW ISLANDS: Melbourne, Feb. 5.—Captain M'Donald, of the ship *Samarang*, just arrived at Sydney, reports the discovery of two islands, apparently of volcanic origin, one in lat. 53° S. and 72° 35′ E., and the other in lat. 53° 8′ S. and 73° 31′ E. He has named the first M'Donald and the second Young Island. —*Shipping Gazette*, 17th May.—[Cook in 1773 passed about ten miles from the position of these islands.—ED. *N.M.*]

LOSS OF THE "EUROPA."—*The Report of the Adjutant.*

H.M.S. *Tribune*, 8th June, 1854.

Sir,—I have the honour to report for the information of his Lordship the Commander-in-Chief, the loss of the troop ship *Europa*, No. 92, by fire, on the night of the 31st of May, 1854, about 200 miles from Plymouth, having on board the Head Quarters of the 6th Dragoons, bound for the East, under the command of Lieut.-Colonel W. Moore. The strength was as follows:—1 Field Officer, 1 Subaltern, 3 Staff—5; 5 Serjeants, 54 Rank and File, 2 women, 1 private servant—62 Horses—13 Officers', 44 Troop—57.

In stating the circumstances of the case, I regret to record the loss of Lieut.-Col. W. Moore, Veterinary Surgeon Kelly, 4 Serjeants, 12 Rank and File, and 1 woman, with the whole of the horses, accoutrements, baggage, &c. We tripped anchor about 11 a.m. in Plymouth Sound on Tuesday, the 30th May, 1854, and after being towed by a steamer a few miles, made sail, every arrangement having been made for the comfort of both men and horses, and precaution taken to guard against accident by fire. We continued our way until about 10 p.m. of the 31st, when the alarm was given that the ship was on fire in the fore hatchway. The ammunition was immediately thrown overboard, and the crew and men tried to extinguish the fire, but without success. In less than half an hour the flames were coming up the main hatchway and the whole rigging forward; indeed, in a few minutes, the whole ship, from the poop forward, was in flames. The men then rushed to the boats, but were restrained by Lt.-Col. Moore and the Officers under his command. A boat was filled with men and lowered by some of the crew, and I regret much to say that a number of them perished at this time. The lifeboat was then lowered by the men, with 25 in it, and was taken up during the night by the barque *Maranon* of Dundee, which approached the burning ship. We had still two boats on board, but were unable to launch the larger one (horse-boat). The lashings of the other boat were cut (Mr. Black, agent, and Cornet Timson being in it), and was immediately filled with men, Dr. Macgregor and myself having to swim to the boat, as I was run off a rope by one of the crew who was trying to get on board. We drifted by the ship, and were made fast by a rope until we had 26 on board, when one of the crew cut us adrift to prevent the boat from swamping. We were carried out to sea, leaving the Captain and some men still on board. After about an hour's suffering from cold and rain, (the sea running very high at the time,) we were taken in tow by the mate and four of the crew, who had left the vessel in the Government gig, and then made for a light, which proved to be the Prussian schooner *Kennett Kingsford*, bound for Port-au-Prince, and which was then about three miles distant, as I was informed by the Captain. We mustered on board this vessel 3 Officers, 16 men, 1 woman, and about 26 of the crew, and received every comfort and attention it was in their power to give until Sunday the 4th of June, when we were taken on board H.M.S. *Tribune*. The eight men who were picked up by the brig *Clementhe* were transferred to the troop ship *Sir Robert Sale*, on her way to the East with a division of the 4th Dragoon Guards, and are to be landed at Gibraltar. The men who were saved by the barque *Maranon* are also on board the *Tribune*, having lost all their regimental necessaries, except canvas trousers and frocks.

I cannot conclude this report without observing, that the conduct of both officers and men under these trying circumstances was most exemplary, and, doubtless, prevented a much greater loss of life. All others on board the *Europa* were saved.

I have the honour to be, Sir,
Your most obedient, humble servant,
A. WEIR, Lieut. and Adjt., 6th Dragoons.

We find the following observations on this sad event in the *Naval and Military Gazette*:—Had the alarm been given at an earlier period of the fire on board *Europa*, though the vessel had been destroyed not a life would have been lost. She appears to have undergone a more than commonly careful inspection at Plymouth by both military and naval officers, one of them being Sir Harry Smith, who, of all living officers, must be competent to judge the requisites for a troop-ship. Her lanterns, &c., were surveyed, her magazine was actually re-constructed, in short every preparatory precaution appears to have been taken, but all preparation is unavailing without continuous vigilance on board. That due vigilance, or a regulated system of reporting, were not established on board the *Europa* is obvious; for in two of the depositions taken at Gibraltar, it is stated that a fire had to be extinguished in one of the men's berths the day before the fatal fire, of which the Master of the *Europa* had never been informed. Why was this? It was only a pair of worsted stockings. But how did they get on fire? Certainly not by the spontaneous combustion of the hay in the hold, one of the conjectured causes of the *Europa's* destruction. We strongly suspect the fire in the man's bed place was caused by a pipe, the objectionable practice of smoking below prevailing in all ships except Her Majesty's.

NEW BOOKS.

THE RUSSO-TURKISH CAMPAIGN OF 1828 AND 1829, *With a view of the Present State of Affairs in the East.—By Colonel Chesney, R.A., &c.* Smith & Elder.

This is a valuable book and may be truly said to be doubly so at the present moment, as it unfolds the gradual aggressions of Russia from the days of Peter down to these of the war in which we are now engaged;—How, by the several treaties, since the first decline of the Turkish arms in 1769 and the treaty of Kainardji in 1775, when the Crimea fell under the protection of Russia, and was annexed, as the Americans would say, in 1792;—How that decline continued through the close of the last century and the commencement of the present, while Europe was unhappily engaged in quarrels which rendered it blind to the designs of Russia;—How the Caspian and the Black Seas successively became Russian Lakes, after large possessions of territory were acquired in Europe and Asia, while Great Britain looked on most unconcernedly, seeing the Porte at length seeking assistance from its old enemy against a vassal; which assistance was artfully, by a secret article, in 1833, of the treaty of Hunkiar Skelessi, made the *price of closing the Dardanelles!* How the several latter treaties enabled Russia to interfere in the regulation of Turkish provinces, (to become the grounds of war as convenient opportunity offered,) and how, in fact, the poor sick man, so feelingly alluded to in a celebrated document now well known to the whole world, would have speedily fallen, as many others do, in the doctor's hands! Happily, this is averted! and let us hope that defeat, which has so long paralized the arms of Turkey, will now cleave to those of Russia. As a military man, who is well known to the world by his Euphrates Expedition, Colonel Chesney has the advantage of adding personal knowledge of much of the ground on which he is treating and, hence, interests his reader. But he is no less happy in laying bare the designs of Russia, and her exorbitant demands on a helpless foe; stipulating for indemnities which Russian merchants *might have sustained in a preceding war*, exacting heavy sums and yielding only successive territories

as successive instalments were paid. A good lesson this for ourselves and our Allies to follow. The Colonel has added much official matter to his book rendering it thus a standard work.

TABLES OF MAST-HEAD ANGLES, *for five feet intervals from 30 to 280 feet, and varying distances from a cable's length to four miles, with their application to Nautical Surveying. By A. B. Becher, Commander, R.N. London: Potter.*

We can assure our nautical friends that they will find this a most useful and handy little book. Many of them well know how to appreciate the advantage of taking out a distance by mere inspection, (with simply the height of the mast and the angle it subtends,) from the laborious calculation they have had to perform to obtain it, all of which is now avoided. Those also whose inclination leads them to Maritime Surveying will find in it what may be called an initiative lesson in that branch of their profession, shewing the extreme facility of it, and that even for such work no more means are necessary than those in the possession of every officer in the naval and mercantile service. About the size of a pocket-book, we have been repeatedly assured by high authorities that it is just the thing that was wanted.

ACKERMANN'S PICTURES *of H.M. Ships.*—If England possesses noble ships in her men-of-war, as she assuredly does, she is not without first-rate artists to pourtray them for the benefit of those who admire them, nor without a spirited publisher who will carry out faithfully all his artist's wishes. "The Fleet at Anchor," as it is called, at the interesting moment when the order "Away aloft" to furl sails is given, is the name of a tinted lithograph of considerable dimensions, that fully realizes all we have said. It is a first-rate picture, giving a full bow view of the fleet of Sir Charles Napier, with the *Duke of Wellington* and the *Jean d'Acre* occupying the principal positions. There can be no doubt that the appearance of the sails, as they hang negligently spread out by bowlines to dry, is one of the most picturesque that can be found, and we congratulate Mr. Brierly on his choice of it, as well as the whole effect of this representation of the British Fleet. It is correctly and judiciously arranged in all its parts; the colouring admirable, and all the difficulties and niceties of nautical painting overcome with a masterly hand. We perceive it is with no less good taste dedicated to Sir Baldwin Walker, and we cordially recommend it to those gentlemen of England who are proud of our wooden walls. It will grace their collections as one of the most spirited and perfect productions of our marine artist Mr. Brierly.

Another of less pretensions in point of size is the *Agamemnon* with steam up "getting under weigh" (way is meant) at Spithead; full of interest, which is added to by boats exercising, and is an excellent representation of this fine ship.

A bow view of the fleet at anchor is also given in another of Mr. Dutton's pictures, showing the whole length of the *Duke of Wellington* as the principal object, and one of the best portraits of that splendid ship—sails loose add their characteristic picturesque effect to this interesting drawing, which cannot but be otherwise than a favourite, especially at this momentous period. That the *Jean d'Acre* is a favourite ship, all who have ever heard of her are fully aware—a perfect model in all respects of a British man-of-war. One of Mr. Brierley's happiest productions is a portrait of this ship joining the fleet at Cork. It is full of life and nautical business. The principal ship is in the act of taking up her berth, just cluing up her topsails as she is running in between her friends the *Duke* (as she is called) and the *Queen*, a happy moment, with a brisk sea,

on which yachts and boats are seen with flowing sheets, all indicating action, and giving life and energy to the whole picture. If the *Jean* is a favourite ship, the artist has evidently been inspired with the feeling, and has made this his favourite picture, for we look on it as one of the first of the British fleet, as the ship is which it represents. On the whole the tinted lithography proves itself quite equal, under the able management of the lithographer, Mr. Day, to meet not only the desire of perpetuating the models of our present improved ships, but also those of the present improved taste, by keeping pace with it the improvements in his art. Indeed Mr. Ackermann well deserves encouragement for the pains which he has evidently bestowed on each of the parties he has had to deal with, and shewn a well schooled discrimination in skill, artistic effect, and final publication of his very spirited pictures.

Effects of the Atmosphere upon the Needle.

In 1840 the H.C. schooner *Mahi*, on her way from the Persian Gulf to Bombay was surrounded by beautiful groups of whirlwinds and waterspouts, which were seen raging about her in all directions, when suddenly the needle lost its polarity and for some time continued useless for the purposes of steering. In April, 1846, the H.C. steamer *Queen*, when about 300 miles from Bombay on her way from Aden, was surrounded with clouds, the sky presenting that strange lurid appearance which indicates the approach of a burst of rain or hurricane. By and bye, strange and turbulent looking vapours commonly attendant on a whirlwind or waterspout were seen overhead, and a slight whirlwind accordingly followed. At this period the magnetic virtue of the compass seemed to vanish, the needle, for a time, lost its polarity and traversed equally all round.

In India, dust-storms and whirlwinds, however insignificant in size, are always accompanied by powerful exhibitions of electricity, a spark being easily procurable from a wire properly isolated so soon as the dust column passes over it. During the hurricane in which the *Cleopatra* steamer was lost, on the 19th April, 1847, and again during the violent squall on the 7th April, 1848, the magnets in the Bombay Observatory were violently disturbed, and the writers of the report state that magnetic and meteorological disturbances almost always occur simultaneously.

Rapid Sailing.

In a letter from Mr. Maury, published in the last number of the Journal of the Royal Geographical Society, we have the following accounts of rapid sailing:

The *Sovereign of the Seas* in sailing from the Sandwich Islands to New York made the distance in eighty-two days. When in lat. 48° S., long. 126° W., she ran in twenty-two days 5391 nautical miles, or a daily average of 283 statute miles. For eleven days her average was 351 statute miles per day; and during four consecutive days she averaged 398 statute miles, or above 16 miles per hour. From noon to noon on one occasion she covered 419 miles, her greatest rate of speed, being 21 miles per hour.

The *Flying Cloud*, in her celebrated passage from New York to San Francisco, accomplished in eighty-nine days and twenty-one hours, stands unequalled in point of celerity. Her daily average was 222 statute miles; her highest rate of speed 437 miles in twenty-four consecutive hours. The total

distance sailed by her was 17,597 statute miles, or more than two-thirds the circuit of the globe, traversed in 1896 consecutive hours, at the rate of nearly 10 miles per hour.

The *Comet* made the run from San Francisco to New York in a little over eighty-three days, averaging 210 miles per day.

The following notices of rapid voyages to India have not before been published together:

The ship *Parkfield* left Liverpool on the 10th April and reached Bombay on the 28th June, 1836, occupying 75 days on the way.

The *Castle Huntley* left Torbay on the 1st, the Lizard on the 6th April, reached Bombay on the 22nd June, occupying 77 days on the way.

The *Earl of Balcarras* left on the 7th August and reached Bombay on the 25th October, accomplishing the voyage in 79 days.

The *Seringapatam* left London on the 26th June, the Lizard on the 7th July, and reached Bombay on the 30th September, or in 85 days.

The *Lord Wellington*, in 1820, occupied 82 days from London to Calcutta without having had a single day's fine run, seldom making more than 200 miles per day.

The *Oriental* left the Cape of Good Hope on the 15th October and entered the West India Docks on the 3rd December, 1850, making her voyage in 49 days.

The *Essex* left the Cape on the 18th October and was in the East India Dock on the 6th December, or in 49 days.

The *Madagascar*, about the same time, occupied 43 days from the Cape to the Channel.

On the 13th of September, 1853, the ship *Marco Polo* arrived at Liverpool from Melbourne in exactly six months out and home, having repeatedly run from 320 to 345 knots from noon to noon. Her previous voyage was made in five months and twenty days;—the two voyages together having been completed in eleven months and twenty days. On the 7th of January she made a run of 428 miles;—350 and 370 being frequent entries in her log. She had no fewer than 717 souls on board.

To the Editor of the Nautical Magazine.

Aunfield Cottage, Partick, near Glasgow,
June 17th, 1854.

DEAR SIR,—I am fitting out a new iron ship of 1,000 tons with all the standing rigging of wire, even to the royal stays and backstays. I am naturally anxious about the proper method of applying the lightning conductors, and confess I am rather at a loss how to act. Perhaps some of your readers, more conversant on electricity than I, will favour me with their views if you will be kind enough to insert this in your Magazine.

I am, &c.
WM. S. CRONDACE.

[We insert the foregoing, and perhaps Sir Wm. Harris will favour us with his opinion in our next. But, to us, it appears that if the *continuity* of the iron be *complete* throughout the vessel from the truck to her bottom, she becomes herself a safe conductor, and requires no more.—ED.]

[We have received Capt. White's letter; but are obliged to trespass on his patience by reserving it for our next, when it shall assuredly appear.—ED.]

Fac-simile of a drawing of Anthonio Van Diemen
as in his log book on a voyage to India
in the year 1632 - 1633.

Malby & Sons. lith.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

AUGUST, 1854.

CALAIS ROAD AND HARBOUR.—*Translated from the Pilote Français, (published in* 1842,*) by Commander Meadows, R.N.*

Calais, situated 11·5 miles towards N.E.$\frac{1}{2}$E. from Cape Grisnez, is a commercial, fishing, and refitting port, and the place whence the mails pass between France and England. When the works now in hand shall be completed the marine establishment will consist of an entrance passage, six cables' lengths long, reaching to an outer dry harbour and the small basin called the Paradis, which also dries out at low water; besides these, of a basin under the ramparts of the citadel, communicating with the outer harbour, in which the largest vessels that Calais can admit will continue afloat; and, lastly, of a reservoir for containing the scouring water.

In 1841 a scouring sluice was being erected in the western part of the entrance passage, N.E. of Risban Fort, for the purpose of throwing the superabundance of the water from the inner canals and the sea water which rises into the creek between the top of the harbour and the Nieulay Fort by three outlets in the direction of the entrance passage. It is this creek which is to be converted into a reservoir. About half of the old harbour will form part of the new basin, and it will be separated from the outer harbour by a strong dam, in masonry, joining on one side to the eastern wall of the scouring sluice and on the other side to the western wall of the entrance gate to the floating basin.

It is calculated that the reservoir will have a surface of about

500,000 square yards, and will contain upwards of a million cubic yards of water. There is reason to hope that, by regular scourings with such a volume of water, it may not be long before the entrance passage will be disencumbered of the enormous mass of sand called the Banc du Diable, or the Devil's Bank, with which it is partly choked and which leans against the west jetty like a poulier.

The sand resulting from the cuttings which have been made in process of the new works has been carried out to the westward of the entrance in front of Risban Fort, and it is to be feared that this sand, which lies loose there, may be driven upon the west jetty and part of it thrown into the passage by the up-channel winds, which are very violent and of such frequent occurrence.

The down-channel winds, which, although they blow rarely, are sometimes very violent, and those from east to E.N.E., have the bad effect of raising a large quantity of sand from the estran, or beach, at low water and occasionally throwing it around the entrance to the harbour and upon the submarine slope joining to the strand.

The entrance passage is about eighty-five yards wide and runs in a N.W.$\frac{1}{2}$N. direction. It lies between two wooden jetties, parallel with each other, which run out equal lengths towards the sea, and which, since the year 1836, have been lengthened out by open stockades upwards of 260 yards long, which are founded upon dry stone and faggot-work. These low jetties have the effect of confining the water proceeding from the canals in the interior, which runs into the creek and issues forth by the outer harbour to within a cable's length of the outer edge of the strand.

The fresh water from the interior is very abundant in rainy weather and tends to form streams which have greatly improved the entrance passage since the jetties have been lengthened; they have deepened out a sort of canal, the bottom of which, in November, 1841, was seven inches above the level to which the soundings in the *Pilote Français* refer.

At that date it was not decided whether it would be advisable to lengthen out the jetties. It was, however, fixed that they should terminate in semicircular jetty-heads about sixteen yards long by twenty yards wide, and that they should be so built that cannon might be placed upon them if necessary.

These outer timber jetties, being formed of open-work, are crossed, as well as that part of the entrance passage which they inclose, in their whole length by the streams of flood and ebb tide. The arrangement of the lengthening out of the jetties is advantageous in as much as it prevents the sand which has accumulated along the west jetty from spreading outside the original head of that jetty; but it has the serious inconvenience of being unfavourable to vessels going in or out of the harbour at high water there, because at that time the stream of flood being at its greatest strength at the entrance of the passage they are liable to be drifted against the eastern outer jetty, where, during up-channel winds, they must be exposed to considerable damage. Vessels are not actually in safety, with these winds, until they have

reached that part of the entrance passage enclosed between the original jetties, which are boarded up to high water mark of spring tides, where the water is confined and forced to follow the course of the passage at flood and ebb. Vessels should, nevertheless, manage to get into the outer harbour lest by any accident they might ground upon the stone-work of the east jetty, which projects upwards of seven yards into the passage, upon which they might strike violently should the wind veer round to the northward.

The outer harbour commences where the east jetty joins to the wall of that quay formed by the terraced land on the eastern part of the town. This quay wall continues along the whole extent of the outer harbour and ends at the southern wall of the gates of the floating basin; it is only interrupted by the entrance to the small basin called the Paradis and by the sluice of the citadel ditch.

The quays of the outer harbour are spacious and convenient. Their surface is twenty-five feet eight inches above the level whence the soundings are deduced in the charts of the *Pilote Français*. That part of the quay between the Paradis and the east jetty is called the Gourgain or the Colonne quay; it is here that vessels which come in after high water and those preparing to quit the harbour are placed. About one-half of the quay between the entrance to the Paradis and the citadel sluices is especially reserved for the Government steam-vessels employed in conveying the mails to England, as well as for the steam-vessels which carry passengers. The other half of this quay, called the Norwegian quay, is given up to merchant vessels. Fishing boats and small coasting craft are placed in the paradis. This small basin is bordered by quays on all sides and the grounding berths are excellent; sharp laden vessels, which would be strained on the berths in the outer harbour, are placed here. As soon as the greater works are completed these berths will be deepened and levelled; they are now kept up in a temporary manner but higher than they are eventually intended to be. Vessels drawing sixteen feet water if placed there in the present state of the harbour would lie aground during seven or eight days every month. (Information from pilots, &c.)

The floating basin will have the form of a very lengthened parallelogram, with a surface of about 20,000 square yards and an extent of quays of 550 yards. It will be dug out to the level of the sleepers of the gates by which it will communicate with the outer harbour, that is to say, to two feet above the level to which the soundings in the charts refer; the sill of this lock gate, of which the arrangement is completed, is three feet one inch above that same level, and the opening of the gates is fifty feet ten inches.

There is a careening slip in the outer harbour and a crane which may be used for masting vessels if necessary.

The outer harbour and the floating basin are both well sheltered from wind and sea. As to the small dry basin, the name which has been given to it sufficiently indicates that vessels are in perfect security there. Nevertheless, with very strong winds from N.N.W. to N.N.E.,

a swell does find admission into the entrance passage and the outer harbour, as well as into the paradis, from half flood to half ebb tide.

This swell is very heavy along the Colonne quay, and vessels which lie there upon a hard bottom of gravel and pebbles are violently shaken when they strike upon it.

Depth of Water.—The bottom of the outer harbour and the entrance passage form an inclined plane, the lowest spot of which, in November, 1841, was at the entrance of the passage, and was about seven inches above the level of the soundings in the charts. The result of the observations made on the tides at the entrance of Calais in 1836 shows that the depth of water there is as follows:—From 18 to 19ft. 6in. at the spring tides, whose co-efficients are between 0·65 and 0·85. 21ft. at mean spring tides, whose co-efficients are equal to 1·00. And from 22 to 23ft. at the equinoctial springs, whose co-efficients are from 1·16 to 1·17.

At ordinary neap tides the sea rises from 15 to 16ft. at that same spot; and at the lowest neap observed in 1836 it rose only 14ft. 10in., but on the 15th of March, as well as on the 13th and 14th of April, 1837, it reached only to 14ft. 5in.

To reduce these heights of water to that on the sill of the floating basin it is necessary to deduct 2ft. 6in.

Tides.—The establishment of the tides at Calais is 11.30 in the morning or 11.49 in the evening, the time being reckoned from mean noon. The unity of height is about 9ft. 8in.

The results of the observations on the high and low tides made at the entrance of Calais in 1836 are arranged together in four tables published in the *Pilote Français*, and by means of these, when the co-efficient of the tide is known, the greatness or amplitude of the tide may be ascertained approximatively for any day of the moon's age. By adding 7ft. 6in. to half the amplitude thus obtained, the rise of water at high tide for that day on the sill of the gates of the floating basin will also be found with sufficient exactness. To obtain the height of water at the entrance of the passage at full tide 10ft. must be added to the half amplitude.

These same observations have shown that, at spring tides, the duration of the flood in front of the entrance to the harbour is about five hours and a half, and that the duration of the ebb at the same place is about seven hours and a quarter.

They have also proved that the tide rises higher in the harbour with strong winds from W.N.W. to S.W. than it does during winds of equal violence from E.N.E. to S.E. This is a circumstance long remarked by the mariners of the place. Thus in gales of wind from S.W., which render the navigation of the British Channel so dangerous, vessels drawing 17 or 18ft. might take refuge at spring tides in the entrance passage to Calais. The pilots are confident that under many circumstances they could take such vessels even to the berths in the outer harbour.

At neap tides, and with S.W. winds, the harbour of Calais can

admit vessels drawing from 11 to 12ft. But with down-channel winds, the tide rising less, vessels drawing only 10ft. could be admitted. (Information from pilots, &c.)

At the springs, the tide continues full and slack about twenty minutes; and as its progress in rising and falling is very slow during the half hour which precedes and that which follows the slack water, it results that large vessels may be easily moved in the harbour during an hour and a half.

The duration of the slack water depends upon the greatness of the tide and the strength and direction of the wind: at the neaps it often amounts to three-quarters of an hour.

Tide Signals and Lights.—To the westward of and near the old head of the west jetty, and one and a half cable's length from the extremity of the outward jetty, stands the Rouge Fort, built of wood upon piles. Upon one of the highest buildings of this fort signals are made during the day to show when the passage can be entered, and a red flag is then hoisted. This flag remains up so long as there are twelve feet in the entrance passage. At night, a white fixed light, hoisted upon a gallows erected for that purpose at the same spot on the Rouge Fort, and thirty feet above the level of high water spring tides, shows when the entrance can be passed through, and it may be seen about six miles off. This light is shown during the whole time that there are above eight feet water in the entrance passage. When the entrance is not deemed practicable, in consequence of bad weather and the wind blowing on the shore, the light is not shown.

Since the 1st of May, 1842, the position of the extremity of the west jetty is marked at night by a small red light, which may be seen about two miles off; it stands upon this extremity, about fifteen feet above the level of high water spring tides, and is one cable's length and a half N. 26° W. from the tide light at Rouge Fort. This light continues shown all night long; but it is essential to observe that during severe weather all access to this jetty head is sometimes cut off; in which case only the light at Rouge Fort is shown, unless the entrance is deemed impracticable.

An officer of the fort and a master hauler, with a crew at his command, remain upon the east jetty during the whole time that vessels can enter the harbour. If their services are required upon the west jetty they cross over to it in boats.

The Chamber of Commerce provides cables and ropes for the assistance of vessels which may be in need of them.

When the sea is very high at the entrance of the passage, pilots cannot attempt to get on board vessels outside; but, to remedy this evil, a staff arranged to dip has been erected upon the old head of the east jetty, a cable's length and a quarter from the end of the stockade which lengthens out this jetty, upon which a ball is hoisted whenever the red flag is shown at Rouge Fort (known as the signal to announce that the passage may be entered although the sea runs high). This ball is kept in a vertical position when the vessel holds a good course,

and in the contrary case inclined to the side towards which she should steer.

In foggy weather the approach to the jetties is made known by ringing a large bell which is placed near the entrance. None but pilots and masters of fishing vessels are able to take advantage of this; through habit, these men venture in guided by the difference in the sound of the bell, according to their situation, but it would be a very insufficient means to direct strangers and dangerous to trust to, however smooth the sea might be.

The most favourable winds for entering Calais are those from S.W. to E.N.E. round by west and north. Such of these winds which blow upon the land, when moderate, cause only a heavy swell on the beach, but when they blow very strong they send in a great sea and it becomes dangerous to enter. The great waves occasioned by the Riden of the Roads break and extend into the passage; in which case, which occurs very frequently in winter, vessels destined for the ports on the north coast of France should immediately make for Boulogne, where they may then get in and where, when the circumstances are similar, the tide rises higher than at Calais.

Mariners should remember that, during spring tides, the harbours of Boulogne and Calais are in directly opposite situations with regard to each other, which may be taken advantage of by all vessels, drawing less than seventeen feet water, frequenting the northern part of the British Channel or southern part of the North Sea. That is to say, during bad weather occasioned by winds from west to south Calais is the port to take refuge in, Boulogne being inaccessible; and, on the other hand, when the wind blows strong from N.N.W. to N.E., and it would be impossible to get into Calais, it is to Boulogne that they might run for shelter.

Half a mile outside the outer jetties the stream of flood tide continues to be felt two hours and a half or three hours after full sea in the harbour, and it is at its greatest strength at the very time of high water there. For this reason, whatever may be the direction of the wind, vessels coming to Calais should make for the end of the west jetty to avoid being drawn to the eastward of the entrance by the flood stream; and this precaution is particularly necessary when they make for the port on the starboard tack, but should they have the wind on the larboard side and sufficiently strong to stem the tide, which, at the equinoctial tides, runs about four and a half miles an hour, they might steer directly for the entrance. In every other case they should take early precautions against the drift which the tide would occasion.

According to the report of the pilots the duration of the flood stream on the surface of the sea in front of the entrance depends upon the strength and direction of the wind. During strong up-channel winds, this duration extends sometimes to four and a half and five hours after full sea in the harbour; whilst with strong down-channel winds it continues only one and a half or two hours after high water.

These mariners also say that during the neaps, when the wind blows very strong from W.S.W. to W.N.W., *the tide does not change at all;* that is to say, that the stream on the surface of the sea appears always to follow the same direction.

Every vessel making for the port on the starboard tack should have her bow anchors ready for letting go, and also a heavy anchor in a situation to moor with by the stern; she should also have ropes and hawsers upon deck, ready to be run out expeditiously, in the event that, having got in between the outer jetties, she might be drifted upon that to the eastward. This accident rarely occurs with a down-channel wind unless it be very light.

All sail should be carried upon going into Calais whatever may be the direction of the wind, but especially when it is right astern, in order to be able to stem the flood stream and pass quickly through the great swell which is found off the entrance.

The most favourable moment for entering the passage when the wind blows upon the coast is at the top of high water, because a vessel can then run in under sail to the top of the harbour; but with winds on the broadside or ahead they should enter half or three-quarters of an hour before high water, in order to have time to be tacked up to the berths or into the basin before the water has fallen.

Should it happen that a vessel, when making for the harbour without a pilot and with a strong up-channel wind, chances to miss the entrance, she should instantly anchor to the eastward of and as near as possible to the extremity of the eastern outer jetty to avoid grounding upon the estran or beach, which rises very abruptly, and to take in a pilot, whose assistance in such a case is indispensable.

Large vessels which may arrive off the port during the neap tides, when there is not sufficient water to admit them, have a right to demand a pilot to direct them during all the time they are obliged to remain outside.

The most favourable winds for going out of Calais are those from W.S.W. to E.N.E. round by south. Vessels may also get out with the wind ahead when the weather is moderate. The jetties are sufficiently long to admit of a vessel, when making sail from the extremity of that to the west, gaining an offing when the wind and tide are in opposite directions.

Vessels may also get under sail in the outer harbour, or even at the quay, when the wind is fair for sailing out; but should it be necessary to be close-hauled, to follow the passage, it would be more advisable to be tracked out to the end of the west jetty.

As soon as a vessel floats she should quit the harbour in whatever direction she may be bound, except, indeed, when going to the westward and the breeze not being strong enough to stem the flood stream; in which case, she should go out at high water and anchor outside the entrance to await the ebb.

Calais Road.—Calais Road is that space between the sandbank called the Calais Riden and the estran, or strand west of the harbour. There are from eleven to sixteen fathoms water towards the bank and

from seven to eleven half a mile from the steep edge of the estran. The bottom is sand mixed with broken shells; but, according to the report of the pilots, there is good holding ground below these sandy deposits, which was, probably, not discovered by the sounding instruments made use of, but into which the anchors of large vessels may penetrate. These mariners say that ships-of-the-line and frigates ride out gales of wind from N.W. at anchor under the southern edge of the Riden without driving. The holding ground is not so good in that part of the roadstead near the shore and vessels should not remain there unless absolutely obliged. They might anchor there to stop tide or to wait until the sea had risen sufficiently to admit them within the entrance.

Calais Road is sheltered by the land from S.W. to E.S.E., but it is perfectly open to all other points of the horizon for the Calais Riden cannot be considered as a shelter, its prominence from the bottom being so inconsiderable. Nevertheless, during gales of wind from the north, the swell coming from a great distance is long and hollow, and the sea breaks with violence on the whole extent of this bank; it is then that the sea is much less agitated behind it than in the offing, and the pilots are of opinion that a stout ship if surprised by a gale of wind from the north when lying at anchor in the northern part of the roadstead might ride it out with two anchors ahead and a long scope of cable on each. However this may be, generally speaking, this roadstead is only suitable for vessels to await the tide in until the passage can admit them, when arriving sometime before high water with up-channel winds or those blowing off the land.

Under these circumstances, a vessel would be conveniently placed for getting to the end of the outer part of the west jetty, when at that spot where Cape Grisnez is seen open eight or ten minutes of a degree to the right of Cape Blancnez, and where the eastern mill of Coquelles bears S. $\frac{1}{2}$ W. on with a slate-roofed house, which forms part of the Trouie or Salines farm. From this point if one mile from the shore, and in 11 fathoms at low water, the church-tower at Sangatte is also seen on with the guardhouse on Blancnez, and the end of the eastern outer jetty at Calais on with the highest sandhills which lie east of the town.

This spot may be found at night, by keeping the Grisnez light opening and shutting with the cliff at Blancnez, and anchoring as soon as Calais Lighthouse bears S.E. 3° E.

In fine weather, or when the wind blows from the land, the pilots anchor those vessels in the roadsteads which arrive during the neaps, and cannot get into Calais on account of the smallness of the tides. The position to which they give the preference, is at a short distance from the Riden, on that line where the windmill at Bas standing between the shore and the windmills at Coquelles, is seen S. $\frac{1}{2}$ E. open ten or fifteen minutes of a degree to the right of the slate-covered house at the Trouie farm, and where Calais Lighthouse bears S. 50° E. There are 15$\frac{1}{2}$ fathoms water at low tide in this part of the roadstead; vessels are then 1·5 mile from the shore, and consequently in a posi-

tion to get under sail should the wind come round to the north. Vessels should moor here S.W. and N.E., with the heaviest anchor to the S.W.; but they should also have other anchors ready to let go in case the wind should increase, and be equally prepared to get under sail upon a change of wind.

When the state of the weather does not permit the high tides to be waited for at anchor in the roadstead, vessels keep at sea. They may obtain shelter, with winds from west to north, under the English coast near Dover, or they may anchor in Ambleteuse Road when the winds blow strong from N.E. to S.E.

Calais Lighthouse bears a revolving light with parabolic reflectors, the eclipses of which are at intervals of ninety seconds.* It is placed upon a tower in the centre of the town, upwards of 1,600 yards from the jetty heads and nearly 500 yards west of the line of the entrance passage. The light-room is 40 yards or 128 feet above the level of high water spring tides, and in ordinary weather the light may be seen about eighteen miles.

This lighthouse must be moved, but the position it should occupy has not yet been fixed upon. The lighting apparatus will also be changed and replaced by a lenticular system of lights of the first order, with flashes.

The revolving light at Calais is now particularly distinguishable from the revolving light at Grisnez: first, by the intervals between their greatest brilliancy and the same between their eclipses, these intervals at Grisnez being only thirty seconds whilst those at Calais are ninety seconds; secondly, by this circumstance, that between the moments of greatest brightness at Grisnez a faint light is still shown, which in ordinary weather may be distinguished ten or twelve miles in the offing, whilst at Calais the bright moments are separated by intervals of absolute darkness.*

The principal object of this lighthouse was to point out at night the western extremity of those dangerous banks which extend fifteen miles in the offing between the meridians of Calais and Nieuport.

It stands in lat. 50° 57′ 36″ N. and long. 0° 29′ 15″ W. from Paris, or 1° 51′ 9″ E. from Greenwich. It is 11·5 miles N. 61° 30′ E. from Grisnez Lighthouse; 10·2 miles S. 74° 30′ W. from the new lighthouse at Gravelines; and 20·2 miles S. 74° 30′ W. from the new lighthouse at Dunkirk.

Landmarks at Calais.—From whatever direction vessels destined to the ports of Calais, Gravelines, or Dunkirk may come, Cape Blancnez is the point on the coast of France which, before all others, they should seek to make. If running in for the land at night, the lights of Calais and Grisnez should both be sought for.

Vessels coming up the British Channel bound for Calais should make Cape Grisnez; and, if they come with an up-channel wind, they should round this Cape at the distance of about a mile and, when in

* On the subject of Lights see the note at the end of this paper.—Ed.

the parallel of it, make a N.E. course until they have brought Sangatte church tower to be seen on with the Coquelles windmills bearing S. 63° E. During part of their course they must avoid going east of that line on which the extremity of Cape Grisnez bears S. 38° E., in order to keep sufficiently outside the Barriere and the Quenocs Rocks.

These rocks will have been passed when the vessel has reached the line given by Sangatte tower and the Coquelles windmills. The course is then E. ½ S. for the centre of the town of Calais, until Audinghen church tower is hid behind the cliff at Cape Blancnez, bearing S. 40° W., and, coasting the shore at this distance, the marks may be sought for the anchorage in the southern part of the roadstead.

Should vessels come with the flood tide and an up-channel wind, the same directions are to be exactly followed, except that when Audinghen is hid behind Cape Blancnez the course must be direct for the entrance of the harbour.

At night the same courses must be followed, that is to say, on rounding Cape Grisnez at the distance of a mile, the vessel should be steered N.E. without coming to the eastward of the line on which Grisnez bears S. 34° W. to avoid encountering the Barriere and the Quenocs, and when Calais light is S. 89° E., the course must be E.b.N., then if the ebb be running the vessel should anchor as soon as Grisnez light is hid behind the cliff of Cape Blancnez; if with the flood tide it is not necessary to anchor, but from this latter spot she should steer for the light on Rouge Fort, and when near it draw to the port hand in order to round the end of the west jetty, which is marked by the small red light, and passing close to it enter between the jetties.

Small vessels may pass at all times of tide between the Quenocs and the Barriere, as well as between the Rouge or Red Riden and the shore, by keeping Sangatte Church-tower seen on with any one of the three towers of Calais. The largest vessels which Calais Harbour can admit may also pass there from half flood to half ebb.

When working to windward between Cape Grisnez and the roadstead, a vessel must not go east of the line on which the lighthouse at Grisnez bears S.W.b.S. until she has doubled the Quenocs.

Vessels coming from the north with a strong fair wind may, either by day or night, run directly for the harbour as soon as they have made out their position exactly, there being sufficient water for them over the Calais Riden from one third flood to two thirds ebb at Calais. When they arrive working to windward, with the ebb tide, they must seek to get into the meridian of Cape Blancnez, and on the line where Sangatte Tower is seen on with the Coquelles windmills, and then follow the direction of the coast to anchor in the southern part of the roadstead, to await the favourable moment for entering the harbour.

Should vessels in the same manner arrive at night, they get upon the parallel of Calais light, and steer east until they bring Grisnez light to bear S.W., when altering the course one point to port they continue on until this latter light is hid behind the cliff at Cape Blanc-

nez, where they anchor should the ebb be running, or if during flood; run directly for the entrance of the harbour.

[The foregoing measures given in feet are French, which vary so little from our own that the difference may be disregarded. The mean tide level however being 9ft. 8in. (French) makes the whole rise and fall at springs 20ft. 8in. of ours.

In 1848 the Light at Calais appears to have been removed to a Tower in the Old Fortifications 437 yards from the old Light, and the period of revolution at the same time was altered to four minutes, the eclipses not being total to a vessel within twelve miles distance. The present light is 190 feet above the level of high water, and is in 50° 47′ 45″ N., and 1° 31′ 22″ E. of Greenwich. It is reported that the recent improvements have so deepened the channel into the harbour, that four feet may be found in the entrance at low water of spring tides. But on this subject as well as on any one connected with it we shall be very thankful for correct information from any of our readers who will take the trouble to send it.—ED. *N.M.*]

GEOGRAPHY OF THE CAPE: *Longitude of Graham's Town.—By T. Maclear, Esq., H.M. Astronomer at the Cape of Good Hope.*

In accordance with the promise published with the list of predictions, I give in detail the calculation of this occultation, that any one versed in such calculations may verify the result; a matter of importance when establishing a truth. Also to serve as an example or exercise for those who may wish to master their principles. Gentlemen like Mr. Atherstone, who are willing to devote their leisure moments to the public benefit, will take a pleasure in verifying the results of their labours. They will not rest satisfied with a dry display of figures, nor receive results with implicit faith, which might come into collision with results from observations by others.

This leads me to preface the calculation by a general explanation of the principle supon which it is founded; for the facility with which the observation can be made, (together with the extreme precision it admits of,) peculiarly fits it for fixing points beyond the boundary of the colony. For instance, an occultation observed at the great lake would settle the position in longitude of that interesting locality with great certainty. Mr. Oswall has prepared to take advantage of the method on his present journey; others may wish to do the same, and for these in particular my remarks are intended.

At the instant of occultation or of emersion, three objects appear to be in a right line—the line of sight, viz., the star, a point on the moon's limb which the star appears to touch, and the eye of the observer. The curvature in the passage through our atmosphere produced by refraction does not alter the conditions in a practical sense. If at the same moment another observer could be placed at the earth's centre, his line of sight to the star would fall *below* the point on the limb, viz., the point on the moon's limb would appear to have shifted some-

what upwards towards the zenith of the observer on the surface; the cause for which may be explained by a familiar example.

When standing near to a straight palisade, the intervals between its rails appear to increase in breadth, and to change their *direction* on the landscape, as their distances from the eye diminish; because the line of sight successively keeps receding further from parallelism with the direction of the palisade. In like manner, in proportion as the distance of a celestial object from the earth's centre diminishes, its line of sight from an observer on the earth's surface changes its apparent direction and magnitude in the heavens, and recedes from parallelism. On the contrary, the deviation from parallelism diminishes as the object recedes, until the inclination of the lines from the surface and the centre becomes too small to be perceptible, of which the fixed stars provide an example. Hence the deviation from parallelism, or parallax as it is termed, is proportional to the planet's distance and the dimensions of the earth. Also their apparent diameters are reciprocally proportional to their distances.

Parallax therefore is a matter of perspective which vanishes in the zenith; because the earth's centre, the observer, and the zenith, are in a right line. It vanishes in azimuth; because the planet, the earth's centre, and the observer are in a plane which passes through the zenith and is perpendicular to the horizon. It vanishes in right ascension at the meridian of the observer; because the vertical plane passes through the poles. For other positions its amount can be calculated on geometrical principles, and applied to the apparent direction, to find the geocentric direction. One of the chief elements is the planet's distance from the earth's centre, represented in angular measure, viz., by the angle which the equatorial semidiameter of the earth subtends at the planet, termed the *horizontal equatorial parallax*.

When the seaman has measured the angular distance between the sun, or a star, and the moon with his sextant, "he clears the distance" from refraction and parallax, to obtain the geocentric angular distance, which he compares with similar distances calculated for his convenience in the *Nautical Almanac* to Greenwich mean time. By the rule of three he finds the Greenwich time corresponding to his distance, the difference between which and the time at his place of observation is his longitude from Greenwich.

An occultation likewise furnishes a lunar distance, viz., the moon's semidiameter; but it requires no sextant for its measurement. On the contrary, this distance serves as a celestial sextant to give an instant of time with the celerity of lightning; an instant free from the infirmities of all human mechanism. The star is but a point when compared with the motion of the moon; the obscuration of its light can be estimated to the accuracy of the fifth part of a second in time by a practised observer, equal to about half a second in arc of the moon's motion.

In clearing the observed direction of the moon, at the instant of occultation, of the effect of parallax, the thing sought is the geocentric right ascension of her centre; with this to enter the *Nautical Almanac*, and find the Greenwich time corresponding to it. The difference

between this time and the time of observation at the station is the longitude of the station. There is a close analogy then between this proceeding and that for a lunar distance. By the latter the Greenwich mean time is obtained through the medium of the moon's geocentric distance from a star; by the occultation through the medium of the moon's geocentric right ascension, derived frem her eclipsing a star, whose position is known: the moon is a mere agent. If her angular velocity round the earth were ten times as fast as it is, the precision of the longitude would be proportionally greater.

What precedes implies that the tables of the moon in the *Nautical Almanac* are free from error. On the other hand, if they are erroneous to the amount of one second in right ascension, the longitude derived from them will be in error about thirty seconds. It is of importance, therefore, to evade the latter by observing the same phenomenon at another station whose longitude is known. Thus the occultation observed by Mr. Atherstone was seen at this observatory. The errors of the tables affect both stations; but it disappears in taking the difference of the times of observation corrected for the interval in time corresponding to the difference of the observed right ascensions. This correction depends on the motion of the moon only, which is accurately known. A small error in the position of the star is eliminated by the same process. Hence the longitude of Graham's Town will depend upon the longitude of this observatory from Greenwich; while the difference in longitude between Graham's Town and this observatory will be equally well known.

In calculating the parallaxes it is necessary to consider and to allow for the spheroidal form of the earth. The line from Graham's Town through the centre of the earth, to the corresponding latitude in the northern hemisphere, is considerably shorter than the equatorial diameter. Assuming the ratio of the polar to the equatorial axes to be $\frac{206}{209}$, the horizontal parallax at Graham's Town, and its parallel is found by multiplying the equatorial parallax by a factor R, whose logarithm to the 7th decimal place is 9·9995630. For the same ratio the geocentric latitude is 33° 7′ 44·5″.

The parallaxes are computed by spherical trigonometry. The arcs and angles required are,—the horizontal equatorial parallax, P; the geocentric co-latitude of the place, c; the star's polar distance, b; the geocentric polar distance of the occulting point of the moon's limb, $b-p$; the star's horary angle, A. South polar distances are substituted for declinations, to prevent misconception in following the rule of the trigonometric signs. The formulæ are:

Parallax in right ascension p.

$$\text{Sin } p = \frac{\text{R sin P. sin } c. \text{ sin A.}}{\text{Sin } (b-p)}$$

Parallax in polar distance p.

$$\text{Sin } p = \frac{\text{R sin P cos } c \text{ sin } b - \text{R sin P sin } c \text{ cos } b \text{ cos } (\text{A} - \frac{1}{2} p)}{\cos \frac{1}{2} p}$$

Cos. $\frac{1}{2}$ p is small, and may be neglected; also the arcs of the parallaxes may be substituted for their sines and logarithms to five decimal places will be sufficient. The formulæ then become:

$$p = \frac{\text{R P sin } c \text{ sin A}}{\sin (b-p)}$$

$$p = \text{R P cos } c \text{ sin } b - \text{R P sin } c \text{ cos } b \text{ cos } (\text{A} - \tfrac{1}{2} p)$$

The numerator of the fraction for p is constant, or direct. The denominator contains p, the parallax in polar distance. The second term of the parallax in polar distance contains p, the parallax in right ascension: consequently neither of the formulæ admit of direct calculation. Computing by series might be substituted, but it is not so simple as to substitute b for $b-p$, in the first. The result will furnish approximate values for p and p, with which the computation is to be repeated. It will be seen presently that one approximation is sufficient. In fact, if the approximate value for p is employed for the formulæ for p, the recapitulation of p only will be necessary.

The next step is to find the small angle in right ascension between the geocentric right ascension of the occulting point of the limb, and the moon's geocentric centre; from the triangle formed by $b-p$, the moon's geocentric south polar distance and semidiameter.

As the semidiameter is a small arc, the calculation is accomplished by considering the arc in right ascension on the parallel to be the base of a right angled triangle, of which the hypothenuse is the semidiameter, and the perpendicular the difference of the polar distances: and reducing the base to the equator by the mean of the polar distances.

Let d represent the difference of the polar distances.

D „ the moon's geocentric semidiameter.

B „ the mean of the polar distances.

a „ the small angle sought.

$$a = \sqrt{\frac{\text{D} + d \times \text{D} - d}{\text{Sin}^2 \text{ B}}}$$

Since the geocentric line of sight is towards the zenith and meridian of the observed line, the geocentric right ascension of the moon's centre is equal to the star's right ascension, plus p, minus a.

Calculation.—Mr. Atherstone's watch indicated 7h. 14m. 15s. at the instant of immersion. For the error of the watch he gives the following double altitudes of the sun's upper limb.

April 17, at 3h. 29m. 36s.	Double altitude 46° 51′ 25″
Barometer 28·440	Thermometer 70°
20h. 17m. 0·8s.	Double altitude 40° 15′ 20″
Barometer 28·302	Thermometer 68°

Hence the geocentric zenith distance of the sun's centre, (viz., the apparent cleared of refraction and parallax,) was 66° 52′ 10″, and 70° 10′ 34″. Assuming the longitude of Graham's Town to be

1h. 46m. East of Greenwich, and the latitude 33° 18′ 20″, the sun's south polar distances were 100° 28′ 28·1″ and 100° 43′ 1·8″ respectively. By the ordinary method of calculating the time from an altitude, the watch was slow on Graham's Town mean time by the first altitude 2m. 37·42s.; by the second 2m. 22·98s. Hence the gaining rate of the watch in 24 hours of watch time was 20·847s., and its error at the instant of occultation 2m. 34·17s. Consequently the Graham's Town mean time of immersion was 7h. 16m. 49·17s. The sidereal time 8h. 58m. 45·585s. Subtracting from the latter 6h. 20m. 2·94s., the Star's right ascension; the horary angle of the star was 2h. 38m. 42·645s. west of the meridian, in arc 39° 40′ 39·68″. Subtracting 1h. 46m. from the Grahams Town mean time of immersion, the corresponding Greenwich mean time is assumed to be 5h. 30m. 49·17s. For this time the following elements are taken from the *Nautical Almanac*, page 76.

Moon's horizontal equatorial parallax, 59′ 13·925″ P
„ semidiameter, 16′ 8·43″ ..... D
„ horary motion in right ascention, 2m. 30·74s.
„ south polar distance, 109° 41′ 39·86″

and from page 554,

Nu Geminorum right ascension, 6h. 20m. 2·94s.
„ „ south polar distance, 110° 17′ 58″ *b*

Calculation of p.

P. R. ..... log.	3·55027
Log sin *c*	9·92295
Log sin A	9·80514
Constant	3·27836
Log sin *b*	9·97215
	3·30621

Approx. value for *p*. 33′ 44″

½ *p*	16 52
A	39 40 40
	39° 23′ 48″

Constant	3·27836
Log sin 109° 34′ 21″	9·97415
p=2m. 14s 313=33′ 34·7″..	3·30421

Calculation of p.

Log	3·55027
Log cos *c*	9·73761
Log sin *b*.....	9·97215
+30′ 19·83″=	3·26003
Log P. R. sin *c*	2·47322
Log cos *b*	9·54024—
Constant	2·01346
Log cos 39° 23′ 48″	9·88805
—13′ 17·1″=	1·90151—

Approx. value
for *p* .... + 43 36·93
b 110 17 58

b—*p*, nrly.=109 34 21·07

Constant	2·01346—
Log cos 39° 23′ 52″	9·88804
—13′ 17·08″=	1·90150

p, = ... +43 36 91

These values for *p* and *p* would not be altered by repeating the calculation.

The rigorous culculation, with sines to 7 places, gives 33′ 34·65″, and 43′ 36·83″.

	° ′ ″		
Moon's South Polar distance	109 41 39·86		
b–p, ...	109 34 21·09		
d, ...	= 7 18·77		
Moon's semidiameter D	=16 8·43		
D + *d*,	=23 27·20	Log	8·14835
D — *d*,	= 8 49·66	Log	2·72401
109° 38′ 0·5″ B, Co. Sec.²		Log	0·05203
			2)5·92439
a = 1m. 1·109s.	= 15′ 16·64″		2·96220
p = +2m. 14·313s.			
+1m. 13·204s.			
Star's right ascension ..... 6h. 20m. 2·94			
Right asc. of moon's centre ..... 6h. 21m. 16·144s.			
Right asc. from Observatory obs.. 6h. 20m. 47·844s.			
2m. 30s. 74 : 60m. :: 28·3 : 11m. 15·87s.			
Mean time of observation at the Observatory	6 33 34·42		
Observatory M. T. of Graham's Town Obsy.	6 44 50·29		
Mean time of observation at Graham's Town	7 16 49·17		
Long. of Graham's Town from the Cape Obs.	0 31 58 88		
The Cape Observatory East of Greenwich ..	1 13 55·00		
Graham's Town East of Greenwich	1 45 53·88	independent of tabular errors.	

The rigorous calculation differs from this by only $\frac{1}{10}$ part of a second.

By this result the assumed longitude was too great by 6·12s., during which interval the moon's motion in polar distance would change about 0·082″, which would increase the longitude 0·13s. Therefore for the present the station at Graham's Town may be considered

1h. 45m. 54s. East of the Royal Observatory of Greenwich, and
0 31 59 „ of the Cape.

The American Expedition at Japan.

Commodore Perry, in the *Susquehana*, left the harbour of Hongkong on the 14th of January, accompanied by the *Powhatan* and the *Mississippi*, the sailing vessels, *Vandalia*, *Southampton*, *Supply*, and *Lexington* having some time before proceeded to the rendezvous at Napakiang in Loo Choo, where the squadron met on the 21st of January. Nothing of importance occurred at Loo Choo beyond visiting

the capital, Shuidi, with the temples and forts, and admiring, as others have done, the picturesque and surprisingly beautiful scenery of the island.

The sailing vessels were despatched for Japan on the last day of January, under command of Captain Abbot, the steam ships following on the 6th of February, and, along with the sloop *Saratoga* from Shanghae joining the sailing vessels in the waters of Japan on the 12th, without accident beyond the temporary grounding of the *Macedonian*, which was lightened and speedily got off. The whole squadron then proceeded, and anchored in the bay of Yedo, passing Uraga, where last year the interview and the delivery of the President's Letter took place. A few small forts, mounting ten or twelve guns each, were observed, but made no hostile demonstrations. Boats were not allowed to come alongside until the vessels had taken their stations, and then the government officers were directed to the *Powhatan*, (to which the Commodore's flag had been removed,) where they had an interview on the 13th with the Captain of the fleet, Capt. Adams, to whom, after the exchange of compliments, the Japanese stated that in a few days a special high officer would be sent from Yedo to meet the Commodore and arrange everything in a courteous, frank, and friendly manner: but they objected that the vessels had come too far up, and recommended their return to Uraga, where the Emperor desired the meeting should be held as before. And that point they considered of more importance than talking about the weather, which subject would seem to be the *pis-aller* of conversation in Japan as in all the rest of the world. We believe this was nearly all that passed during the first interview, and the deputation took leave in good humour, which grew to merriment on Captain Adams suggesting, that instead of returning to Uraga perhaps a more favourable anchorage might be found higher up and nearer the capital, which would also be more convenient for the high officers to be sent from Yedo, as well as in accordance with the customs of other nations.

The following day (14th) another interview was held on board the *Powhatan*, when the Japanese renewed their urgency about the meeting being held at Uraga, where on the previous occasion everything had passed in so amicable and pleasant a manner, and to which the Commodore had said he would return. Finding that Uraga was still objected to, they then proposed Kamakura, where the *Macedonian* had got ashore, and which they held to be a much more convenient place than Kanagawa, between the present anchorage and Yedo, as suggested by Dr. S. W. Williams. But after much talk on the subject, the Japanese at length left it to the Commodore to select a place for the interview. Before taking leave, the deputation said, if the ships needed water or provisions, boats would be sent with supplies; but they were told that, except water, nothing was likely to be required.

After mature consideration, Commodore Perry decided to send Captain Adams in the *Vandalia* to meet the Governor of the Province at Uraga. Captain Adams was there informed by the Governor that

everything was ready for considering the terms of a treaty between Japan and the United States, and if the Commodore (or, as he was termed, the Admiral) would come to Uraga, where he had found the anchorage to be indifferent, but would meet the Japanese Commissioners at Yokohama, off the present anchorage of the Flag-ship ten to twenty miles from Uraga. Captain Adams rejoined the squadron on the 24th February, and the following day the Japanese officers visited the Flag-ship to settle the place of meeting; when the Commodore, amongst other things, told them that, having been entrusted with so many ships, which were seventeen thousand miles from home, he was reasonably anxious about their safety, and experience had proved to him that Uraga did not offer so secure an anchorage as where they now lay. Some discussion ensued; but finally it was arranged that the meeting should be held at Yokohama.

Eleven days afterwards the meeting took place; and in the interval entertainments were interchanged by the American and Japanese officers. At one of two given by Captain Buchanan, the Governor of Yraga, as we have seen in Keying and other high Chinese officials, at once fell in with foreign observances in toasting and speechifying. Captain Buchanan proposed the health of the Emperor of Japan, which was drunk standing "with all the honours," and was acknowledged by the Governor of Uraga, who in return similarly proposed the health of the President of the United States. The Japanese took their liquor freely, especially champagne and liqueurs, greatly admiring the glassware that contained them; and expressed a hope that the time was at hand when they would be at liberty to visit foreign countries in steamers and ships of three masts.

It was during this interval that an officer of the squadron approached Yedo, and if he did not actually enter it, at least was near enough to judge of its appearance, and to ascertain, what however we believe a surveying party had done before, that close to the shore there is five fathoms water, so that it can be approached by large ships. The city is in the form of a crescent, and stands on an extensive plain with a magnificent back-ground of mountains and wooded country; but it seems to possess no striking public buildings, while the dwelling-houses are generally of one story, and therefore present nothing imposing in their appearance, except their vast numbers, and the space they occupy. The population of the capital has however been greatly exaggerated, for though it is certainly great, the Japanese officers themselves placed Yedo third among the cities of the world; London, they said, being the first, and Paris the second.

On the 8th, the preparations were completed for the reception of the Commodore, who, by the by, insisted on the removal of the screen-work which extended from the shore to the hall, and which shut out the public gaze. Between 11 and 12 o'clock, the marines having been mustered by Major Zellin, twenty-nine boats belonging to the squadron, manned with seamen, and under the command of Captain Buchanan, conveyed the cortege to the shore, and waited the arrival of the Commodore and suite, consisting of Captain Adams, Dr. Williams the In-

terpreter, and the Secretary, Mr. O. H. Perry, who landed about noon, under a salute of seventeen guns from the *Macedonian*, the men in the boats standing up and the officers on shore being uncovered. The procession then moved forward, the band playing "Hail Columbia," and the "President's March."

On entering the hall, the Commodore was received by Four Commissioners appointed for that purpose. They were:—

First,—Hayashi, with the title of Daigaku no Kama, or Prince Councillor.

Second,—Ido, Prince of Tsus-sima (the group of islands lying between Corea and Japan).

Third,—Idzuma, Prince of Mimasaki (a principality lying west of Miaco).

Fourth,—Udono, second assistant of the Board of Revenue.

The party being seated, the flag of Japan was run up on board the *Powhatan*, and saluted with twenty-one guns from the launches, after which another salute of seventeen guns was given to the Japanese High Commissioner, who through the interpreter presented his compliments and welcome to the Commodore and his officers, and particularly inquired about the health of the former. At a sign given, the servants in attendance brought in laquered stands with tea and saki, sweetmeats and other conserves, and placed one beside each officer. The regalement seems to have been much the same as that which in China generally preceeds the transaction of business with foreign officials; and while it was going on there was time to take a note of the place of meeting. The hall, which had been run up with great celerity, was about fifty feet long, forty wide, and twelve high, and surrounded with magnificent Japonicas, some of them thirty feet in height, and in full bloom. Seats and tables about two feet high, covered with red cloth, extended the whole length of the apartment. The floor was covered with white mats, about three feet long by two wide; and the place was heated by highly ornamented braziers placed on beautiful Japan stands. The pillars supporting the erection were ornamented with purple crape, and the walls were richly adorned with paintings of birds and flowers. The hall was situated about five hundred yards from the landing-place, and was commanded by the ships, which lay with their broadsides to it. Several native artists were present taking sketches of the strangers.

The refreshments being over, the Commodore and his personal staff were conducted by the Japanese Commissioners into another room in the rear, the entrance to which was covered with purple crape. The interview lasted three hours, and, as to the principal matter, was highly satisfactory. A very favourable answer was given to the President's letter, which we presume was in terms a repetition of President Fillmore's; and it is stated that Commodore Perry was fully satisfied on all points suggested by him, which, we again presume, were in accordance with Mr. Secretary Webster's Letter of Instructions to Commodore Aulic accompanying the first letter to the Emperor. A draft Treaty, in English, Dutch, Chinese, and Japanese, was put into the

hands of the Japanese Commissioners, who said that it would receive due consideration; but the old Emperor had died since Commodore Perry was there last year, and his successor was a young man, who would require to consult his Council before giving a final answer; and the Commodore was reminded that Japanese did not act with the same rapidity that Americans did; which was thus illustrated:— Should several Japanese meet together, desiring to visit the American ships, one would say, "It is a beautiful morning!" to which another would add, "How pleasant it is!" Then a third would remark, "There is not a wave to be seen upon the water;" at length a fourth would suggest, "Come, let us go and see the ships."

That the preliminaries of a Treaty would be settled during the present visit, was however more than probable. Its leading provisions, it is said, will be the opening of three or more of the ports of Japan to the commerce of the United States, and securing supplies of coals for the steamers of that country. In other respects the Treaty, concluded or proposed, is understood to be nearly a counterpart of that with China, except, it is said, that the Japanese objected to a clause admitting all other countries to the same privileges as America; not like the Chinese, from whom, and not from Sir Henry Pottinger, as is generally supposed, the privileges of the English treaty were extended to all foreign countries. The Japanese would manifest more sagacity, and save themselves from incalculable vexation, were they to determine on allowing other nations to enjoy the same immunities as America, and no other, modeling all future treaties on precisely the same terms. But nothing can be as yet certainly known on the subject, for the *Susquehanna*, having been placed at the disposal of Mr. M'Lane, the Minister to China, and being under orders to be in Hongkong in the beginning of April, was despatched on the morning of the 24th March, the very day a conference was to have been held for the purpose of considering the treaty.

As most of our readers may have forgotten the precise tenour of President Fillmore's letter to the Emperor of Japan, and as it is not long, we here insert it, appending an outline of Mr. Secretary Webster's instructions to Commodore Aulick, to whom the mission was originally entrusted.

"I send you, by this letter, an envoy of my own appointment, an officer of high rank in his country, who is no missionary of religion. He goes by my command, to bear to you my greeting and good wishes, and to promote friendship and commerce between the two countries.

"You know that the United States of America now extend from sea to sea; that the great countries of Oregon and California are parts of the United States; and that from these countries, which are rich in gold and silver and precious stones, our steamers can reach the shores of your happy land in less than twenty days.

"Many of our ships will now pass in every year, and some perhaps in every week, between California and China. These ships must pass along the coast of your empire; storms and winds may cause them to be wrecked on your shores, and we ask and expect from your friend-

ship and your greatness, kindness for our men and protection for our property. We wish that our people may be permitted to trade with your people, but we shall not authorise them to break any law of your empire.

"Our object is friendly commercial intercourse, and nothing more. You may have productions which we should be glad to buy, and we have productions which might suit your people.

"Your empire contains a great abundance of coal; this is an article which our steamers, in going from California to China, must use. They would be glad that a harbour in your empire should be appointed to which coal might be brought, and where they might always be able to purchase it.

"In many other respects commerce between your empire and our country would be useful to both. Let us consider well what new interests may arise from these recent events, which have brought our two countries so near together, and what purposes of friendly amity and intercourse this ought to inspire in the hearts of those who govern both countries."

The first half of Mr. Secretary Webster's Instructions is devoted to the subject of Coals, that being apparently the leading object of the mission; but Commodore Aulic was to avail himself of any and every opportunity of being brought in contact with Japanese officials, either in treating about coals, or in delivering over shipwrecked Japanese, to impress upon them, "that the Government of the United States does not possess power over the religion of its own citizens, and there is therefore no cause to apprehend it will interfere with the religion of other countries." This point, not without reason as afterwards appeared, was held to be of the first importance, for even the question of commercial intercourse was made subsidiary, its success being regarded as unpromising; but in order to provide for any "unfavourable contingency," the Commodore was invested with power to negociate a treaty, and was furnished with copies of those with China, Muscat, and Siam, as models, "the two latter containing guarantees for the protection of American sailors and property which may be cast ashore," which Mr. Webster held to be more important than opening "one or more of the ports of Japan." If however the Commodore should succeed in effecting a treaty, Mr. Webster concludes by saying, "it would be prudent to fix the period for exchanging the ratifications at three years."

During the conference on the 8th, Commodore Perry mentioned that one of the marines had died, and he was desirous to have a piece of ground pointed out where this man and any others of the squadron that might die in Japan could be buried. The Commissioners first suggested Nangasaki, and next Uraga, but on both being objected to, a spot near the place of meeting was fixed upon. An account of the funeral, by Captain Slack, the officer commanding the marines, is given in another page, and cannot fail to be read with interest. We have only to add, that before the funeral took place, the Japanese officials came on board to view the body, for which purpose the coffin was

opened; and after the burial one of them remarked that according to the inscription on the lid, the man was a native of Ireland, not of America; but the explanation that followed proved quite satisfactory. In the course of the arrangements for the funeral the prudence of President Fillmore's and Secretary Webster's assurance on the subject of religion was shown. The Japanese said they had observed it with pleasure, and quite understood the distinction between Protestants and Roman Catholics.

Before the interview broke up, the Commodore mentioned that he proposed to give his officers leave to go on shore for recreation. To this no great objection was made, and we believe that within a few days afterwards several of the officers were taking exercise on shore. The Rev. Mr. Bittinger, the chaplain, made several excursions among the villages and corn fields, which last he found in high cultivation. The houses were generally thatched, but those of the better sort were covered with tiles, having yards and small gardens within enclosures.

The following day the same gentleman, finding the people neither unfriendly nor indisposed to receive him, and having obtained leave to go on shore, determined to visit two large cities some miles off, called Kanagawa and Kasacca, and with that view crossed an arm of the bay, which shortened the distance by several miles. He then proceeded through Kanagawa, supposed to contain from one to two hundred thousand inhabitants; and from the immense crowds that poured out everywhere to see the stranger, there can be no doubt of the population being very great. The crowds however caused no inconvenience or impediment, for on a wave of the hand from the Japanese officials who accompanied Mr. Bittinger, the people cleared a passage; and afterwards, a messenger having been sent forward for the purpose, the people packed themselves at the sides of the houses, and left the centre of the streets clear for the stranger. He entered some of the houses, which he found primitive in their furniture and arrangements, but, compared with other Oriental dwellings of the same class, neat, clean, and comfortable. In some of them he observed clocks of Japanese manufacture. He also visited several temples, which though smaller than in China, have more gilding on their walls and ornaments on their idols, and generally are in better order. The priests as well as the people were distinguished for their courtesy. The cities visited were not only very extensive, (estimated to be six miles long,) but with wide well-formed streets. Kasacca is from fifteen to twenty miles distant, by land, from the ships; and Mr. Bittinger being thus necessarily long absent, some anxiety was felt about him. As he was returning, a Japanese officer put into his hand an order from the Commodore for all officers to return on board, and shortly afterwards a courier, mounted on a splendid black horse, delivered a similar despatch, and finding it was understood and acted on, turned round, and galloped back again to report the approach of the American officer, who concluded his journey by torch-light, and found on his arrival that every thing that had occurred had been noted, even the number of buttons on his coat being recorded.

Four days after the interview, the presents were interchanged, time having been required to erect places for their reception. Those for the Emperor consisted of, among other things:—

A railway with steam-engine, an electric telegraph, a surf boat, a printing press, a fine lorgnette, a set of Audubon's American Ornithology, splendidly bound, plates of American Indians, Maps of different States of America, agricultural implements, with the modern improvements, a piece of cloth, a bale of cotton, a stove, rifles, pistols, and swords, champagne, cordials, and American whiskey.

And for the Empress, (presuming there is one,)—

A telescope, a lorgnette in a gilded case, a lady's toilet-box, gilded, a scarlet velvet dress, a changeable silk dress flowered, a splendid robe, Audubon's Illustrated Works, a handsome set of China, a mantelpiece clock, a parlour stove, a box of fine wines, a box of perfumery, a box of fancy soaps.

Among the other presents, perhaps the most valuable was a copy of Webster's complete Dictionary to the Imperial interpreter. To the high officers were given books, rifles, pistols, swords, wines, cloths, maps, stoves, clocks, and cordials, the last of which they fully appreciated; and, as regards clocks, when it was proposed to bring an engineer from shipboard to set them going, the Japanese said there was no occasion for that, for they had clockmakers in Yedo who understood them perfectly. They were curious to know, however, about Ericsson's caloric engine, of which they had heard, but, from the Commodore at any rate, we suspect they would not receive a very favourable opinion of its practical utility.

Whatever may be thought of some of the other presents, the railway and telegraph, at which the world at the time was disposed to laugh, were happy hits. The rail is only about three hundred yards in all, but being formed in a circle, the carriage can be driven at the rate of forty miles or more. Just at first the Japanese were chary of venturing into the car, but after a single trial there was much good humoured competition for places. The telegraph still more astonished them, but they will speedily understand it, and may possibly by this time be laying down wires for themselves.

One of the standing opinions about the Japanese, destined to be thrown down by Commodore Perry, has been, that they were invincibly intolerant of Christianity. Indeed this has generally been assigned as a main reason for their exclusiveness. To the emblem of the Cross they still object, but the story of the expelled Portuguese, that every Christian landing at Japan was required to trample on it, or on a representation of the Virgin and Saviour, must, if true, have been almost entirely confined to themselves and their co-religionists. More recent writers, who have been able to deny that such is now the custom, tell us that "the practice of religious rites is prohibited by irrevocable Japanese laws;" but the following narrative of the funeral of a marine of the United States squadron shows that there is as little foundation for the one statement as for the other:—

On the 9th of March, the day following the first meeting between

Commodore Perry and the Imperial Commissioner from Yedo, to negociate the terms of a commercial treaty, a soldier's and a Christian burial was given to a marine, Robert Williams, who had died a few days before on board the steamer *Mississippi*. The party detailed for this purpose, consisted of several officers, one of them the Chaplain in his gown, an escort of eight marines in charge of a corporal, and four marines as bearers of the corpse. Two boats left the ship; one containing the officers, and the other the body and the escort. Upon reaching the shore the party was met by several Japanese Officials, ready to conduct them to the grave. The escort landed first, and received the body with the usual honours. The little procession was then formed; first the escort, followed by the music (drum and fife); next the body borne on the shoulders of four messmates; and then the Chaplain with the other officers, and a few sailors from the boats bringing up the rear. In this order, with the music playing a Dead March, the party moved to the grave, winding through the streets of a village a distance of nearly half a mile. On either side of the road, and on the surrounding hills, at the foot of one of which the grave had been made, thousands of people, men, women, and children, could be seen, all manifesting eager curiosity to witness a sight so entirely novel in their land.

I could not but think as we passed along, how strange, not only the procession, but each of us individually, must appear to that eager throng, not one of whom probably had ever before looked upon the face of a stranger from a foreign country; and yet there was no undue noise made, or apparent alarm on the part of any of them; only intense interest in observing what was passing before them. As we neared the grave (which occupied a very pretty spot) the voice of the Chaplain could be heard,—"I am the resurrection and the life, saith the Lord; he that believeth in me, though he were dead, yet shall he live: and whosoever liveth and believeth in me, shall never die." As we gathered round the grave, and the reading of the beautiful and touching burial service proceeded, the scene was one of unusual interest; for the time, and place, and circumstances, all conspired to make it, as an incident, honourable to our short sojourn in a land where for centuries it is said the symbol of our religion has been trodden under foot. The Church burial service ended, the escort fired three volleys over the grave. I had expected that on this there would have been some commotion among the crowd, but I noticed only, at the first discharge, that for a moment there was a slight movement as of surprise, and then all were again quiet and attentive observers.

Having now committed to the earth, with all due honour, the remains of our deceased shipmate, the procession was reformed, and with music to the front, again passed through the village and the thousands of spectators, to our boats on the beach. Here we took leave of the officials, who throughout the entire ceremony had conducted themselves with great propriety, and extended to us every civility; and returned to the ship pleased with the consciousness of not only having witnessed but assisted in giving such honours, in such a place, to a deceased brother.

Japanese Idea of the Proper Treaty.

In our narrative of Commodore Perry's recent negotiations in Japan, in stating that it had been arranged to hold another meeting on the 24th, the day the *Susquehanna* was despatched, for considering the terms of a treaty, we ventured to express a hope that Commodore Perry would not imperil his proud position by insisting on the immediate (or future) adoption of the conditions of the United States treaty with China, which is there in many respects inapplicable, lumbering, and obstructive, and would be ten times more so in Japan. A simple convention, embracing the leading points in the letters of the President and of the Secretary of the United States, would complete the Commodore's triumph; and it is pretty certain that so much could be easily obtained from the Japanese.

We happen to possess—but at present do not feel at liberty to say through whom—an outline of the arrangements proposed by the Japanese; which concedes the main points indicated by the United States government, and which, with certain modifications, such as shortening and specifying the terms for opening additional ports, might very well be acceded to as a preliminary arrangement. To insist on much more at once would not improbably cause the sacrifice of all the advantages now offered; and were force resorted to, the existing good understanding would be turned to lasting hatred.

The name of places are spelt according to Chinese pronunciation, and it is therefore nearly impossible to identify them:—

ART. I. Vessels of the United States of America resorting to the port of Cheang-ke, [? Nangasaki] will be supplied with water, wood, provisions, and coals, according to their wants. The Japanese will furnish anything they have. Payments are to be made in foreign gold and silver, and nothing else, as is the custom with the Chinese and Dutch. But this arrangement shall not commence till the First Moon of the coming year. Five [?] years afterwards another port will be opened.

ART. II. If any vessel of the United States be wrecked on any part of the coast of Japan, vessels of that country will convey the crew to the port of Cheang-ke, and whatever may be saved from the wreck will be accounted for. When the new port is opened, five [?] years hence, shipwrecked seamen will at their option be conducted thence, or to Cheang-ke.

ART. III. As it is difficult to know whether shipwrecked sailors are honest men or pirates, therefore they will not be permitted to go at pleasure anywhere else.

ART. IV. Cheank-ke is a port frequented by the Chinese and Dutch, and citizens of the United States resorting thither must conform to the established regulations, and not rove about on shore wherever they please.

ART. V. After the opening of the port (of Cheang-ke,) any alteration or addition (to the present convention) will be carefully weighed before being finally settled.

ART. VI. The Loo Choo Islands being at a great distance, the opening of a port there is not a question to be determined on at present.

ART. VII. Choong-tsin [?] is also far off, and it is governed by (an independent) prince. Neither therefore is the opening of a port there a question to be decided at present. But the subject will be considered in the spring of next year, when the ships of the United States arrive at Cheang-ke.

The following, which is styled "a Reply," seems to be an additional article:—

"Ships of your honourable nation being short of provisions, firewood, or water, will have their necessities supplied at the station [? port] of Sang-kwoon-kong. But as that place is also at a distance, and it will take months to arrange the matter, therefore we shall commence from the 7th moon of the coming year in the autumn, according to our calendar."

This note bears the seals of the first two Japanese Commissioners, and is dated the 25th day of the 2nd moon of the 7th year of the Emperor of Ka-wing. Supposing the Japanese and Chinese calendar to synchronise, it must have been written the day before the *Susquehanna* started for Hongkong, in an after part of which the meeting was to take place. But we are at a loss about the Emperor of Ka-wing, who is now in the 7th year of his reign. It cannot mean the temporal emperor, who is in the first year of his reign, his predecessor having died in November last. Perhaps the Emperor of Ka-wing is the Seogoin, or spiritual sovereign.—*China Mail and Hong Kong Gazette.*

ISLANDS OF ST. PAUL AND AMSTERDAM, *Indian Ocean.—By M. L. C. D. Van Dyk, of Amsterdam.*

[We are favoured with the following interesting communication from Amsterdam on the discovery and correct application of the names to these two islands, a discussion on which arose in a former number of this volume in consequence of the wreck of the British barque *Meridian.*]

Amsterdam, 25th June, 1854.

SIR,—In the February and March numbers of the *Nautical Magazine*, I have read with much interest two articles on the Islands of St. Paul and Amsterdam. I take the liberty of offering you the two articles enclosed concerning the discovery, or rather the naming of the Island of Amsterdam. It was to the Governor-General, Van Diemen, that this island owes its name, in 1633, but it is erroneously called Amsterdam. Van Diemen named it New Amsterdam.

I have, &c.,

L. C. D. VAN DYCK,

Keeper of the Archives of the East and West India Co's.

The Discovery of the Island (New) Amsterdam.

Who was the discoverer of the Island "Amsterdam," situated in the South Pacific, near the Island St. Paul? Who gave it its name?

These two important questions have hitherto remained unanswered, although a solution to them has many times been sought for by the scientific world. The voyage of the *Vlaming*, in 1696, to Amsterdam, gives, if I am not mistaken, the oldest record of that island, and some authors, especially Vuillemin in his *Planisphere*, published at Paris in 1853, gives the *Vlaming* the credit of the discovery of Amsterdam. Under these circumstances a minute investigation of the old colonial archives at this place seemed to me to be very desirable, and when I was encouraged in my intentions by the enlightened Sea Captain, P. A. Leupe, I determined no longer to postpone my researches. For a long time my exertions were unsuccessful; now, however, I hasten to lay the fruits of them before the *Konst und Letterbode*,* being under the impression that my report will not be unwelcome to the promoters of geographical knowledge. First I give an extract of a resolution passed on board the ship *Nieuw Amsterdam*, of 300 lasts, (about 600 tons,) fitted out by the Kamer Amsterdam (Company or Chamber of Amsterdam).

"Saturday, 18th June, 1633.—Further also, thanks be to God, made two islands, lying South and North, fully 10 miles apart, the most southerly being St. Paul Island, and the most northerly called by us *New Amsterdam*, and it was deemed advisable to continue our course East to 125° and 126° of longitude, and thence N.E.b.N. to the south coast of Java, unless prevented by wind and weather, which God forbid.

(Signed) "Anthonio Van Diemen,
Jan Joosten de Roy,
Tennis Willemsz Harnay, &c., &c.
Salomon Sweers, *Secretary*."

I was also so fortunate as to find the very log book of Anthonio Van Diemen, kept on board the *Amsterdam*, which ship sailed from the Texel 10th December, 1632, up to the 21st July, 1633, when he arrived in the Batavia Roads and landed there, and in it I read as follows:

"17th June.—In the morning at sunrise to windward of us we descried the Island of St. Paul, and shortly after on our lee another island, lying mostly north and south from the other, distant fully 10 miles. We were with the fleet about midway between them, rather more northerly, and when we sighted the islands they appeared to us as per plan annexed. We sailed through between the two, with an easterly course, rather bearing to the north, and we gave the most northerly island the name of New Amsterdam, the southerly one being St. Paul. At noon lat. 38° 19′, so that the most southerly island must be in (being St. Paul) 38° 35′ S. lat., and the most northerly, New Amsterdam, 37° 10′ (perhaps in the log is written 37° 30′), this being the south side; it was very high land, and tolerably large, so that we calculated the north side to be in about 37½ S. lat. It was now more than two months and twenty days since we had seen land."

I had fresh doubts upon the subject, when a few days later I came

* A Dutch publication of art and literature.

upon a private letter of Van Diemen to the Kamer Amsterdam, dated 14th August, 1633, in which he says:—

"From the 20th May, when according to calculation, allowing for the westerly variation of the compass, we were in the longitude of the Cape Good Hope, we had up to the 15th June variable wind, more from the east than west, with fine weather, so that to find a west wind we ran as far as 42° S. lat., but without success. Coming up again as high as 38° we had a stiff N.N.W. wind, and on the 17th, in the morning, we made the island of St. Paul, and shortly afterwards another island, about 1° to the northward, and we passed with our fleet about midway between them, they lying S. and N. from each other. The northerly one by us was called New Amsterdam, but upon arriving in Batavia, we understand that these two islands had been seen before us, by the yacht *Bleiswyk*, from the Maas. These islands, (being St. Paul,) according to the calculations of the captains and mates of the *Amsterdam* and *Oudewater*, lie in their proper longitudes. To the East of these islands the West wind served us well, and we continued our course East to long. 125° and 126°, being fully 200 miles to the East of St. Paul. Then we braced up to the course of N.E.b.N., and on that tack, on the 11th July, we arrived about 2½ miles off the Bay of Dirk de Vriesen, on the South side of Java, without having made the Zuitland, or any other place."

From a perusal of the commencement of the said log book, it appears to me that the yacht *Bleiswyk*, of 80 lasts, and fitted out by the Kamer Rotterdam, belonged to the fleet, and was under the command of A. Van Diemen, but that she had made the voyage by herself. This vessel sailed from the canal on the 25th January, 1633, under convoy of the *Leeuwinne* and *Salamander*, according to the report of the Captains Sybrand Vygh and Hendrik Jansz de Jong Manck, delivered to A. Van Diemen, who had not then yet left his harbour of refuge to the East of the isle of Wight, under St. Helena,* because of the very severe storms. But although in the Batavia journals of the day I find a few notes of the particulars of the voyage of the yacht *Bleiswyk*, which arrived in the roads on 19th July, 1633, still I cannot find anything about the discovery of a new island.

In vain I have tried to find a log book of this vessel; neither have I been able to find any more mention of this island, either in the minutes of the Governor-General and Council, nor in the letters of the Captains, nor in the government archives, which circumstances contribute much to the name of the discoverer being buried in obscurity.

Under all these circumstances it appears to me, that although the same island may have been discovered earlier by others, still that to our forefathers it was, before 1633, not known by name.

And also that, although an unknown island (being New Amsterdam) in the neighbourhood of St. Paul, may have been seen by the *Bleiswyk*, still that not until several weeks later, say 17th June, 1633, it was noted down by Van Diemen, and that at all events it derived its name from him.

* This must be St. Helen's anchorage.

And lastly, that the name of the island is not Amsterdam, but *New* Amsterdam; that the prefix is strictly required to it, even as in New Holland, New Zealand, &c.

The ship *New Amsterdam* returned to Holland on the 16th August, being one of the homeward bound fleet of Philip Lucassen.

I may further add a few notes from the log book of Governor-General Brouwer, kept on board the *Zutphen*, on his outward voyage, anno 1631:—

"28th July, 1632.—At noon we were at 38° 28′; in the day the wind veered to N.W. and W.N.W.; made our course E.N.E. to give St. Paul a wider berth.

"29th.—Last night the wind was West, course E.b.N. and E.N.E. In the morning at daybreak saw the island St. Paul, bearing S.b.E., distant about 7 miles from us. We were, according to our calculation, about 5° variation, as we calculated being in about 114° long., and this island is put down in the chart as being in 109°. By this we conclude that we have been some time in a current, especially since the 19th inst., and that we have had a drift of —— N.W. At noon the island St. Paul bore S.S.W. to S.W.b.W., about 10 miles distant; made notes on the charts, &c.

"30th.—In 37° 40′.

"31st.—In 37½°."

However in this log there is no mention made of any second island being seen near St. Paul. Still upon comparing this log with the one of Brouwer, I come to the conclusion that either Brouwer mistook New Amsterdam for the island St. Paul, and sailed north of New Amsterdam, or that, in the charts of the day, the present island New Amsterdam was put down as St. Paul, and that Van Diemen made an error, and ought to have named the most southerly island New Amsterdam. Mr. Salomon Sweers, who signed the before mentioned resolution on board the ship *Amsterdam* as secretary, writes from on board the *Vogel Struis*, in which ship he made a voyage from Holland to the Indies, under date of September, 1641, to the then Governor-General, Van Diemen:—

"On 5th September we made New Amsterdam, E.S.E., three or four miles from us, and on the 25th, God knows through the disorder of our compasses, we were obliged to anchor on the west coast of Fortuyn's Island."

The following extract of the log kept on board the ship *Leyden*, which sailed from the Texel 20th Jan., 1623, is not unimportant:—

"1st July, 1623.—It was most lovely weather, wind West. At four bells in the afternoon we descried, about 9 miles to the south of us, an island. We hauled up for it and stood S.b.W., but the wind sharpened and we could not make that, so then we bore up and continued our course. It appears something like Wight, in England, but not quite so large, having a round hill in the middle, and at its westerly point a high round mountain, which at first sight appears to be a separate cliff, but afterwards we discovered the same to be joined to the

land: the land is very high. We saw few or no birds at all, and no other signs (of life); we conclude it to be a barren island.

"2nd.—37°; made 20 miles East, but calculate, according to the wind, to have made more than that, but having in the previous watch marked off more than we made, I have deducted in this watch, so that the before mentioned island must be in 38° S. lat., about —— miles from Cape of Good Hope.

"3rd.—37° 32′, &c., &c."

The before mentioned descriptions agree with the drawings of Van Diemen, and I think that the *Leyden* saw the island of Van Diemen. In the above journal St. Paul is not mentioned.

I take the opportunity of submitting a few more particulars of the above named log books. In the above mentioned letter of Sweers he writes:—"May 25 (1641) passed the Canaries; on the last day of June we crossed the line. 12th July saw an *unknown* island, in lat. 20° 58′, and 352° long. 5th August arrived at the Cape."—What was that unknown island?

When, on the 20 March, 1633, Van Diemen came to anchor in the Bay of St Vincent, he found there a yacht of the West India Company, called the *Noordsterre*, Capt. Cornelis Roelantsz, of Vlissingen, who reported having come from the coast of Africa, near the Cabo Blanco, where he, with the assistance of the yacht *De Jager*, had according to instructions taken a fortress called Arguin, which the Spaniards had kept in possession for about 90 years. This fort at their arrival was garrisoned with 14 men, and was surrendered by parley; little or no booty was found there; they garrisoned it with 40 Dutchmen. Arguin is situate on a small island; the commerce consists of gum, and also in a little gold.

Dr. E. B. Swalne says in his work, *De daden der Zeeuwen gedurende den opstand tegen Spanje*, (The actions of the inhabitants of Zeeland during the rising against Spain,) page 315:—"He (Van de Pere) quickly fitted out a large ship called the *Regenboog*, and two yachts, and in 1634 Van de Pere set sail for Argijn, which in the same year he seems to have taken by storm." This account I do not consider to be quite true, neither the one in the *Hedendaagsche Historie van alle volken*, (New History of all Nations,) vol. 29, p. 368, in which it says that Arguin was taken in 1638.

On the Island St. Antonio, one of the Cape de Verd, Van Diemen obtained 7,000 oranges at a very low price; they were too ripe. The proper season for them there is from January till half February, and then again in June and July.

Something further about the Discovery of the Island New Amsterdam.

Some nautical men, who could not make the terms windward and leeward in Van Diemen's log book, dated 17th June, 1631, as regards the positions of the islands New Amsterdam and St. Paul, agree with his private letters of 14th August, 1633, about the then N.N.W.

winds, have asked me, if possible, to obtain more particulars of Van Diemen's log. With great pleasure I submit to them the following extracts of the log, of which I formerly made no use, as I was afraid of extending my notes too much.

Note.—In my former notes I erroneously say, "the Island Amsterdam, in the South Pacific Ocean;" it ought rather to be, in the "Indian Ocean." Still the *Edinburgh Gazetteer, or Geographical Dictionary*, (in six volumes,) Edinburgh, 1822, says, Amsterdam Island, in the South Pacific Ocean, and says the same of St. Paul.

Extracts from the Journal of A. Van Diemen.

June 16th, 1633.—No rising of the sun; dark cloudy weather: wind N.W. and W.N.W.; since the first watch blew a stiff topsail breeze: at noon, 38° lat.: our course was up to the day E.N.E., and then continued on an easterly course, so as to make St. Paul, from which we are according to *plate chart* 160 miles, and in the *wassende graden* 46 miles. Saw but few birds now. This watch made course E., and E. ¼ N., 34 miles.

This afternoon William Roermondt is drowned, &c. It blew a stiff breeze from W.S.W.

17th.—In the morning, &c. At noon, &c. We made an easterly course; wind S.W., with dirty weather. At night had furled the topsail and mainsail, and sailed without *blinde.** Course E., made 40 miles, so that at noon we were in 108° 24′ long., being six miles west of St. Paul, but rather more northerly according to my calculation, and were in fact ten miles to the east of that island, difference sixteen miles, or 1° 21′, so that our longitude was 109° 45′ At sunset we found 25° difference to the N.W. on the *platte Kaart*, as we had made no allowance, were yet 120 miles from St. Paul, so that, according to the chart, from the Brazils to here, we have run 120 miles less. I noted us as being ten miles from the Islands St. Paul and New Amsterdam.

We had now been two months and twenty days without seeing land.

18th.—At noon, 38° 2′. West winds, but rather southerly; stiff breeze: rainy and showery weather; hollow sea, and good progress. Course had been east; but found we had not gone higher than E. ⅛ N.; made 41 miles. Further we deemed it advisable to carry on till the two length of 125°, 126°, which is fully 200 miles east of St. Paul, then to tack N.E.b.N., it not being necessary to make Zuidland, as we have seen St. Paul, and with this course, God willing, to arrive at Java.

19th, Sunday.—At rise and setting of sun found 23¼° variation, N.W. At noon, 38° S. lat., easterly course. Wind west and S.W., also S.S.W., with flowing topsail. For about three quarters of this watch run under the foresails, and towards the midday set all sail. Made 40 miles.

* A sail not known now.

Side note of the Log on the 17th June.

Longitude of Capt. Tennis Willemsz Harnay	109°	24′
„ of the Chief Mate	110	15
„ my own	108	24
	328	3
Average of the three, equal to	109	21

Seeing that we were ten miles east of St. Paul, which lays per the chart in 108° 30′ (50?)‡, and that according to our calculation we were thirty-one miles out of our reckoning from Cape of Good Hope to here; and the ten miles we were to last, makes 51 miles (I think it should be 41 miles), make it that we have made 1° 22′ longitude too much, which will bring St. Paul at its right longitude, viz. 108° 50′.*

Taking it for granted that the wind on June 16th in the afternoon was W.S.W., and at noon of the 17th, S.W., we may come to the conclusion that the wind was on the morning of the 17th also S.W., although at that time the wind was very variable, because under date June 15th it says:—The wind N.N.W., with a stiff breeze, till the dogwatch; when it became calm, and the wind veered from the west to the south, and to the east, and in the morning again to the north, and N.b.W.; weather very foggy, so that at times we could not see three ships' length from us: at noon no altitude, nor had there been any rising of the sun. It is greatly to be regretted that Van Diemen did not make a note of the wind on the morning of the 17th June.

Amsterdam, 31st May, 1854.

From the Algemene Konst und Letterbode, No. 24, for 1854.

[M. Van Dyk has conferred an obligation on seamen by sending us the foregoing piece of information, which is of much interest to them. In fact, it may be considered one of the "Curiosities of hydrography." A long prevailing confusion in the names of two islands, highly important from their position, is thus accounted for, and their proper titles finally settled. The source of this confusion seems to have arisen in the arrangement of the views of the two islands between which the ships of Van Diemen appear to have passed,—thus Amsterdam is made in it both the northern and southern island, and which from being the easiest reference to chart-makers, accounts for Amsterdam being considered as the southernmost island "by the English." Nor have any of our authors, whose works we have met with, attempted to clear away the confusion. In a former recent number, another of our Curiosities of hydrography appeared in the shape of an island in the Pacific reported in South latitude as omitted from the charts, and placed by Kruzenstern among the missing or lost islands. This turns out to be in North latitude instead of South, and may now be fitted into its proper place. These are not only curiosities in their way, but highly important also.]

* Here it plainly says 50′, so that I suppose the cipher a little higher up (‡), is also a 5, although it only looks to be 3, and if it is 5, the latitude of New Amsterdam, is, 37° 50′ and not 37° 10′ or 30′ as mentioned in No. 20 of *Algemeene Konst und Letterbode*.—ED.

Particulars of an Electrical Storm: *Communicated by Mr. J. B. Kennedy, Master of the Aries.*

Aries, at sea, 6th May, 1854.

Sir,—On a passage home from Colombo in the *Aries* this year, we had a very strong set of currents (6 knots an hour) for a few hours. It was accompanied by some circumstances which appeared to me unusual. On the 1st April we were in lat. 34° 45′ S., and about 26° 50′ E., with a steady 7 knot breeze from E.N.E., clear weather, blue sky, and atmosphere a little hazy near the horizon. I had good sights for the chronometer at 3h. 30m. p.m., about which time I was struck with the appearance of the sky to the N.E.; it seemed of a deep, dark blue, nearly the colour of indigo, but quite clear and no clouds near. It gradually darkened, and by 4h. 30m. p.m. was obscured by haze, with white clouds gathering around. About this time I saw a flash of lightning dart upwards from the water, and after it several more. After this the lightning, both chain and forked, was constant. The small space which this threatening appearance occupied did not exceed an angle of 16° of the horizon, with an altitude of about 15°. But it gradually approached, so expecting a north-wester we made all snug, and laid the ship's head to the E.S.E., the wind at N.E., the sky clear and fine from East round by South to W.N.W., and the sun shining brightly, while to the N.E. the lightning and thunder was constant. By 8 p.m. the ship was surrounded by a dark dense atmosphere, it rained heavily, and thundered and lightened with scarcely any intermission, causing considerable anxiety for the spars. By 10 p.m. the wind veered to N.N.W., and the thunder and lightning appeared passing away to the S.W., which it gradually did, until we saw the last of it at 3.30 A.M. bearing W.S.W., and only in a small space. The wind never exceeded in force 8 or 9 of the scale, and after midnight not more than 7. We had a short confused sea from 6 p.m. until 4 a.m.; at daylight we made all sail to the northward; we had been hove to under a close reefed maintopsail all night. At 8 a.m. we had sights for the chronometer, and found we had been set to the westward upwards of 2° of longitude since 3.30 p.m. of the previous day. We made Cape St. Francis at noon.

My object in bringing this before your notice is to ask your opinion, through the pages of the *Nautical Magazine*, of the connection between electricity and the currents of the ocean. I am of opinion that this "storm of electricity" was a meteor of small extent, (similar to the hurricane,) travelling from E.N.E. to W.S.W., and that its height was not great, as I could distinctly see the clear sky above it while it was approaching and after it had passed over the ship, and that the current* was occasioned by it, for we did not have any westerly current before or after this, but on the next day had 23 miles easterly current. The circumstance that surprised me most was the lightning appearing to

* The case of the *Desirée*, in our volume for 1843, bears on this subject.

dart upwards from the water into a clear blue sky, and at the same time not appearing above seven miles from the ship.

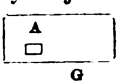
I have been often very much puzzled in keeping a ship's dead reckoning, by finding her several miles from where she ought to have been, and this often in parts of the ocean where we do not suppose currents to exist. If not trespassing too much on your time and space, I should be obliged by your giving your opinion on the above subject in the *Nautical Magazine*. It is possible the subject has been fully discussed by some scientific persons before. I can only say that I have not read any article upon it, and if one appears in the *Nautical Magazine* I shall be able to do so.

I remain, Sir, your obedient servant,
JAMES B. KENNEDY, Master, *Aries*.

To the Editor of the Nautical Magazine.

Having referred the foregoing very interesting communication to Sir William Harris, we have been favoured with the following important remarks on the subject of currents being produced by electrical agency.

"I think Mr. Kennedy's communication very interesting and important. It is certainly quite possible for a large stratum of electrified clouds in motion to influence the waters of the sea and also set them in motion by the reciprocal attraction of the opposed surfaces, which are in fact the opposite coatings of a charged system; the clouds are in fact the charged sides of a Leyden jar in motion, and would therefore influence the other side; or fancy a coated frame with moveable coatings. Thus fancy coating A charged and moving on the glas G; certainly the parts or coatings opposite A on the opposite side of this glass would be influenced,



and if moveable, as in the case of the sea, would be dragged along to a greater or less extent, as shown in my work on Thunderstorms, published by Parker. A current or an otherwise quiet sea produced by the movement of electrified opposed clouds, would not, I think, be a very *tangible* current; like the tides it would be a sort of masked movement."

An interesting illustration is given by Sir William in his work on Thunderstorms, by which he shows that "an electrical cloud may poralize portions of the air through which it moves, and become at last quiescent or nearly so;"—and also that "masses of cloud moving through a polarized air may produce disruptive charges whenever the intensity of the accumulation can break down the intervening air."

From the extraordinary effect, however, of the current setting the ship 2° of longitude (about 98 miles in the latitude stated) in about 17 or 18 hours, (a rate of five miles per hour,) along with the winds experienced on the occasion, and the appearances described, we are led to conclude that the *Aries* was on the S.E. outskirt of a hurricane, the time stated also being about the end of the hurricane season in the Indian Ocean; and that her commander acted most judiciously in laying his ship on the *port* tack, with her head E.S.E. The result would be just as described, the wind would draw northerly and N.W. as the meteor passed to the S.W. In our little work on storms, called

the "Storm Compass,"* we have noticed the extraordinary effects of these hurricanes in producing currents, which currents must also have *their* effects on other parts of the ocean not visited by the hurricane, and those would be in various directions. The upward Lightning would be the result of the highly electrified condition of the sea, that of the air over it being favourable for disengaging it. It is a remarkable instance of an accumulation of electricity in the sea received thus into an unclouded atmosphere. The whole subject is very interesting, and the Master of the *Aries* has our best thanks for bringing it forward for discussion in the pages of the *Nautical*.

Baltic Fleet off Cronstadt.

The following letter from the correspondent of the *Daily News*, gives a good idea of the proceedings of our fleet under Sir Charles Napier.

June 30, 1854.

We left Baro Sound on the 22nd instant, and, under steam, proceeded up the Gulf of Finland. The English division of the fleet exclusively composed of "the cavalry of the navy." The French line-of-battle ships (*Austerlitz*, screw, included) were towed by small steamers, in which two of ours joined to get them along. On the 24th we came to an anchor off the island of Seskar; while anchored there, we were somewhat excited by observing a Russian steamer heave in sight on her way apparently from Cronstadt to Helsingfors. She suddenly pulled up on sighting us, and then, after a momentary pause, turned tail and cut back towards Cronstadt. The *Dragon*, as one of the dogs of war, was let slip after her, but she attempted in vain to close with the fugitive, which was a much faster vessel than the pursuer. However, it is an ill wind that does not blow somebody good; before returning to the squadron again, the *Dragon* captured a boat laden with timber, which was abandoned by the owners, who struck out for their shore on observing the *Dragon* shape her course for them.

Vessels are now occasionally chased which are found to contain floating villages, men, women, and children, with all their goods and chattels, deserting their farms and homes on some little islands, where, had they remained, they imagined death by shooting or imprisonment from the ruthless English awaited them. These poor creatures became regularly terror stricken when boarded, caused in some measure by the usual preamble of firing a shot, often more across their bows to oblige them to heave to. The poor women, like so many

* The following extract alludes to this current under the name of the Storm Wave. "It is well known that the wind at all times has a considerable effect in producing surface currents of the ocean. So powerful a force does it exert in the hurricane, that it has been known to *drift* a ship at the rate of ten miles an hour! and for nearly two days a ship has been drifting at the rate of five miles per hour. This should serve as an additional warning to the seaman to avoid nearing the centre, and induce him to carry sail and remove his ship beyond the limits of this current before it is blown from her yards, and she lies helpless at the mercy of an overpowering sea."—*Becher's Storm Compass*, art. 2, p. 15. It is published by Potter, 31, Poultry, and is considered the most concise little book on the subject. We say *little*, for no seaman should be worried by a large book on subjects of this kind.—Ed.

trembling gazelles, are found huddled together in some little hiding hole. However, the poor things are soon reassured by kindness, and see that we are not the brutes they were led to suppose we were. We part, no longer enemies, but now real friends; much to their surprise they are again set free, and continue their route without further molestation. On one occasion we had much ado with the women to reassure them of our kind intentions. We fired off our muskets as guarantees; but, alas! good intentions are often mistaken. It was most decidedly the case in this instance, for it made them ten times worse, this very firing. So much for our rude way of inspiring confidence.

After having stayed a couple of days off Seskar, the squadron moved on for Cronstadt. The gulf narrowed as we approached its *cul de sac*. The land on either side is covered with a sea of rich waving woods of pine-trees, especially on the Finnish shore, which is the higher; occasional oases, if I may be allowed to speak so, appear in this moving mass of green, revealing snug hamlets and cultivated fields which often slope down to the dark nasty water of this great brackish gulf. As we closed with Cronstadt, and as soon as the tall masts of the Russian ships in harbour (nineteen ships of the line and five steamers) were descried from our topmast-heads, great excitement prevailed through the fleet. A rumour is set afloat that the Russian ships, not expecting us up so high, are at anchor outside the forts. Not a breath of wind prevails to carry them inside under protection of their batteries; if such be the case, visions of immediate action, certain victory, and captured ships, seize upon our imaginations. Ships are in advance of the squadron, looking out for the "infernal machines." All the ships have watches posted in their tops, reporting every floating log of wood that passes near us, bearing any resemblance to a buoy, an appendage said to be attached to all those submarine traps. We draw closer and closer. A mirage now begins to tantalise us; it clears, and the lighthouse of Tolboukin now stands out in white relief. The rigging of the ships becomes more distinct, and, alas, so do the prodigious forts. The men-of-war are skulking under their guns within the harbour. The admirals consult. The combined squadron come to an anchor; on our approach there was evidently a great stir among the Russian ships. The steamers in harbour immediately got steam up, and all seemed on the alert. Our squadron made a sweep, and retracing its steps a little, dropped anchor about eight or ten miles off Cronstadt. Seven or eight ships, amongst which are the *Imperieuse, Arrogant, Desperate, Penelope, Magicienne, Lightning, Driver*, &c., have been placed in a position off the mouth of the harbour, about three miles. Some boats belonging to one of those ships were sounding a few evenings ago, off the island of Cronstadt, when a Russian steamer, with steam up, was observed coming out of harbour to cut them off. The *Desperate* quickly got steam up and made a dash to catch the Russian, who immediately rushed back again into port as if the devil was after her. Vessels are constantly going reconnoitring the places and sketching the fortifications, which appear to be of amazing strength, and not a fair match for wooden walls. The lighthouse of Tolboukin is abandoned. Several officers have landed, and have mounted the tower, from which point there is a splendid bird's-eye view of the whole place. Just fancy our audacity in doing all these things under the very eyes of the Czar, with whose name invincibility has hitherto been coupled. Most likely the steamer which came out, or which attempted to come out, the other evening, had an admiral on board, for the vessel carried a flag at the fore. Could it have been the Grand Duke who was thus forced to an ignominious flight before the *Desperate*? "Oh, how the mighty are fallen." The *Driver* went up towards the lighthouse yesterday, with Admiral Chads and party on board. He went to visit the tower which the Russians seem to have relinquished in our favour. I believe there is some intention to endeavour to get at some of the submarine torpedos. It is currently reported that there are small buoys

placed to mark their site. What fun it will be if we can manage to get at them!

The *Hecla Valorous*, and *Odin* have successfully bombarded Bomar Sound, Aland Isles. On the afternoon of the 21st, the *Hecla* leading, and followed by *Valorous* and *Odin*, pushed their way up a tortuous and winding passage until they came within view of the principal battery, a bomb-proof casemated structure, mounting about 80 guns, on the sea front; a round tower, mounting about 36, also helped to defend the place. As the steamers cautiously approached, and knowing how the enemy take advantage of the woods, shells were fired into them in order to dislodge any troops that might be posted there in ambuscade. The ships commenced operations by firing round shot, which, falling short, they all three closed with the forts, which did not return the fire for some time. As soon as the cannon range was obtained, the steamers commenced firing shells from their 10-inch guns, all of which told with great effect. During the fire the steamers drifted, either from the current or light wind, and when about 560 yards off the wood a masked battery suddenly commenced firing smartly upon them. The *Valorous* and *Odin* twice subdued the fire of this battery, and twice the enemy returned to their guns. After an hour's vigorous cannonade the fire was completely silenced. The *Dragon* hauled off from this battery, as she had no broadside guns to oppose them. The two forts all the time maintained an uninterrupted fire upon the steamers, but none of the shot struck, as the vessels were out of range. A lot of cavalry or horse artillery next showed themselves, but they were soon dispersed by throwing a few shells into their position. About half-past 9 o'clock, p m., the ships anchored and began shelling the forts, which was kept up till past midnight. In the height of the shelling, a fire burst out in the rear of the main fort, and a second conflagration blazed out in the round fort. The steamers received some injuries from the field pieces in their upper works, one going through the starboard paddle-box of the *Hecla*. A most gallant act of Mr. Lucas, mate of the *Hecla*, deserves to be recorded to his credit: a live shell fell on board the *Hecla*; all the men were ordered to drop flat on the deck, to endeavour to save themselves from its explosion. Mr. Lucas ran forward, seized the shell with its burning fuse and threw it overboard. Such cool acts of courage are not matters of every day occurrence, and deserve reward. [This officer, we understand, has been promoted for his cool and well-timed deed of daring.]

H.M.S. *Duke of Wellington*, Baro Sound, 19th June, 1854.

We went this day week to have a look at the town and fortifications of Sweaborg, which I can assure you are very strong. There is a very narrow entrance, with several large forts on each side, and a three-decker moored across the harbour's mouth inside the forts ready to rake us as we go in; and there are eighteen vessels in the harbour, of all sizes: it is almost impregnable. There was only a part of the squadron went with us (eight liners, two frigates, and three steamers,) to try to entice the fleet out. We sent the three steamers close in, but they did not interrupt; they sounded all round and took a sketch of the place.

The following ships compose the Baltic Fleet, correct up to this day:—

Sailing Ships of the Line.	Guns.	Steam Liners.	Guns.
Neptune (flag) Corry	120	*D. of Wellington* (flag) Napier	131
Monarch	84	*St. Jean d'Acre*	101
Boscawen	70	*Princess Royal*	91
Prince Regent	90	*James Watt*	91
Cumberland	70	*Cæsar*	91
St. George	120	*Cressy*	80

	Guns.
Royal George	120
Edinburgh (flag) Chads	58
Ajax	58
Hoyue	60
Blenheim	70
Nile	91
Majestic	80
Hospital Ship.	
Belleisle	6
French Steam Liner.	
Austerlitz	90
French Sailing Liners.	
Inflexible (flag)	90
Hercule	100
Jemmappes (flag)	100
Tage	100
Breslau	90
Duquesclin	90
Trident	74
Duperré	74
French Steam Sloops.	
Daine	16
Phlegethon	8
Souffleur	4
Milan	4
Lucifer	4
Agile	
Steam Screw Frigates.	
Imperieuse	51
Euryalus	51
Arrogant	46
Amphion	34

	Guns.
Paddle Frigates.	
Leopard (flag) Plumridge	18
Penelope	16
Magicienne	46
Valorous	16
Odin	16
Vulture	6
Screw Sloops.	
Cruizer	16
Archer	14
Desperate	8
Conflict	8
Paddle Sloops.	
Bulldog	6
Driver	6
Basilisk	6
Gorgon	6
Porcupine	3
Dragon	6
Rosamond	6
Hecla	6
Alban	5
Lightning	2
Pigmy	3
French Sailing Frigates.	
Semillante	60
Andromaque	60
Vengeance	60
Poursuivante	54
Virginie	54
Zenobie	54
Psyche	40

English	45
French	22
Total	67

H.M.S. *Imperieuse*, Baro Sound, June 22nd.

We were relieved by the *Euryalus* on Sunday night, and arrived at the anchorage yesterday evening, where we found the combined fleets of France and England (numbering upwards of 50 pendants) *here*, forming one of the most magnificent sights I have seen. We had hoped to have had a little rest in port after our long cruising, but we are to be off again this morning with the fleets, who are bound up the Gulf, and I have very little doubt that ere long we shall not be far from Cronstadt. A party of thirty, from the little *Alban*, landed the other night, walked into the country, destroyed the electric telegraph, and blew up the building; this was done without a shot being fired on either side. The inquiry into the loss of the *Vulture's* people has not taken place. This goes in the *Holyrood*.

Near Cronstadt, June 27th.

Every new letter you receive from me reports further approaches to the Russian capital. Since the French squadrons joined us at Barosund, we have

steamed leisurely up towards the Tolboukin Light, situated at the extremity of the island on which the formidable forts of Cronstadt are erected. We are now at anchor about ten miles off that stronghold, and I presume we are likely to remain here and not run our heads against their stone walls, which we certainly should do, with the means at present at the disposal of our brave leader.

Every additional information obtained of this hornet's nest makes us more convinced of the madness of attempting anything like an attack without the aid of a military force, say thirty thousand men, and a gunboat flotilla in proportion, when a landing might probably be effected at the north side of the islands, where entrenchments might be made and approaches opened against the western fort.

The greatest of all disadvantages is the shallowness of the water around the island, and the intricate channel through which we should have to pass, which would not even admit of a passage for a ship like the *Duke of Wellington*, and render any sort of manœuvring quite out of the question.

On either side of this channel we have the various batteries for which Cronstadt is noted, and of which there can be no mistake. The most formidable of these are:—the Menchikoff Battery, of four tiers, mounting 44 guns; the Fort Constantine, with one tier of casemates for 25 guns, the Fort Alexander, an immense granite tower, mounted with 116 guns, in four casemated tiers; Fort Peter the Great, with 50 guns, of which 28 casemated; the Risbank Battery, of 60 guns, in two tiers, on the coast of Ingermanland; and, lastly, the large Cronslott Fort, numbering 56 guns in casemates, and 32 *en barbette*.

From this you can form some conception of the immense fire our wooden walls would be exposed to in attempting to force this passage, which, once accomplished, it remains for us to dispose of the whole of the enemy's fleet, some thirty or forty sail in all, now moored in line of battle outside the mole.

I think that our admiral would never risk the magnificent fleet under his command in attacking granite walls of such formidable magnitude as these, but leave well alone, and confine himself to blockading his ports and cripple his trade, which cannot fail in producing most serious consequences, and stir up the commercial community against the government.

The ships at present here are the various screws, as also half a dozen paddle steamers, with six French line-of-battle ships and their tenders.

Admiral Corry and the sailing squadron under his orders remain at the anchorage in Barosund. The little *Hecla*, so conspicuous in the Ekness affair, has again been under fire, this time at Bomarsund.

Finland, July 10th.

My last advices, dated the 30th ult., apprised you of the main portion of the Anglo-French fleet having proceeded up the Gulf of Finland to within a few miles of the fortress of Cronstadt, the in-shore squadron of six steamers being at anchor within three miles of the shore.

On the 1st inst. the *Lightning*, Captain Sullivan, conveyed such captains and commanders as chose to avail themselves of the opportunity, to Tolboukin Lighthouse, where they landed. This lighthouse is situated about two miles to the westward of the islet of Cronstadt. From its summit a good view of the enemy's ports was obtained, and of the position of their fleet at anchor, under the protection of the batteries. In the narrow channel leading to the harbour, six line-of-battle ships are moored head and stern. Inside these the remaining portion of the Cronstadt division of the fleet is at anchor. The strength of the fortifications is immense, and they appear to be perfectly impregnable by sea.

The *Driver*, Comm. Hon. A. A. Cochrane, proceeded on this date to Dantzic with despatches from the Commander-in-Chief, for transmission overland to the English Government. A merchant steamer, carrying the Rostock flag,

arrived from England, freighted with provisions for the French division of the fleet.

Prior to the departure of the allied squadrons from Baro Sound, a few fatal cases of cholera had occurred in the fleet. While at anchor off Cronstadt the disease extended itself to most of the ships, and several deaths occurred daily. The French screw line-of-battle ship ***Austerlitz*** suffered more than any other ship. The ***Duke of Wellington*** lost fifteen of her crew; other ships four or five, &c., in proportion to the number of those on board. Fresh cases occurring daily, it was deemed advisable to remove the fleet to a more open position in the Gulf of Finland, and the signal "Prepare for sailing to-morrow" was hoisted on board of the flag-ship of the Commander-in-Chief.

On the morning of the 2nd inst. the in-shore squadron wayed in succession, followed by the rest of the fleet. By 10 a.m. the various ships had left Cronstadt roads, and most of them anchored in the evening four miles distant from the island of Seskar. The *Imperieuse*, 50, proceeded in a northerly direction, taking under her orders the *Lightning*, *Magicienne*, and *Desperate*, united with the main body of the fleet the next morning, the ***Imperieuse*** and ***Bulldog*** coming to anchor off the northern side of the gulf.

The ***Basilisk***, 6, Commander the Hon. F. Egerton, joined company on the 4th, laden with live cattle, and a heavy mail for the fleet. In the afternoon the Commander-in-Chief ordered by signal the various ships to be ready for sea the next morning.

At 4 a.m. of the 5th steam was got up, and by 6 a.m. the various ships were under way, proceeding at slow speed in a westerly direction, the English division in two columns, the French division in one column. Topsails and courses were shifted by way of exercise, and a few evolutions performed.

At 4 a.m. of the 6th the combined squadrons were abreast off Sweaborg, to the westward of which Rear-Admiral Corry, with the weather division of the fleet, was at anchor. Here the Commander-in-Chief, in his flag ship, parted company, standing in for Sweaborg, the command of the fleet devolving ***pro tem.*** on Rear Admiral Chads, who was ordered to proceed to Baro Sound, where the greater portion of the various ships anchored in the afternoon, followed by the ***Duke of Wellington***, and Rear-Admiral Corry's squadron.

The ***Duquesclin***, flag ship of the French Rear-Admiral, when off the entrance of Baro Sound, got on shore on the Warren Rock. The English and French steamers, the barges and pinnaces of the various ships, provided with anchors, hawsers, immediately repaired to her assistance. Her guns, provisions, stores, &c., were removed, in order to lighten her. After twenty-four hours' constant exertions, under the superintendence of the Master of the Fleet, the ***Duquesclin*** was floated off, and was towed into the Sound by a steamer, and without, it is supposed, having sustained any serious injury. The cause of this ship getting on the Warren Rock is accounted for in the following manner:—

The Russians, in order to render as they thought the navigation of the Gulf of Finland a matter of difficulty to the English fleet, removed all the buoys denoting the channels to the various harbours therein. But prior to the Commander-in-Chief taking the ships under his command into any of the roadsteads, &c., Capt. Sulivan, in the *Lightning*, had made a survey of many of the rocks and shoals with which the entrance to Baro Sound is surrounded, and laid down buoys to mark the channels through which the combined squadrons may proceed with safety. But while the fleet was on its way to Cronstadt, it would appear that the enemy, ever on the alert, had shifted the buoys to other positions—the one placed in the vicinity of the Warren Shoal being removed considerably to the westward. In consequence of this, the ***Duquesclin*** grounded on it.

THE ALAND ISLES.—As this position may perhaps be taken up by the combined forces of England and France in the Baltic, the following authentic particulars respecting them will be deemed at the present moment highly interesting:—

"The islands form an archipelago, situate at the extremity of the Baltic, at the entrance of the Gulf of Bothnia, and close to the Gulf of Finland. As a military point of observation their position is excellent. The group is composed of seven islands, occupying an area of ninety square kilometres, with a population of 15,000 inhabitants. The island of Aland properly speaking, which has given its name to the archipelago, is nine leagues in length and seven in breadth, and has a population of 10,000 inhabitants. The Russians have built on the island the fortress of Bomarsund, which is protected on the sea side by extensive fortifications. It possesses a good roadstead, well sheltered, with a depth of 20, 30, and even 50 fathoms. In time of peace it is continually visited by the Russian fleet of evolution. The interior of the island is intersected by calcareous hills, and watered by a great number of rivulets, from which it derives its Scandinavian name of Aland (Country of Rivers). Its coast is deeply indented, and offers excellent anchorage. The soil is fertile, and here and there are to be seen good pasture grounds and forests of birch and pine. Its inhabitants are mostly farmers and fishermen. The climate is wholesome, although rigorous in winter. The snow melts early and the harbours freeze over late in the season, on account of the rapid current produced by the meeting of the waters of the Gulfs of Bothnia and Finland. Independently of Bomarsund, the archipelago contains several other fortified places, the principal of which are in the islands of Siguiskiar and Prœstœ. The islands of Aland are very important in a political and military point of view. They were wrested by Russia from Sweden in 1809, by the treaty of Frederikshamn, which secured to that power the remainder of Finland and Eastern Bothnia. Russia had already acquired the other part of Finland by the treaty of Abo. The loss of that fine and rich province was a dreadful check to the Swedish power."

A correspondent sends us the following account received from Stockholm, of the bombardment of Bomarsund:—

On the 21st of June the *Hecla*, Capt. Hall, the *Valorous*, Capt. Buckle, and the *Odin*, Capt. Scott, paddle steamers, undertook the difficult southerly passage between the Aland Isles towards Bomarsund. About 5 o'clock a large round tower appeared in sight, situate upon an elevated position, with two-thirds of its guns in the casemates; and in a short time another of a similar description, upon a still higher point of elevated ground; a little lower down, on the same shore, a semicircular fort with eighty guns mounted thereon, of which two-thirds were also casemated. Sideways lay a third tower, on the extreme high point of the island of Posto. The *Hecla* opened the cannonade against the fort, which returned it after a quarter of an hour's delay, when the conflict became general. The English ships moved in a circle at their approach, directing their shot and shells with precision. About 6 o'clock a small battery, placed on the border of a wood to the left of the fort, and mounting six guns of the horse artillery, supported by sharpshooters, opened a hot fire upon the steamers, which was answered with immediate effect. Several bombs fell close in front of this battery, which upon two occasions was deserted by the artillerymen in consequence; but fresh troops continually rushed to the guns with great courage and determination, while the riflemen maintained a constant fire. A bomb with burning fuze lit upon the deck of the *Hecla;* a young midshipman, named Lucas, with great coolness caught it up and threw it into the water before it exploded.* At 7 o'clock this battery was silenced, and deserted by

* For this impromptu gallant act and example, the Admiralty have promoted him to the rank of Lieutenant.

the men. The English vessels then cast anchor in the roads in front of the fortress, and continued their bombardment of it and the tower on the opposite side. The fire was replied to at short intervals from the forts; but almost all the Russian balls fell short of the vessels. About 10 o'clock p.m. fire in the magazine, in the further part of the fortress, and within the fortress itself, appeared to have broken out, and was hailed by three loud cheers from the ship's crew. After the lapse of half an hour, fire was seen to the right of the first named place, which appeared to extend itself quickly; at the same moment a shell from the *Valorous* passed through the roof of the fortress, where it exploded, upon which Capt. Hall threw out the signal "Bravely done, *Valorous*," which was answered with a hurrah. At 1 o'clock a.m. on the 22nd the British ceased firing, weighed anchor, and passed through the southern Rinne on their return. One man on board the *Hecla*, and two on board the *Odin* were slightly wounded, but none killed. Each of the vessels was hit several times by the shots of the enemy, one of which went through the paddlebox of the *Hecla*. Another report mentions four wounded, and that seven shots had hit the *Hecla*, and that all the magazines in Bomarsund had been burnt down. Capt. Hall received on the 22nd an order to join Admiral Napier, from which circumstance some decisive operation is supposed to be contemplated. A fisherman who had managed to escape from the Aland Isles to the Faro Sound Shears, stated that on the 21st he had heard a cannonade in the direction of Baro Sound, and seen a conflagration on the Finnish coast.

Extracts of Letters from the Black Sea Fleet.

The Emperor of Russia has agreed to an exchange of prisoners, and the *Fury* has left for Constantinople to take the Russian prisoners to Odessa, where the exchange is to be effected; so we shall have the unfortunate *Tigers* back again. I am afraid the court martial will go hard with the poor fellows, more particularly the Master. The Russians are encamped on the northern side of the Danube, 120,000 strong, they say for the purpose of making good their retreat, their heavy baggage being on its way to the Pruth. All the French and English troops are now disembarked at Varna, and are gradually advancing towards Silistria. The army is sadly in want of means of "heavy draught," which has been the great cause of their detention.

We were yesterday joined by Admiral Brouat (French) and five sail of the line, including the *Napoleon*. The French now outnumber us by five liners. Our steamers are constantly employed cruising about off Sebastopol, &c., bringing in prizes, but unfortunately no men-of-war. A Cossack officer was taken by Capt. Parker, of the *Firebrand*, and proceeded to Lord Raglan.

The Turkish squadron left yesterday for the Bosphorus, being tired of this part of the world. I hear that a Lieutenant and Second Master of the *Leander* are under close arrest, and to be tried by court martial.

It appears that while the army is in this neighbourhood there will be no chance of our making a start, unless our friends at Sebastopol make a sortie of some distance; they confine themselves to within ten miles of their port.

The *Montebello*, screw three decker, *Napoleon*, screw two decker, and three other French line of battle ships, passed here on their way to Varna, on the 29th, with troops on board. Four howitzers taken from the Russians at Silistria have been landed here at the arsenal, and attract large crowds of Turks to see them.

The *Vesuvius* arrived on the 30th, with three prizes in tow captured off the Danube. Capt. Parker, in the *Firebrand*, landed his marines and blue jackets

at the mouth of the Danube, and destroyed all the Russian telegraphs on the coast for miles. He personally made prisoner of a Cossack officer, who had secreted himself in an old building. The latter's great fear was of being handed over to the Turks, whose expected treatment he pantomimically described by drawing his open hand across his throat. The Admiral has sent the officer to Lord Raglan, in order to his being cathechised. The *Vesuvius* sails to-day for Baltchik.

There are twelve French liners and some steamers at Baltchik. Two French liners and steamers at Varna. The Turkish fleet are in the Bosphorus, with the exception of two liners and some steamers at Varna. The Admiral is very liberal in giving leave to the officers to visit Varna, which they are enabled to do in men-of-war steamers, which are constantly running between the two places.

The squadron of steamers sent to reconnoitre off Sebastopol are hourly expected in, but I suppose we shall have the stereotyped report of the Russian fleet remaining within their embrasured prison.

Lord Raglan made an application to the Admiral for the services of some seamen whom he deemed would prove very useful to him when he approached the Danube. This very soon transpired in the fleet, and the scenes of excitement that took place baffles description. Petty officers came forward begging to be disrated to able seamen, and offering to forfeit all their petty-officers' servitude, if their respective Captains would only send them on the service. No other arrangement could be come to than that of drawing lots, and lucky indeed was he considered whose prize sent him to brave the pestilential miasma of the Danube. The command of the little party was given to Lieutenant Glynn, and Prince Ernest of Leiningen, of the *Britannia*. They started overland from Varna on the 7th.

Admirals Dundas and Lyons went to Varna on the 5th in the *Retribution*, and returned in the evening. While they were there, they saw a review of 45,000 French troops.

The *Fury* arrived here on the evening of the 8th, from Constantinople, with Russian prisoners on board. She started immediately for Odessa, where she will exchange them for the *Tigers*.

An unfortunate accident occurred two days ago, which has since terminated fatally. Some of the officers of the *Rodney* went on shore to amuse themselves, and amongst the party was a Cadet, who was practising at a mark with a Colt's revolver. After a few discharges some difficulty was experienced in causing it to go off, and while endeavouring to overcome the obstacle the piece went off, the contents lodging in the belly of one of the seamen, who died to-day.

Lieutenant Glyn, of the flag-ship, having under him the Prince Ernest of Leiningen, and 130 petty officess and seamen from the fleet, disembarked yesterday at Varna from the *Caradoc*, and proceeded, by land of course, towards Rutshuck. Mr. Glyn expects to find at that place some gun-boats belonging to the Turks, which he will take command of, and man them by his own seamen. He is a clever, active, zealous young officer, and will either sink in the Danube or succeed. His second in command, Prince Ernest, although not actually belonging to the service, will go in with no less gusto against the Muscovites. They started yesterday from Varna, accompanied by a party of sappers, all mounted. How the Jacks will get on mounted on Arab steeds, is more than I can say; but they will be more fatigued by this short journey to the Danube than by a voyage of ten thousand miles. This little naval expedition is, I suppose, to reconnoitre and fell the way with gun-boats in the Danube, and will probably be soon followed by other parties detached from the fleet.

A Scene in Varna.—The remainder of the 7th Hussars have arrived and are encamped on the opposite side of the bay, where the Sappers and Miners have constructed an excellent wooden pier, run out into deep water 140 feet

from the shore. The French have made one for themselves at this side, adjoining the old quay, and made a great fuss and talk about it, but it does not at all support the pretensions made on its behalf. They are, however, certainly displaying extraordinary activity in almost every department. The streets have been already named, on painted boards stuck up at the corners, to the great astonishment of the Turks. The street in which they have established their hospital is of course *Rue de l'Hospital*, a long straggling sort of lane, with one or two good houses in it, but chiefly remarkable for dunghills, the sale of stinking fish, and being the chosen "beat" of a very savage dog, has received the pompous designation of the "Corso." What would a Roman think if the board happened to catch his eye? Nearly all the principal houses have been taken possession of, either by the English or the French, and turned into Officers' quarters, Commissariat stores, engineering offices, hospitals, and what not. At every turn one lights upon groups of French and English soldiers gloriously drunk, and reeling along arm-in-arm, hiccupping denunciations of the Russians, and vowing eternal fraternity, the Frenchman, however, all alive and very noisy, and the Englishman very often a passive and very stupid-looking agent in his hands. Now and then a Zouave may be seen pursuing an Arab soldier, crying, "Vino, vino," and imitating the pouring of liquor down his throat, whereby he signifies his wish that he should be directed to the nearest cabaret. Should the "native" prove either sulky or stupid, down come a shower of epithets—'sauvage," "barbare," the pride of civilisation evidently rising within the tippler. Two or three months ago, the sound of an English voice, or a single word of the English tongue, either in city or in field, was so sufficiently startling, to say the least. It is now impossible to leave one's bed-room without meeting well-fed, rosy-cheeked, clean-shaved English faces at every yard. If one goes out to ride, the chances are ten to one he finds one or two English horses in his stable when he comes back, saddled with Peat's saddles, chain reins, leather headstalls, saddle bags, and all, and attended by a lanky groom with a fat face, a very tight neckcloth, and a silk hat, with a trim star painted black on the side of it, and looking as much at his ease as if he were in his own mews in Belgravia. One can't walk down to the port through streets in which the very appearance of an European brought women to the windows half a year ago, without being subjected to the importunities of "touters," recommending their wares in a jumble of French and English, which, fortunately, is generally unintelligible. "What do you want?" is a phrase which every Bulgarian and Italian dealer seems to have picked up, and he plies you with it, if you hesitate a moment in or near his shop door, with as much pertinacity as if you were endeavouring to effect a forcible entry. Champagne in any quantity is now to be had at 5s. a bottle, though I suspect it derives its origin from gooseberries. Day and Martin's blacking is here sold at six piastres a pot. "This inestimable composition," so runs the label, "retaining its virtues in any climate," besides "affording peculiar nourishment to the leather." Provisions are becoming enormously dear. Anyone who does not repair to the baker's shop early in the morning, and fight manfully with the motley crowd, soldiers, grooms, Turks, Bulgarians, who throng around the broad counter in front of the shop, has not a chance of the smallest loaf during the remainder of the day. The knowledge of this makes the feeble strong, and cowards brave; and the staff of life is consequently distributed to the inhabitants amidst a clamour, yelling, swearing, and fighting worthy of a menagerie at feeding time. The baker, if a man of vigour and determination, combats his assailants like a Trojan, and generally manages to secure himself against loss. If nervous or of a phlegmatic temperament, he tears his hair or looks on passively, and trusts to the generosity of the purchasers for a small remuneration for his labour and his flour. A month ago the bread was almost as white and fine as in London; it is now as black as that

served out to the troops, though still by no means bad. Straw or hay is not to be had for love or money; any horse that cannot live on barley, with a small modicum of grass, cannot live at all. Three weeks ago, even, straw was as high as 7s. 6d. for a small load. Everybody here who indulges in meat eating, lives on lamb, which is very plentiful, and will continue to be so for a month or two to come. Beef is unknown; but about three times a week splendid turbot is to be had for 2d. a pound. In a very short time the quantity of fruit will exceed all possible consumption. These are golden days for Varna.—*United Service Gazette.*

MAGNETIC VARIATION.

Table showing the mean monthly westerly declination, or westerly variation of the magnet, and the monthly dip at the Royal Observatory, Greenwich, in the three months ending June, 1853.

1853.	Variation W.	Dip.
April	22° 11′ 35″	68° 46′
May	22 10 7	68 45
June	22 9 26	68 44

The mean variation has been found by the application of corrections (deduced by Mr. Glaisher from two-hourly observations taken during seven years, 1841–7,) to the mean of readings taken at 9h., a.m., 1h., 3h., and 9h., p.m., daily. The mean dip by taking the mean of observation at 9h., a.m., 3h. and 9h., p.m., on one day in each week.

ROBERT MAIN,
1854, July 7th. for Astronomer Royal.

THE RIFF PIRATES.—*Recapture of the Brig "Cuthbert Young from the Moors.—Official Despatch of Commander Rice.*

(From the Gazette, 11th July, 1854.)

Admiralty, July 11th.

A letter, of which the following is a copy, has been received from Comm. Rice, of H.M. steam-sloop *Prometheus*:

H.M. steam-sloop *Prometheus*, Gibraltar, June 28th, 1854.

SIR,—I have the honour to report to you, for the information of my Lords Commissioners of the Admiralty, that, in pursuance of their Lordship's orders, I left Lisbon on the evening of the 22nd instant, and proceeded towards Gibraltar.

On the afternoon of the following day, when about six miles S.W. of Cape St. Vincent, I fell in with H.M.S. *Medina*. On learning from her commander that she had despatches for Admiral Dundas, and that her coal would not be sufficient to take her either to Gibraltar or Cadiz, I kept company wtth her until the next morning, when, as it blew hard from the eastward, with a heavy sea, I was unable to take her in tow until the afternoon, when it moderated.

I left her at Cadiz, at 6 a.m., the 25th inst., and proceeded to Gibraltar, where I arrived at 6 o'clock the same evening

Having immediately communicated with Capt. the Hon. George Grey (delivering to him their lordship's letter), I was informed by him that, on the night

of Tuesday last, the 20th inst, an English brig, called the *Cuthbert Young*, of South Shields, had been captured and plundered by piratical boats, about 10 miles to the N.W. of Cape Tres Forcas, but that the master and crew,* twelve in number, had escaped, and arrived at Gibraltar. Captain Grey sent the master, Mr. Marshall, on board, as also a pilot, for the Riff Coast, and at 8 o'clock the same evening I proceeded to sea.

On the following morning I anchored for a short time near the Spanish Fort of Albucema, which is on the coast of the district of Beni Oriaga (mentioned in the extract of a despatch enclosed in their lordships' letter), and communicated with the Governor. I learnt from him that the boy referred to by their lordships' letter had been given up and sent to Tangier, unhurt, in charge of two soldiers of the Emperor of Morocco, four days previously, having been confined five weeks in the neighbourhood of Albucema.

The Spanish vessel captured by the Moors was laden with water, oil, and Spanish government stores for the fort of Albucema. She was taken at night, and subsequently destroyed on the shore of Beni Oriaga, in sight of the Spanish garrison, just out of gun shot.

The Moors sent to offer to sell her, the cargo, and the boy, to the Governor of Albucema for 6,000 reals. The Governor declined, and detained the messenger as a hostage for the security of the boy, and he is still a prisoner, but to be released.

The boy was given up immediately the two persons sent by the Governor of Tetuan arrived. I believe their lordships are informed that seven of the captors of the felucca were made prisoners by the Governor of Tetuan when attempting to sell the oil, &c., which they had carried there for sale.

The Governor of Albucema also informed me that he believed the Spanish government were about to station a force of armed vessels at Penon Velez, Albucema, and Melilla for the suppression of piracy.

On leaving Albucema, I proceeded close along the coast, in search of the brig *Cuthbert Young*, and at 4 p.m. found her anchored about 200 yards from the shore, in a rocky inlet, 10 or 12 miles S.W. of Cape Tres Forcas, near the spot marked "Zera" on the chart. I steamed in towards her, and as we neared her the Moors opened fire on us with volleys of musketry from the rocks, among which the brig was anchored. As the brig was in 3 fathoms water, I could get close to her, and Lieut. Visconti and a party of men were sent to make a hawser fast from our bows to hers, and to slip the cable. The cable could not be unshackled, the anchor was therefore hove up, and at 6 o'clock we backed out of the cove with the brig in tow.

Soon after the Moors had begun firing, and were assembled in considerable numbers round us, we opened fire on those ahead, and on the port bow from the pivot gun forward, and on those on the starboard side and starboard quarter, from the quarter deck guns, with grape, canister, and short range shells. The Minie muskets were also used with success.

The firing, under the direction of Lieutenant Edye, senior lieutenant, was very accurate, and the Moors must, in all probability, have suffered severely.

Lieut. Visconti and his party did their duty of running out and securing the hawser, and waying the anchor, &c., &c., with great steadiness.

During the hour and a half we were employed in getting the brig away, the Moors kept up a constant fire, which, from the nature of the ground, they were, from some quarters further in shore, able to do with comparative safety.

I am happy to say that we had but one casualty, John Hays, stoker, wounded in the head by a musket ball, but not dangerously.

* I have since learnt that only six arrived here; the other six went away from the brig in a boat, but have not been heard of; they left half an hour before the master and other five escaped.

The brig is complete, with the exception of the destruction of some of the internal fittings and spare sails.

At 7.30 I proceeded with the brig in tow for this place, where I had the honour to report my arrival at 1 a.m. this day.

Shortly after leaving the shore at Zera, the starboard engine broke down, and we have been obliged to proceed, until within twenty miles of this place, working one engine only. I find that the defects of both engines, as detailed in the report of Mr. Thomas Murray, chief engineer, herewith enclosed, will detain us at this place three or four days. As soon as ready I shall return to Lisbon, agreeable to their lordships' orders.

I have, &c.,

EDW. R. RICE, Commander and Senior Officer.

To the Secretary of the Admiralty, London.

NAUTICAL NOTICES.

PACIFIC DANGERS.

Among the wants of seamen, and they are not a few, is a good chart of the Pacific. When will they get it? So prodigious a portion of the globe is included by it, that we fear they will have to wait a long time. But we have not met with even a good compilation of what we already know of it. The following communication from Lloyds' seems to announce a new danger, and the position of two small islands in error :—

"Melbourne, 5th May, 1854.

"Captain Thompson, of the *Acis*, reports on his passage from Valparaiso to Hobart Town, the discovery of a reef, extending N.E. and S.W. about three miles, not laid down in the charts, and on which the sea was breaking heavily. From good observations he placed it in lat. 22° 47′ S., long. 171° 48′ 30″ W.

"The islands of Ohiteroa and Rimatera, in the track of vessels bound to Otaheite, are erroneously placed on the charts, the former being 37 miles, and the latter 10 miles W. of their true position, which is—Ohiteroa, lat. 22° 28′ S., long. 150° 47′ W., and Rimatera, lat. 22° 43′ S., long 152° 4′ 45″ W.

"J. B. WERE, KENT AND CO."

We have referred to Laurie's chart, which is the best we know of as yet, and find these islands in a different position from that given in the Directory which accompanies it. Thus the first,

Ohiteroa, by the chart, is in	22° 35′ S.,	150° 10′ W.
by the book,*	22 27	150 47
And Rimatera is by chart in	22° 45′ S.,	151° 55′ W.
by book	22 40	152 20

We say nothing about longitude, but why all this difference in latitude between a chart and the book belonging to it? Much credit is due to Mr. Laurie for bringing together so much useful matter as is contained in his Pacific Directory, but there would be more confidence in both book and chart if they agreed.

BLACK ROCK, NORTH PACIFIC.

Lloyd's, 4th November, 1853.

Sir,—I have the honour, by direction of the Committee for managing the affairs of Lloyd's, to transmit to you, for the information of the Lords Commis-

* Vol. 2nd, Islands, p. 800.

sioners of the Admiralty, a copy of a letter from Abram Somerby, Commander of the American barque *Isabelita Hyne*, relating to a rock seen in lat. 30° N., long. 140° E., and forwarded by the agents to this establishment at Melbourne, Port Philip.

I have the honour to be, &c,
GEO. A. HUTSTED, Secretary.

Rear Admiral Sir Francis Beaufort, K.C.B.

"Hobson's Bay, Port Philip, 21st July, 1853.

"Dear Sir,—Allow me the honour of placing before you an account of an Island, or Rock, which I think has not been discovered before, as it is not laid down on any of the three North Pacific charts which I have. It lies in lat. 29° 42′ N., long. 140° 15′ E., and is about 200 feet high, and 100 feet base. I ran within three miles of the rock—no bottom. It looks black, and having the appearance of a bottle. I had good observations both for chronometer and latitude, and my chronometer I found to be correct on my arrival at Port Philip, New South Wales. I will name it Black Rock. This rock I consider very dangerous if a vessel should strike it in a dark night, as there is but little chance of getting on the rock, and if gained there is not a vestige of anything of vegetation on it; and no chance of getting off, as no one would ever think of a man being there if it should be seen. The nearest island to it lies North 52 miles, called Ponofidon, or St. Peters, by J. S. Hobb's chart of 1850 and additions to 1851.

"I am, Gentlemen, your's, &c,
"ABRAM SOMERBY, Comm., *Isabelita Hyne*.

"Messrs. J. B. Were and Co., Lloyd's Agents."

Appearing thus,

This Rock has a little lean to the West, bearing North.

LANRICK ROCK AND NEWLAND SHOAL.

Jerusalem Coffee House, Cornhill, June 4, 1854.

Dear Sir,—In the "Nautical Notices" for this month I observe an account of the *Asia* having struck on the Lanrick Rock, and supposing it a new discovery, calling it Newland Shoal. Now there is no honour in thumping a ship over a reef or rock, and I would willingly submerge the Lanrick name in that particular; but as it is desirable the charts of that locality should not be filled with vigias, I hope you will make known to the nautical community that the Lanrick and Newland are one and the same.* The *Asia's* latitude being a direct noon observation is, perhaps, most correct, but the *Lanrick's* chronometers being all good, and great care taken with their rates, I am led to think my

* See *Naut. Mag.*, Dec., 1853, pp. 695, 696. It is strange how Raper, usually so correct, should give Lanrick Rock in 1° 51′ S., and 106° 54′ E.

longitude the most correct, allowing Gaspar Peak to be in 107° 6′ E. At all events the two ship's accounts so closely agreeing prove the shoal to be quite sufficiently correctly laid down for all practical purposes.

Lanrick, Aug., 1846, Lat. by computation, 3¾ hours from noon, 1° 52′ 30″ S.
Long. by 3 chrontrs., 24 hours to Gaspar, 107° 2′ 0″ E.
Asia, October, 1853, Latitude by observation, noon, ... 1° 52′ S.
Long., 1 chron., 48 hours to Gaspar.... 107° 1′ 45″ E.

Your's faithfully,

To the Editor of the Nautical Magazine. JOHN B. WHITE.

[Our correspondent is perfectly right, and we are much obliged for pointing out an omission on our part in not having noticed the identity of the Newland with the Lanrick rock:—one which passed us among the numerous subjects that claim our attention, but which would not have remained long without being detected. The coincidence is, however, very satisfactory, and the Lanrick rock may be considered as one of the best established in the Eastern seas.—ED.]

SOUNDINGS OFF CAPE CORRIENTES.—*Atlantic.*

[The following report of soundings off Cape Corrientes may serve as a caution to ships passing the Cape to be on their guard against shoaler water than that laid down in the chart. The place of the shoalest (24 fathoms) occurs close on the hundred fathom line, but a few miles from the shore, and so great a change indicates an irregular bottom, where less water may be expected.—ED.]

Express, Stanley Harbour, Falkland Islands,
17th March, 1854.

Sir,—At midnight on February the 6th, when by D.R. corrected by observation the following day, in lat. 39° 41′ S., long. 56° 25′ W., I gave orders to sound to ascertain our position with regard to the bank of soundings off Cape Corrientes.

The ship was standing to the westward, going 2 knots, the wind 7, S.S.W. By our reckoning we should have been in 50 fathoms, but we obtained bottom in 24, 38, and 50 fathoms. This was so unaccountable that I wore round to the S.E., when our soundings were first at 40 fathoms, then at 50 fathoms, which continued regular; the shallow soundings were hard rock bottom, with 50 fathoms fine sand. Massey's Patent Sounding Machine agreed with the up and down soundings felt by hand. It was a dark night and a heavy sea running, or I should have examined the shoal more particularly.

I do not imagine there to be any danger, but as vessels frequently correct their longitude by the soundings where this shoal patch was found, and no mention being made of it in either Directions or Charts, they might be led into great error, I therefore consider it my duty to report the same for your information.

I have, &c.,
HENRY BOYS, Commander.

Rear Admiral W. W. Henderson, C.B., K.H., &c.

MANILA LIGHT—*in Error.*

Peninsular and Oriental Steam Navigation Company.
London, 21st June, 1854.

Sir,—I have the honour to transmit herewith for your information and guidance, extract of a letter received from the Commander of this Company's steam ship *Tartar* relative to the lights at the entrance of Manila.

I am, Sir, your very obedient servant,
C. MCDOWELL, Secretary.

Rear-Admiral Sir Francis Beaufort, K.C.B.

"Hong Kong, 19th April, 1864.

"In the new edition of *Horsburgh's Directory* the Light at the City of Manila is called a Revolving Light, and no mention is made of the Revolving Light on the Island of Corregidor. I beg to inform you that the light at Manila is a Fixed Bright one, and there is a very fine Revolving Light (does not totally eclipse) on the Corregidor Island at the entrance of the Bay.

"J. B. COLDBECK, Capt. P. and O.S.N. Co.'s ship *Tartar*."

AUSTRALIA.—SECOND LIGHT AT PORT PHILLIP.—[No. 172.]—Information has been received from the Government of Victoria, that, on the first of January last, a Fixed Red Light was established on Shortland Bluff, at the entrance of Port Phillip. The Tower, which is built of wood, and painted white, bears S.W.b.S. from the Upper Lighthouse on that Bluff, distant from it 223 yards, and the light has an elevation of 80 feet above the mean level of the sea.

This Red Light will be visible while between the bearings of N. ¼ E. and N.E. ¼ E., at the distance of 10 miles; and when kept in one with the Upper Fixed Light, bearing N.E.b.N., they will lead mid-channel through the entrance of the Port, between Lonsdale and Nepean Points. Strangers, however, are cautioned against attempting this narrow entrance by night, or against the strength of the ebb by day.

No alteration has taken place in the Upper Fixed Light on Shortland Bluff, which being 109 feet above the level of the sea, is visible at the distance of 17 miles from the deck of a moderate sized vessel, when between the bearings of N.b.E. and N.E.b.E.

BEACON ON SWAN POINT.—Mariners are further informed, that a cone-shaped Iron Beacon has been placed on Swan Point; it is painted white, the summit is 50 feet above the sea, and it bears from the Red, or Lower Light on Shortland Bluff, N. 41° E.

This Beacon kept open E. of the Lower Lighthouse, leads in clear of Lonsdale Reef; and the Flagstaff on Shortland Bluff, kept well open W. of the Lower Lighthouse, clears the Corsair Rock, and other sunken dangers off Nepean Point.

Ships waiting the turn of the tide, in order to enter or to leave the port, are recommended to keep the Lonsdale Point shore on board, as the tide there runs fairer, and in bad weather smaller vessels incur less risk on that side, from the tide ripples, than towards Nepean Point.

WEST CHANNEL LIGHT-VESSEL.—A light-vessel is now placed at the N.E. end of the West Channel into Port Phillip, in the same position as that previously occupied by the North Fairway Black Buoy, which has been removed.

The vessel is painted Red, and carries two Fixed Lights, 24 feet apart, and each 40 feet high; and they may be seen in all directions at distances not exceeding 9 miles.

The vessel is moored in 4 fathoms, and nearly on the following bearings:—Extreme Point of Indented Head, N.W. ¾ N.; summit of Arthur's Seat, S.E. ¼ E.; extremity of Nepean Point, S.S.W. ¼ W.

The channel being narrow, vessels should cautiously avoid collision with this floating light.

BUOY ON THE ANONYMA ROCK IN PORT PHILLIP BAY.—Commanders of vessels working up the Eastern shore of Port Phillip Bay are to take notice, that a Checquered Buoy has been moored on the rock off the Red Bluff. This rock has been generally called the Anonyma, and is now found to lie two miles nearer the shore than the position usually assigned to it in the charts.

The following bearings give its position:—Lighthouse on Gillibrand Point,

N.W. ½ N.; centre of Red Bluff, E.b.S.; a small white Cliff to the Northward of the Red Bluff, N.E. ½ E.

Its distance from the shore is one mile, the least water on it is 8 feet, with 5 fathoms just outside, and a 3 to 4 fathoms channel inside of half a mile in breadth, with a sandy bottom.

THE CORSAIR ROCK.—This dangerous rock lies nearly three quarters of a mile West of Nepean Point. It is about 20 feet in diameter, and carries only 11 feet with 3 to 5 fathoms all round it, but no vessel should attempt to pass inside of it, as both flood and ebb set strongly on Nepean Reef.

The following bearings will indicate its position:—Upper Lighthouse on Shortland Bluff, N. 21° E.; rock above water, off Nepean Point, N. 87° E.; tidal flagstaff on Lonsdale Point, N. 76° W.

Marks to clear the Corsair Rock.—When working into the entrance, keep Shortland Bluff Flagstaff well open to the W. of the Low Lighthouse, until the Flagstaff on Observatory Point is well open to the N. of the lowest part of Nepean Point. These marks will lead clear of the Corsair Rock, but to clear Nepean Reef, which lies a cable's length inside of that rock, the Low Lighthouse must not be shut in with the Flagstaff on Shortland Bluff until Nepean Rock has opened out to the northward of Nepean Point.

In working out, keep the Flagstaff on Observatory Point well open N. of Nepean Point, until the Flagstaff on Shortland Bluff is well open to the westward of the Low Lighthouse, and this latter mark must be kept on until Nepean Rock is opened out to the N. of Nepean Point.

TIME BALL.—To enable vessels to rate their chronometers, a black Time Ball will be dropped daily, (excepting Sundays,) from the top of the Flagstaff on Gillibrand Point at the instant of one o'clock, mean solar time, which corresponds to 15h. 20m. 19s. Greenwich time.

A preparatory signal will be made at half past 12, by showing a blue pendant half-mast high, and hauling it down at 10 minutes before 1 o'clock, when the ball will be hoisted up to the masthead, and dropped as above stated.

The approximate position of the Time Ball is 37° 52′ 52″ S., and 144° 55′ 28″ E. of Greenwich.

TIDE SIGNALS.—A Flagstaff having been erected at Lonsdale Point, the following signals will be made there to denote the state of the tide between Lonsdale and Nepean Points:—

Flood.—When the Flood begins to make in the middle of the entrance, a blue flag will be shown half-mast high, and kept there during the first quarter of the flood.

During the second quarter the blue flag will be hoisted to the masthead.

During the third quarter a red flag will be kept half-mast high; and

During the last quarter a red flag will be hoisted to the masthead.

Ebb.—During the Ebb tide the same signals will be made to indicate its four quarters, but with each of them a ball will be shown beneath the flag.

RIVER YARRA.—The following tidal signals are also made at the foremast head of the Water Police Hulk moored at the entrance of the River Yarra, to denote the height of tide on the bar:—

Signal.	*Indicates.*
Ball at the masthead	8 feet on the Bar.
Ball half-mast high	8½ ,,
Two balls at masthead.....	9 ,,
Two balls half-mast high	9½ ,,
Blue flag at masthead	10 ,,
Blue flag half mast high	10½ ,,
Red flag at masthead.....	11 ,,

THE STEAMER "GOLDEN AGE," AND HER PASSAGE TO AUSTRALIA.

The American steamer *Golden Age*, it will be remembered, sailed from Liverpool to Australia in November last, in connection with Messrs. Miller and Thompson's Golden Line of packets. She made a most extraordinary passage, having steamed the distance in 41 days.

Captain Porter, her commander, addressed a letter from the Cape of Good Hope to Lieut. M. F. Maury, Superintendent of the observatory at Washington, a copy of which we have received by the *Arabia*. We publish it entire, believing that it will be read with great interest, and that it will lead to the adoption of measures for the improvement of our postal facilities with our colonies in the antipodes, as it contains some most valuable statements. The following is the letter:—

Cape of Good Hope, Jan. 6, 1854.

Dear Sir,—I enclose you a copy of the abstract log I have kept since leaving Liverpool. It may be interesting from the fact that an American steam-ship has made a direct run to the Cape of Good Hope in twenty-six and a half days, the quickest run ever yet made by seven or eight days, and contrary to the opinion of many persons who imagined that it could not be done by steam alone. I send you a little sketch of our course, which will show you at a glance the route I took. In studying your wind and current charts, I found there was a region, by crossing in 3° or 4° West longitude, where I would find steady S.W. winds, and another in East longitude where I would find calms. I also surmised that, by running the African coast along, (without deviating too much from my direct course,) I would find an eddy current to the south-east. It turned out as I anticipated, and proved, to my entire satisfaction, that this was the true route for a paddle-wheel steamer, either from England or the United States. A fast steamer can make the run in 23 days from England, and 33 from the United States; and if a coal depot could be established at Goree (on the coast of Africa), the distance from England would be shortened 300 miles. I am told that Goree is a capital harbour, and as our interests in the East are multiplying daily, and at times it becomes important to get a steam-ship out there with dispatch, the matter is worth looking into.

The English steamers have so far, in their numerous voyages (with one exception) to the Cape of Good Hope, met with very great ill luck, because they kept too far from the African coast, right in the strength of the trade-wind, with a strong current against them, and they have either had to put in somewhere short of coal, or else work their way across the S.E. trades until they fell in with winds to help them to the Cape; in all of which cases they made very long passages, seldom being under 45 days, and sometimes as long as 55. All the side-wheel steamers that have gone out have made the passage partly under sail; whereas by taking the inshore track, they would have made it in half the time with steam alone. I am pleased that we have solved the difficulty, and I am indebted entirely for my success to the hints I took from your wind and current chart; it is as useful for steamers as it is for sailing vessels. I have been most agreeably surprised in not finding strong currents against me; indeed, since crossing the line, the current has been little or nothing, and mostly with us 12 or 14 miles a-day. There may be such a thing as northerly set of current, but so far I have not met it, although since leaving the latitude of 24° South, I have had fresh S.E. trade winds.

I recommend this route to our steamers of war. They ought to be able to carry 30 days' coal, which would allow them to push through; if they cannot carry that amount, they are unfit for war purposes.

I left England with a heavy freight on board, and twenty days' coal (not so much as I actually required), consequently I was obliged to be prudent. I

shut off four of my furnaces, using only two-thirds of my steam, and limited the engine to thirty-five tons a day, and the latter part of the voyage to much less. This is a small amount of coal for a ship of 3,000 tons; but, when not troubled with currents, we managed to get through 250 miles a day, and averaged during the voyage 224. If I had marked out the weather for a steamer (with the exception of six days' hard steaming against the trades) I could not have it more to my mind, and I imagine it will be found the same nearly throughout the year.

I find little or no information to be depended on relating to the currents on the African coast. I have kept a faithful account of them since leaving the Cape de Verd Islands, and you may find them worth recording; they are marked in the abstract wherever they occurred. You will see by my track that I make a curve into the coast. This I did to get the in-shore current, as I found the current against me, or rather to the westward, in longitude 4° west. When I got in 5° east, I was out of its influence, and soon fell in with a southerly set.

I send you the abstract of the log, the register of our hydrometer, with the density of water taken every day. It has been kept by Dr. Raymond, the intelligent surgeon of the ship, who takes great pleasure in such matters, and who will keep you supplied with such information when opportunities occur.

In conclusion, I would recommend for all steamers coming this route to take at Cape de Verd, or Goree, all the coal they can possibly stow below and on deck, to allow for pushing through some very strong S.E. winds they will encounter after leaving 24° S.; also, to send down all yards and masts after crossing the Equator, keeping the fore and aft sails to catch the S.W. winds, which, up to 24° sometimes blow after sunset. Also, to keep the ship trimmed by the stern for the heavy head seas; and, depend upon it, you will hear of very quick passages to the Cape.

I remain yours, truly,

Lieut. M. F. Maury, DAVID D. PORTER.
Superintendent of the Observatory, Washington, D.C.

[The track made is nearly direct to the Cape from the Cape Verd islands. We shall be glad of any communications thereon. – ED.]

PITCAIRN'S ISLAND.—A meeting of the Committee of the Pitcairn Island Fund was held lately at 67, Lincoln's-inn-fields. The Bishop of London, the Earl of Harrowby, Lord Auckland, Sir Thomas D. Acland, Bart., M.P., Rear-Admiral Moresby, C.B., A. Mills, Esq., M.P., Augustus Stafford, Esq., M.P., the Rev. T. B. Murray, M.A., and other friends of this interesting community, were present. It appeared from the statement made by Admiral Moresby, who has lately returned from the Pacific, and has, during the period of his command on that station, paid three visits to Pitcairn, that the inhabitants exhibit the same excellent traits of character for which they have been so long remarkable. Partly, however, owing to the increase in their numbers, and partly to the impoverished state of the soil, scarcity has been experienced, and occasional returns of dearth may be apprehended. It is in contemplation to transfer the people to Norfolk Island as soon as all the convicts shall have been removed thence. The Pitcairners themselves have solicited the change, and the Bishop of New Zealand being desirous of establishing a missionary college in Norfolk Island, these measures are necessarily postponed until this beautiful and fertile spot, which is three times the size of Pitcairn, shall have been entirely cleared of such of its unhappy occupants as still remain there. The committee, on the motion of Lord Harrowby, seconded by the Bishop of

London, unanimously passed a vote of thanks to Admiral Moresby for his benevolent and generous regard to the interests of the Pitcairn Islanders. It will be remembered that the Admiral was mainly instrumental in providing them with a duly-ordained pastor, and in succouring them with supplies of food from the *Portland* in their time of need. He replied in suitable language to the committee's warm expression of thanks for his services.

THE PRISM COMPASS.—There is not a more handy little instrument for obtaining bearings readily, to a degree or perhaps half a degree, than the little Prism Compass, once called Kater's we believe, and made by Schmalcalder in days gone by. But it had a formidable objection when a person would be in a hurry by its perpetual vibration and tediousness in coming to rest. Having been a martyr to this evil, it is with no small satisfaction we have met with one of Mr. Dent's, into which he has introduced his long axis, along with a means which quiets the vibrations of the card sufficiently for the most impatient observer. This indeed is a compact little treasure, and we commend it to the attention of our readers, for use afloat or ashore; and consider it especially advantageous in the hands of travellers, or our officers on boat expeditions.

LAWS OF PASSING SHIPS.

[It is unnecessary for us to add our remarks to the following. The whole argument lies in the case as pointed out by Mercator. To get to windward is more difficult and important to a beating ship, whether on the port or the starboard tack, than running off the wind, and *she should not be obliged to give way before a steamer or a ship running free.* We trust this condition of the case will be seen in the proper quarter before it is too late.—ED.]

Mr. EDITOR,—What are our legislators about?—who pretend to everything, and are meddling with an old established law of passing ships, which, if they succeed in altering, will be the means of making mischief wherever our ships are found. Surely, Mr. Editor, as a seaman, which I believe you are, you will acknowledge that next to the Starboard tack in sailing, the Port one stands in importance before running free. A ship plying to windward wants to get to windward, and by the new law she is to be obliged to bear up, because she happens to be on the port tack to get out of the way of a steamer or a ship running to leeward. Do exert your influence, sir, and save us from this piece of legislative folly, one that is upsetting a wise and old-established law, known and followed all the world over. I send you the *Shipping Gazette*, in which you will see the Editor's opinion, and if you will add your own observations to it, and succeed in pointing out the mischief that awaits us to those who are devising it, you will be entitled to the gratitude of all who wish well to British Ships and British seamen—one of which is your constant reader,

MERCATOR.

Mr. Cardwell, for we suppose it is to this gentleman we must attribute it, has committed a great mistake in altering, in the slightest degree, the well known and long established rule in navigation for ships crossing or passing near each other that the ship on the Starboard tack should keep her wind and the ship on the Port tack or running free should bear up and run to leeward of the other: and that steam-vessels, being always under command without reference to the wind, should be considered as ships running free, and should therefore bear up or give way to ships passing. This is not only the Trinity House regulation, but it is a recognised and adopted rule by all maritime

countries; and to alter such a well known law, can scarcely fail to be productive of much mischief. The rule is so clear, so free from all ambiguity, that there is no danger of its being mistaken. Besides, as we have said, it is the practice of all nations.

We gave the Board of Trade timely notice of the objections to the collision clauses in the new Merchant Shipping Bill. We have since received frequent communications from persons competent to judge of the matter. They all express their objection to the uncalled for interference with a regulation which is so universally known and established. Foreigners are not supposed to be acquainted with the laws enacted for the guidance of British ships, which unfortunately are altered or modified every session of Parliament, nor are they obliged to follow them when they do know them. Yet the Judge of the Admiralty Court will have frequently to decide questions of damage arising from collision between British and Foreign ships. The English Captain may say that such is the law of England, the foreigner will retort that it is not the law of his country. There is perhaps no subject on which it is necessary that universality of practice should prevail as on the regulation for passing each other; yet such is the law which the Board of Trade has thought proper to alter from the prevailing practice of other countries. A gentleman largely engaged in shipping, and who is besides a practical sailor, writing to us on the subject asks,—"Do the Ship Owners Society acquiesce in the new law which will enable a steamer or sailing ship, with a fair wind, to run down a ship on the Port tack, whether hove to or reaching on a wind? The clause if passed as at present worded will supercede the Trinity rule and inevitably lead to more collisions and increased legislation."

We have repeatedly said as much in other words, and we cannot believe, although the Bill has all but passed the House of Lords, that the collision clauses, as they now stand, will be permitted to become law.

NEW BOOKS.

With much good taste and judgment Messrs. Longman have brought out an abridgment of the Marquis de Custine's important work on Russia, in their Traveller's Library, thus placing it at the command of every one, in three numbers of that interesting collection. Those of our readers who have not met with the original, we can assure them have a treat within their reach in these three numbers, which they will much enjoy at a very small cost. Along with the extraordinary attractions of the book derived from the very peculiar *character* and customs of this half-civilized people, the engaging style of the narrative secures the reader's attention throughout, and he has the great gratification of knowing that he is reading of a people who verify the observation that truth is even more strange than fiction.

That treasure of all nautical men, Blunt's American Coast Pilot, has just appeared in its seventeenth edition, enriched with much additional information of importance to seamen. Among other matters we find results of observations on temperature at different depths in the Gulf Stream, bringing to light the curious phenomenon of the cold wall and other highly interesting particulars of this remarkable current. We are glad to see Mr. Redfield keeping before the world his masterly researches on the subject of Hurricanes in an important article, without which the American Pilot could not be considered complete.

A MILITARY TOUR IN EUROPEAN TURKEY, THE CRIMEA, AND ON THE EASTERN SHORES OF THE BLACK SEA.—*By Major-General A. F. Macintosh, K.H., &c.*, 2 vols. Longman.

Such a work as this comes singularly acceptable at the present moment, (late though it be in our hands,) and we therefore turn with interest to know the General's ideas on the place of landing,—that which his experience recommends for troops destined to the attack of Sebastopol. Our expectations are disappointed. The General looks for a harbour in which to effect this, and speaks of Kozlof to the west, and Kaffa on the east! supported by Anapa on the Circassian coast. We trust that neither will be adopted. To oblige our troops to fight their way inch by inch, in the latter case nearly the whole length of the Krimea, above a hundred miles, over a most difficult mountainous country, where at every turn they would be cut up in roads and passes they would be compelled to take, and thus be destroyed before they had half reached Sebastopol, would not suit our views. The nearer they can land to their work in our view of the subject the better, as long as it is *under the fire of the combined fleet*, and where they can establish themselves for further operations to effect the main object before them. Even Kozlof we consider too far away, and surely a nearer place than that can be found on some fine morning when the sea is smooth enough to admit of a simultaneous landing of the troops not many miles from Sebastopol itself. Every man would then be ready for his work, and not be cut off before he reached it. Our space and time, however, bids us reserve any further observations for our next.

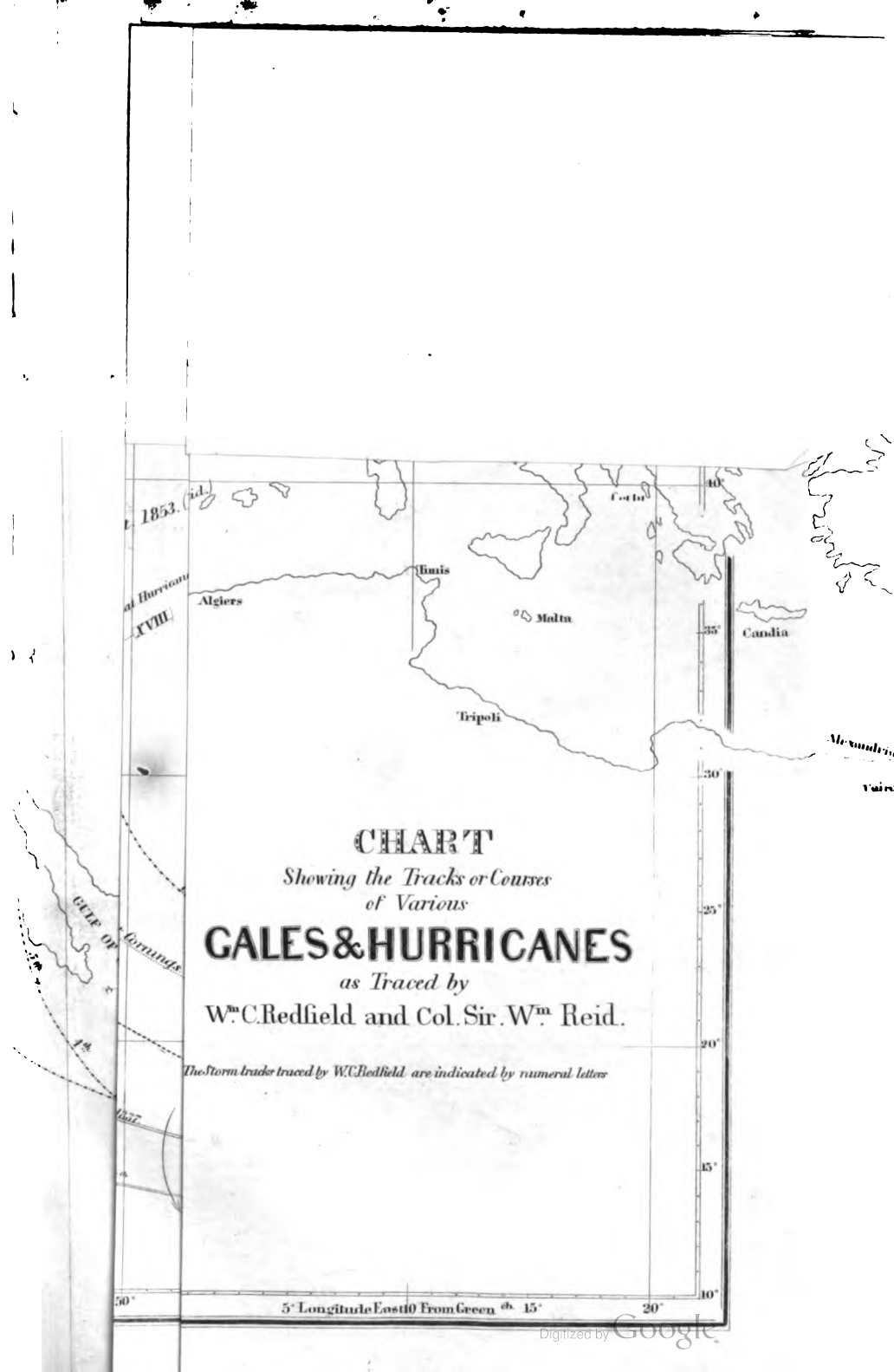
NEW CHARTS.

Published by the Hydrographic Office, Admiralty, and Sold by J. D. Potter, 31, *Poultry, and* 11, *King Street, Tower Hill.*

ENGLAND,	Exmouth Harbour, Capt. Sheringham, R.N., 1852	-	2	6
NORWAY,	Sheet 1, The Naze to Karmo, Admiral Klint -	-	2	0
BALTIC SEA,	Views in the Baltic - - - -	-	2	0
GULF OF RIGA,	Russian Survey - - - -	-	2	0
GULF OF FINLAND,	Gulf of Finland Entrance, Swedish Survey	-	2	0
,, ,,	Port Baltic to Hogland, Russian Survey	-	2	0
,, ,,	Hogland to Seskar, North Shore, ditto -	-	2	0
,, ,,	,, ,, South Shore, ditto -	-	2	0
,, ,,	Aspo Rocks, enlarged, ditto - -	-	2	0
,, ,,	Viborg Bay, French Atlas, 1809 -	-	2	0
ARCHIPELAGO,	Zerus Islands, Commander Spratt, R.N. -	-	0	6
,,	Port Baklar, ditto - - - -	-	0	6
MARMORA SEA,	Princes Islands, ditto - - -	-	1	0
BLACK SEA,	Varna, ditto - - - - -	-	0	6
,,	Baljik Bay, ditto - - - -	-	0	6

EDWARD DUNSTERVILLE, Master, R.N.

Hydrographic Office, Admiralty, July 19th, 1854.



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BOULOGNE* ROAD AND HARBOUR.—*Translated from the Pilote Français, (published in* 1842,*) by Commander Meadows, R.N.*

Boulogne is a harbour for commerce, for refitting in, and for fishing vessels. Daily communication has been established here with England by means of steam-vessels, and principally with the port of Dover.

The harbour of Boulogne occupies the entrance of the valley of the Liane, a small river in which the freshes are great in many seasons, and at the melting of the snow. The works which have been executed here have had for object the straitening of the banks of the river's mouth, and directing its waters, so that they might concur with that of the tide, to keep up the depth of the harbour, and the passage into it. Without these works, the entrance of the valley would probably have been filled up with sand. The action of the sea forms a beach of sand in front of this entrance, which uncovers at low water half a mile into the offing; the highest part of this sand being dry during a long time at each tide, is carried off by the wind, and driven towards the shore, where it accumulates, and by degrees increases the mass of sand hills against which the N.W. jetty is built; the same

* The plan of the harbour of Boulogne and its environs, as well as that chart of the coast between Danes and Ambleteuse, which form a part of the *Pilote Français*, Nos. 920 and 921 of the Catalogue, give the state of the harbour of Boulogne in 1835, at which time it was examined by the marine surveyors. The following description refers to the condition in which it was found in 1841.

beach runs out north of the jetties, and the eddies which they form drive back the sand into the northern part of the entrance of the valley, so that the shore advances more and more to the west. It is in the midst of these accumulations that the present entrance to the harbour has been formed, by means of two strong wooden jetties.

This harbour, which is now one of the best in the eastern part of the British Channel, consists of an entrance channel between two jetties, leading to a dry basin three and a half cables' lengths long by a mean breadth of one cable's length, which is partly bordered round by quays of masonry, and communicates on the west side with a semicircular basin, about one cable's length across, which is at present filled with sand, but which it is designed to convert into a floating basin.

At the upper end of the harbour, and in the bed of the River Liane, lies the reservoir of scouring water. The surface of it is computed at 69,000 square yards, and it is reckoned that its sluice, the lower sill of which is 14 feet above the level of low water at the greatest spring tides, throws forth 230,000 cubic yards of water into the harbour and entrance channel during the first hour of its being opened.

The town of Boulogne, situated at the east side of the harbour, occupies a semicircle at the foot and sides of a small valley enclosed by two high hills. The buildings which may be seen from the sea, are the bell tower and the colonnade which rise above the new cathedral in the upper town; the spire of the church in the lower town; the flagstaff at the marine baths, and a windmill placed halfway up the hill, E.S.E. of the flagstaff.

The entrance channel leading to the harbour is enclosed between two jetties of unequal length; it is four cables' lengths long, 200 feet wide, and runs N.W.b.W. The southern jetty, called the N.W. jetty by the mariners of Boulogne, which designation it must be allowed to retain, is the longer of the two; it has a slight bend, the concave part of which is turned towards the shore, and it extends 730 yards. This jetty is composed of a dyke of dry stone, upon which is a framework of timber filled in and lined up to high water mark spring tides, and during gales of wind from S.W. it succeeds in entirely sheltering the entrance channel from the high sea.

The N.E. jetty is only 547 yards long; it runs parallel with the N.W. jetty, and, like this latter, is formed af a stone dyke, surmounted by an open framework of timber; both are boarded over, and form gangways or towing paths for the men employed in tracking vessels in and out of the harbour.

In order to direct the scouring water so that it may follow the course of the entrance channel beyond the N.W. jetty head, which runs 195 yards further out than the N.E. jetty, this latter has been extended by the addition of a low breakwater, 500 yards long, composed of rough stone-work, covered with flag-stones, through a distance of 150 yards, joining to the eastern jetty head, and continued in strong stake-work the remainder of the length. The position of this additional jetty is marked by two black buoys, strongly fastened to

the inner edge of the stake-work; the first of these buoys is placed at the extremity of the low jetty, and the second a cable's length nearer in; this last buoy is also a cable's length distant in the N.b.W. of the N.W. jetty-head, and it is between it and the jetty-head that the entrance channel lies.

The low jetty uncovers at low tide. The upper part of the stake-work at the spot where the buoy is fixed, is three feet two inches above that level of low water which is taken as the point for estimating the soundings in the plan of the harbour of Boulogne and its neighbourhood, which is included in the *Pilote Français*, No. 920 of the catalogue. At the inner buoy the stake-work is four feet eight inches, and the surface of the flagstones of the continuation of the N.W. jetty, is eight feet nine inches above that level.

The works just described have not existed ten years. They had the effect of immediately causing all parts of the entrance passage to be not more than two or three feet above the level of low water spring tides, which is about the elevation of the beach outside of it. But the sand S.W. of the entrance, being a long time dry during each tide, is constantly driven towards the N.E. by the winds blowing upon the shore, and has introduced itself into the outer port of the passage, so that in 1841 its level between the jetty heads was two feet five inches above the level of low water spring tides.

During the last three or four years the sand of the beach spreads itself at times across the entrance of the harbour, and there forms into a sort of roller, the end of which is in the direction of the inner buoy. The pilots of Boulogne consider that under some circumstances this bar rises two feet above the level of the entrance passage; but they say that up to the present time, a few efforts of the scouring water or a sudden fresh of the River Liane, have sufficed to disperse it.

The N.E. jetty is joined to the quays of Boulogne by an embankment intended to support the earth with which the former entrance to the harbour is filled up. It is along the wall which lines this embankment that the steam-vessels which perform the daily service between France and England are placed.

The berths along the stockade and the steam-vessel quay are level and well kept up to six feet six inches above the level of low tide; but the bottom is stiff, and there is a little lift of the sea when the wind blows very fresh in the direction of the entrance channel; they would not suit for sharp laden vessels, or for men of war carrying heavy artillery, for more than a few days.

All the quays at Boulogne are now being lined with stone, and when this work is completed, the berths as well as the whole of the interior of the harbour, will be deepened. At the present time the berths are covered with loose mud, and the bottom is consequently soft enough, but there is less water at high tide than along the steam-vessel quay or the stockade.

The semicircular basin fills up continually, and can admit none but very small vessels. Those which require repair in their upper works are taken in there.

The harbour of Boulogne is also provided with a dry slip, forming an inclined plain, for the purpose of building or repairing vessels, and a capstan for hauling them up. A careening place is also established along the quay joining to the slip, and a strong crane which may serve on occasions for masting with; these are all situated upon one side of the entrance to the basin just spoken of.

Extensive designs have been formed for the enlargement and improvement of Boulogne Harbour, as well as to increase the reservoir which occupies the lower part of the bed of the River Liane, immediately adjoining the harbour. The waters of this river become extremely abundant after several successive days of rain, and to prevent the land on its banks from being flooded, it becomes necessary to keep the sluices open; the water then runs out with rapidity, and the current thus formed contributes to clean out and maintain the depth of the entrance channel.

The establishment of the tides in the harbour of Boulogne is 11h. 26m. in the evening on the days of new and full moon; and the unity of height is 12 feet 5 inches.

The following table gives the result of the observations made on the tides at the entrance of the harbour in 1835, and shows the rise of water which takes place about two days after new and full moon upon the berths at the steam-vessel quay, and at the stockade, with reference to the co-efficient of the tides which are inserted every year in the *Connaissance des Temps* and the *Annuaire du Bureau des Longitudes.*

Co-efficient.	Rise of Water.	Co-efficient.	Rise of Water.
	ft. in.		ft. in.
0·65	17 0	1·00	20 6
0·70	17 10	1·05	20 10
0·80	18 6	1·10	21 4
0·90	19 6	1·16	22 6

At the lowest neap tide observed in 1835, the tide did not rise above 12 feet.

The bottom at the above-mentioned berths being four feet above that of the entrance channel between the jetty heads, the depth of water at this latter spot will be obtained by adding four feet to the numbers given in the above table.

But generally speaking no greater rise of water than that given in the table should be presumed upon, because under certain circumstances it is necessary to cross the sort of bar which forms outside the West jetty, and rises to the level of the berths in order to enter this channel.

The results of the observations on the tides, made at the entrance of Boulogne Harbour, are contained in four tables, published in the sixth volume of the *Pilote Française*, and will serve to calculate the rise of water for every day of the moon's age approximatively, when the co-efficient is known. By adding eight feet to half the quantity

obtained, the number of feet which the sea will rise at high tide on that day at the steam-vessel baths, and those at the stockade, will be known very nearly.

Strong winds from S.S.W. to W.N.W. cause the sea to rise one foot or two feet higher than the above table indicates; but when they blow from S.E. to E.N.E., the tide remains about one foot below the level it would reach in ordinary weather.

The sea runs high at the entrance to Boulogne when the wind blows very fresh from S.S.W. to N.N.W. and by West, and it is advisable to make safe before starting for the harbour, that when the supposed lift of the sea is deducted from the number of feet the water may be expected to rise, there may yet be sufficient water under the vessel's keel to leave no danger of her striking on going in.

The tide rises in an uniform manner in the harbour, without jerks or sudden springs, excepting at the tides which precede up-channel gales; the most sudden rise is then at from three to four hours flood. (Information from pilots, &c.)

At spring tides the sea remains full and slack during from twenty to twenty-five minutes with up-channel winds, and from twelve to fifteen minutes only with down-channel winds; but as its change in height is very slow half an hour before and half an hour after high water, it follows that vessels may be moved in the interior of the harbour during nearly one hour and a half. At neap tides the slack at high water continues from thirty to forty minutes.

Three miles west of Boulogne and outside the Bassure de Baas, the stream of flood begins to acquire its greatest speed at the moment of high water in the harbour; it retains this speed during about two hours, and ceases to be felt three hours and three quarters after full tide.

Six cables' lengths outside the jetties at Boulogne, the stream of flood tide ends about two hours and three quarters after it has been full in the harbour. With winds from the north it ends sooner, and proportionably later when they blow from the south and west.

Thus at the time of high water in Boulogne Harbour, the stream of flood is at its greatest strength outside the jetties, and even at a short distance from the jetty heads.

At mean spring tides the harbour of Boulogne can now admit vessels drawing from 16 to 17 feet water, and at the great tides at the equinoxes, when the sea is smooth at the entrance, those drawing from 18 to 19 feet. At ordinary neap tides, vessels drawing from 12 to 13 feet can be brought to the berths alongside the stockade. Large vessels would be aground at this place during four or five days.

The time that the entrance passage can be run through, is made known at night by two fixed lights, one above the other, fixed outside of a tower built upon the N.W. jetty head, and by a red light erected on a wooden scaffold on the N.E. jetty head.

The lights on the N.W. jetty may be seen in fine weather about nine miles off; the upper light is 40 feet, and the lower 28 feet, above

the level of high water spring tides. The red light can only be seen at the distance of a mile, and is 13 feet above that level.

The upper light on the N.W. jetty, is shown as soon as there are nine feet water upon the sands in front of the jetty head, and the lower light at the time of high water.

Both are extinguished at ebb tide as soon as there are only nine feet water on that part of the beach.

The red light on the N.E. jetty is shown and extinguished at the same times with the upper light on the N.W. jetty.

By day, the time when the entrance passage can be passed through, is made known by a red flag, which is hoisted upon a flagstaff erected upon the platform of the tower which bears the two lights on the N.W. jetty. The flag is hoisted as soon as there are twelve feet water in the passage, and hauled down at ebb tide as soon as it has fallen to the same depth.

There is a port officer and a master hauler with a crew at his command upon each of the jetties during the whole time that the passage can be run through.

The commercial establishment of the port provides ropes for the assistance of vessels needing them, and for tracking them in; they are kept in a large chest on the N.W. jetty head.

The most favourable winds for entering Boulogne are those from S.S.W. to N.E., round by West and North.

The valley of the Liane being bounded by high hills on each side, modifies the direction of the winds which blow from South to N.E. round by the East. When the wind is South outside, it is found to be S.S.E. or even S.E. in the entrance channel; in the same manner winds from N.E. are dangerous at the entrance, in consequence of the violent squalls which come off the land north of Boulogne.

Every vessel designing to enter Boulogne should have her bow anchors ready to let go, and also an anchor placed to moor with by the stern if necessary, she should also have some strong hawsers upon her deck.

As far as it can be effected, a vessel should enter the passage during the last hour of flood, whilst the stream is yet running inwards, and assists her being tracked in; but with fresh leading winds, they may stem the stream of ebb which runs out of the harbour during the first hour of the falling tide, except when the freshes of the River Liane are very strong; but even in this latter case, if it blows a fresh breeze, and with a sufficient number of haulers, they may reach the berths at the stockade.

Whatever may be the strength and direction of the wind, it is necessary to carry all possible sail on entering the passage channel, in order to be able to steer promptly, and to stem the counter current which is formed between the two jetty heads, as soon as the stream of flood outside has attained its greatest strength, that is to say, near the time of high water in the harbour.

This counter current arises from the eddies occasioned at flood tide

by the great projection which the N.W. jetty makes from the shore. This eddy, which becomes very strong as soon as the tide covers the beach south of the entrance, extends into the bay where the baths are situated north of the N.E, jetty, and forms a current on the outer face of this jetty, which runs to the N.W., doubles the jetty head, and divides into two parts, one of which enters the passage, whilst the other crosses it rapidly, and goes towards the N.W. jetty head: it is this current which tends to drive vessels out, and which is at its greatest strength at the moment when the water ceases to rise in the harbour of Boulogne, that mariners have most to mistrust. In calms, it carries vessels either against the N.W. jetty, or stops them at the entrance; and when the wind is against them, it is necessary that they should previously send a boat to fetch the tracking rope; but, generally speaking, it is but a trifling obstacle to vessels coming in with fresh favourable winds. In strong breezes from W.N.W. to S.W., it contributes to raise a sea at the entrance of the passage.

The stream of flood tide being at its greatest strength at a small distance outside the jetties at the time of high water in the harbour, it is necessary to be careful not to allow the vessel to be drawn north of the line of the entrance, particularly when she makes for the port on the starboard tack; but when coming in with the wind on the port side, and with a good breeze, she has no other inconvenience to apprehend from this tide than the loss of a little time.

Generally speaking, when the wind is from West to N.E. round by South and East, a vessel coming in should pass close to the N.W. jetty. She might keep mid-channel between this jetty head and the inner buoy, should she have a good breeze from West to N.E. round by North; and when it is calm, she should make for the Western jetty, in order to take in the rope and be tracked in.

When the wind blows upon the coast, and the sea is heavy at the entrance, the pilots are unable to go out to meet vessels; but they direct those making for the harbour by signals with the flag which is hoisted at the upper part of the staff on the platform of the tower on the N.W. jetty. They incline this flagstaff to the side towards which vessels ought to steer, and keep it in vertical position when they are pursuing a safe course. Should there be several vessels off the port, the signals apply to the vessel which is nearest to the harbour.

Should a vessel with a strong wind from S.W. miss the entrance, she should do her utmost to run close round the north side of the N.E. jetty, so as to run ashore with full sails as close as possible to that jetty, in the bay of the baths. Should she run aground half or three quarters of an hour after high water, there would be some chance of getting the vessel afloat again, but at all events there would be no doubt of saving the crew.

Every vessel which upon approaching Boulogne finds the sea running too high to venture entering the passage-channel, should immediately set all sail and steer for Calais. When the harbour of Boulogne is inaccessible on account of the high sea, that of Calais can be entered, and the contrary. In the same manner, a vessel which has been drifted

past this harbour by the tide, should immediately run for Calais, unless the bad weather be occasioned by northerly winds.

Vessels going out of the harbour bound to the northward, quit as soon as they are afloat; if the wind should permit their sailing out, they make sail from the berth; if otherwise, they are warped to the outer buoy. Those going to the westward, should quit the entrance channel as late as possible, unless the wind be fair for the course they intend to make, and will permit them to stem the tide; should this not be the case, and they go out before high water, they must anchor in the channel lying between the Bassure de Baas and the shore, and await the ebb tide.

Landmarks and Anchorage off Boulogne.

The most remarkable irregularities on the coast in the vicinity of Boulogne, and which should be noticed when it is intended to go into that harbour, are Mount St. Frieux, the small peak of Herquelingen, Mount St. Lambert, Cape Alprech and its lighthouse, the high lands north of Boulogne upon which stands the column, and Cape Gris-Nez and its lighthouse.

The valley of the River Liane, at the entrance of which lies the harbour and town of Boulogne, is in itself sufficiently remarkable, and easy to be known from a distance. During the day, the buildings of the town may be seen very far off; and at night the quantity of light produced by the lamps lighted with gas, causes a whiteness in the lower part of the atmosphere which may be remarked from a considerable distance, and points out the spot occupied by the town even in foggy weather.

The entrance to the harbour is N. 71° W. from the top of Mount Lambert, and S. 64° W. from the Column. The summit of Mount Lambert is the highest point in the neighbourhood of Boulogne; it is 628 feet above the level of low water. The head of the statue on the Column, is 456 feet above that same level.

Vessels coming to Boulogne either from the West or North, and arriving before the port too early to enter the passage, should place themselves as near as possible to windward of the entrance, and if the wind be from West to East round by South, they should keep south of the line on which the Column is seen N. 64° 15′ E. on with the tower of the tide lights on the N.W. jetty of Boulogne. If on the other hand the winds are from West to East round by North, they should keep between that same line and the parallel of the Column.

Vessels coming from the westward with the winds from West to South, should pass through the channel between the Bassure de Baas and the Vergoyer, and should they find themselves at the time of low water in the parallel of Mount St. Frieux, they must wait until the tide rises in the entrance channel, by making short tacks between that parallel and the line given by the Column with the light tower. But should the wind be from South to East, the same vessels should pass through the channel between the Bassure de Baas and the land, where they may wait until the tide has risen, by tacking in this channel

south of the line of the Column and the lighthouse; or, if the wind permit, they may anchor in Boulogne road.

Vessels which come from the northward with winds from North to West, should pass outside the Bassure de Baas, and wait the time favourable for entering when the breeze is fresh outside this bank; but when the wind is light, they should cross the bank on the parallel of La Crèche Fort, and keep to the West at a short distance from the port.

When the winds are from North to East, it is more advantageous for vessels coming from the northward to pass through the channel between the land and the Bassure de Baas, than to pass to the westward of that bank. They should run near in, and anchor if the state of the sea permits it: but they ought so to place themselves at the anchorage, as to have the wind a point or two free for running into the entrance passage, otherwise they might chance, in getting under sail, to be drifted to the north, and in the end miss the entrance.

In the W.S.W. of the entrance to the port of Boulogne, there is an interruption in the Bassure de Baas, over which vessels of the largest draught of water may pass at all times. One of the deepest spots in this interruption of the bank, lies exactly in the line where the Column is seen on with the light tower at Boulogne. From one third flood to two thirds ebb, at spring tides, vessels of the same description may cross the Bassure between the parallels of Cape Alprech and the Crèche Fort, and they may equally do so at low water during neap tides.

The anchorage off Boulogne, which the mariners of the place call the Roads, consists of a narrow strip of hard clay, lying at the foot of the slope of sand joining to the shore, on the deepest part of which there are something less than 5 fathoms at low water. This anchorage, where the holding ground is excellent, is six or seven cables' length from north to south, and about one wide. It is bounded on the west by rocky bottom connected with sand, which extends as far as S. 18° W. of the small fort of Ambleteuse; the good bottom begins towards the south in the line of the Column with the light tower at Boulogne, and ends towards the north in that line where the building shows itself above the fort which crowns Mount Lambert is seen on with the belfry tower in the upper town.

Those spots of this anchorage where the best bottom is found, are situated between the line on which the colonnade of the new cathedral is seen on with the guard-house of the Chatillon battery, which is on the sand hills a little south of the West jetty, and that where the top of Mount Lambert is on with the belfry at the upper town. Large merchant vessels having to wait several days to get into Boulogne, might remain at this anchoroge if the wind was moderate, and even if caught by a strong up-channel wind they would hold by veering out long scopes of cable; but large vessels of war would be in danger of striking the bottom when swinging towards the east.

When large vessels arrive with down-channel winds some hours before high water, they may anchor in the southern part of the road, at

that spot where the line given by the Column and the light tower is crossed by that on which the small fort at L'Heurt is open about one degree to the right of the slope of the cliff at Cape Alprech.

Vessels which arrive before Boulogne during the neap tides, and are unable to go in, must put out again to sea; but they have a right to demand the services of a pilot during the whole time which they remain out. If the weather has a fair appearance, they may anchor at the eastern edge of the Bassure de Baas, opposite to the port of Vimereux, in from 10 to 12 fathoms at low water, on good holding ground. Should they happen to be surprised at this anchorage by strong winds from the N.E., they should run nearer to the shore, and anchor in Ambleteuse Road; or if a gale from the S.W. should oblige them to seek refuge, and they are unable to get into the Downs on the coast of England, they must seek shelter to leeward of the coast in the neighbourhood of Calais.

On the Cape Verd and Hatteras Hurricane, *of September*, 1853, *and other Storms.—With a Chart.—By W. C. Redfield.*

Since I first ascertained the rotary and progressive movement of storms, in the year 1821, I have on various occasions endeavoured to show some of the results which then became obvious or have been established in the progress of more extended investigations.* Of the results thus noticed, the systematic rotation of storms and gales in different regions, their opposite rotation and determinate polar progression on opposite sides of the equator, and the mechanical influence of their rotary action on the movements of the barometer, when viewed in their practical relations, are the most important.

On the present occasion, I propose to give some account of the progression and extent of the earliest autumnal hurricane of 1853 in the North Atlantic. This case is not selected as differing in its essential features from other gales in the same region, but chiefly on account of its unusual extent of route that can be traced by direct observations. For it seems to have been inferred by some, that those gales which have previously been traced and their routes shown on our storm-charts, must have originated at or near the places where our first observations were obtained. It is obvious, however, that such inferences are quite erroneous.

It is not deemed necessary in this stage of the inquiry, to give such extensive elucidations of the rotation and geographical relations of the

* See *American Journal of Science*, vols xx, xxv, xxxi, xxxv, and xlii, First Series; and vols. i and ii, New Series: with other communications. For further elucidations in this department of meteorology, since the year 1837, see the valuable publications of Col. Sir Wm. Reid, Mr. Piddington, Surgeon Thom, and other writers, as well as the *Storm Compass*, by the Editor of the *Nautical Magazine*.

storm-wind as I have shown in the case of the Cuba hurricane of October, 1844.* I shall therefore only adduce in concise form such marine reports and observed phenomena as will serve to show the continued cyclonic violence, progress, and extension of the gale.

In submitting the reports by which its general route is established we shall follow the path of the gale westwardly, from off the Cape Verd Islands, crossing the Atlantic to the vicinity of Cape Hatteras, on the American coast, and from thence, on its recurvated course through the higher latitudes of the Atlantic, in the direction of the Spitzbergen Sea, and touching, in its vast extension, the western shores of the British Islands.

1. The barque *William Money*, from Bombay, experienced heavy weather, with shifting winds, Aug. 30th and 31st, in lat. 13° N., long. 29° W., with apparently worse weather in the vicinity.

2. *Independence*, from Talcahuano, Sept. 1st, in lat. 15° 40′, long. 48° 20′, a violent hurricane, beginning at N.E. and ending at E.S.E.; lost all three topmasts.

3. *Sea*, dismasted in the gale, Sept. 2nd, lat. 16° N. long. 50° 30′ W.

4. *Warwick*, Sept. 3d, severe hurricane, lat. 16° N., long. 51° W.; vessel damaged.

5. *Hermann*, Sept. 3d. lat. 20°, long. 56° W.; severe gale twelve hours: barometer falling as low as 27·30. Four other vessels dismasted in this vicinity were reported from one of the windward Islands; where some heavy weather was experienced at this time. (See note, p. 475.)

6. *Sylphide*, Sept. 3d, lat. 22° 29′, long. 63°, hurricane; lost topmast, deck load, &c. Two other vessels dismasted Sept. 3d arrived at Havana.

7. *Arve*, night of Sept. 3d, in lat. 22° 30′, long. 63° 50′, hurricane; disabled and abandoned.

8. *Ocean Bird*, Sept. 4th, (civil time,) at 4h. p.m. gale increasing from east, with heavy swell, steering south, under double reefed topsails, in lat. 27°, long. 69°. At 10h. p.m. full hurricane from E.N.E.; scudded under bare poles; wind gradually veering round by the north, during the night; hardest gusts from westward; at 4h. a.m. Sept. 5th, had got to S.S.W., and hurricane began to abate. During its continuance ran before it, through a curve of eighteen points of the compass.†

9. Brig *Commerce*, bound south, had the hurricane Sept. 5th, from N.E. to S.W., lat. 29° 30′, long. 69° 50′; was hove on beam ends and dismasted.

10. *Regatta*, Sept. 6th, lat. 29° 20′, long. 71°, hurricane; veering from N.E. to S.W.; split storm sails; main rail under water three hours; could not be heard four feet, with utmost effort of voice.

* *American Journal of Science*, vol. ii; 1846: New Series.

† From Capt. Atkinson. The barometer had fallen to 29·10 in the early part of the gale, but was not observed during the period of its greatest violence.

11. *Elena*, totally dismasted, Sept. 6th, lat. 32°, long. 70°.

12. *J. Grierson*, for Gulf of Mexico, Sept. 6th, lat. 31° long. 74° 30′, heavy gale from N.N.E., hauling to S.W.; dismasted.——*Caroline*, crippled in heavy blow, Sept. 6th, and put back to Charleston.

13. *Flash*, Sept. 6th, lat. 33° 40′, long. 76°, hurricane from N.E. to W.; damaged.

14. *Dione*, Sept. 6th, lat. 33° 15′, long. 77° 20′, hurricane from E.N.E.; lost topsails, top-gallant-masts, &c.

15. *G. W. Lawrence*, Sept. 7th, lat. 33°, long. 75°, dismasted in hurricane from E.N.E.

16. *Norfolk Packet*, hurricane, Sept. 7th, lat. 33° 50′, long. 76° 20′; dismasted.

17. *Levant*, dismasted Sept. 7th, lat. 34° 10′, long. 74° 10′, in a terrific gale from the eastward.——*John Adams*, dismasted in hurricane, 6th-7th of Sept. on south side of Gulf Stream.

18. *Viola*, dismasted in hurricane, Sept. 7th, near lat. 34° 16′, long. 73°.

19. *Segesta*, Sept. 7th, lat. 34° 32′, long. 72° 30′, hurricane, S.S.E. to N.N.W.; dismasted.

20. Steamship *Georgia*;* Sept. 6th, bar. at noon 29·85; lat. 38° 9′, long. 73° 55′; wind southward, with a large heavy swell from southward and eastward, indicating a blow in that direction; during the night cloudy, with rain. Sept. 7th, (civil time,) commences cloudy with fresh breezes from southward and eastward, and heavy cross swell: bar. at 1h. a.m. 29·78, 4h. a.m. 29·76, wind freshening to a gale: at 9h. a.m. bar. 29·45, blowing heavy and sea rising. At noon bar. had descended to 29·10, wind still increasing and sea high; steamer's position about eighty miles east of Cape Hatteras; (lat. 35° 14′, long. 74° 10′;) 1h. p.m. bar. 28·40; blowing very heavy in squalls. At 2·30 moderating; 3h. p.m. bar. 28·20, wind came out from northeastward, with exceeding heavy squalls; the sea-drift flew across the decks with great fury; no one could withstand its force; at 4h. p.m. bar. 28·10, blowing harder than ever, and so continued till 6.30 p.m.; skylights and part of hurricane deck blown away; at 10h. p.m. still blowing heavy and sea high: midnight bar. 29, wind still subsiding; and at daylight on the 8th, had abated sufficiently to make sail; 8h. a.m. weather moderating. Noon, in lat. 35° 40′, long. 72° 48′

21. *Rescue*, Sept. 7th, lat. 36°, long. 74° 30′, hurricane; dismasted.

22. *Albemarle*, capsized in the hurricane at midnight on the 7th, lat. 35° 30′, long. 73°; all lost except one seaman.

23. *Lyra*, bound south, Sept. 7th, lat. 35° 50′, long. 73° 30′, hurricane from E.S.E. to W.N.W.; dismasted.

24. *Fanny*, Sept. 7th, lat. 35° 9′ long. 71° 32′, hurricane, dismasted.——*Algorna*, for the Chesapeake, dismasted in lat. —, long. 70°. (Either the date or the latitude erroneously reported.)

25. Brig *Swan*, Sept. 7th, (civil time,) at noon, lat 36° 26′, long. 71° 44′, had reduced to short sail, gale S.E.b.S., and high sea for last twenty-four hours; standing south; 2h. p.m. heavy gale; furled fore-

* From reports and memoranda of Capt. Budd.

sail and hove to; 4h. p.m. gale increasing, furled topsail and scud before it under storm stay-sail, then bare poles; 6h. p.m. hurricane, E.S.E.; broached to on port tack; 7h. p.m. wind truly terrific; thrown on beam ends; dismasted about 9h. p.m.; barometer 28·85: (28·94 as compared with mine,) at 11h. p.m. force of hurricane began to abate, and before midnight gale had veered to E.N.E. At 4h. a.m., Sept. 8th. gale N.N.E. moderating; 8h. a.m. stiff breezes; noon, moderate; lat. 36° 13′, long. 72° 40′.

26. *Star*, Sept 7th, lat. 36° 10′, long. 72°, hurricane from N.E. to W.: dismasted.

27. *Addy Swift*, Sept. 6th, (civil time,) fine weather, lat. 37° 20′, long. 71° 30′, bar. 30·10 in., *a very heavy swell from S.E.*, gradually increasing; wind from S.W. to N.E. Sept. 7th, fine; light winds from N.E.; 8h. a.m. bar. 30in.; at noon, lat. 36° 30′, long. 71°; wind S.S.E., a double reefed topsail breeze; western horizon very hazy; 2h. p.m. cloudy, wind increasing; bar. 29·90; 5h. p.m. sails furled, hove to under storm try-sail, gale S.S.E., slight rain, and tremendous sea running; bar. 29·50; (six hours from gale's centre). 7h. p.m. severe hurricane from S.E.; at 8h. p.m. vessel on her beam-ends, heading within five points of the wind; remained in this position until 10h. p.m., when I cut away the mast, and she righted. At 11h. p.m. it was almost calm; at midnight the wind came from the west, with increased violence. The wind veered with the sun, that is, from S.E. to west. Sept. 8th at 4h. a.m. wind decreasing: at 6h. a.m. clear weather and moderate winds. During the heaviest of the gale, the sea was smooth.*

28. *Clarissa*, Sept. 7th, lat. 36°, long. 70°, severe hurricane from 8h. p.m. till next morning, from S.S.E. to S.W.; thrown on beam-ends, with loss of topmast, sails, rudder, &c.

29. *B. L. Swan*, night of Sept. 8th, (nautical) lat. 37°, long. 71°, hurricane from E.S.E. going round (probably by N.) to N.W.; dismasted.

30. *Olivier*, Sept. 8th, lat. 36° 37′, long. 69°, hurricane from S.W. to N.E.; dismasted.

31. *Octavia*, Sept. 8th, lat. 37° 5′, long. 68° 4′, severe gale from south and heavy seas; damaged, and one man lost.

32. *J. W. Buddecke*, dismasted in the gale, and foundered; crew picked up on the 11th, lat. 39°, long. 65°.

33. *Adrian and William*, Sept. 9th, lat. 39° 50′, long. 66° 50′, hurricane; dismasted.

34. *Nauticon*, Sept. 8th, lat. 33° 15′, long. 65°, at daylight gale commenced from south, and increased rapidly: boats, bulwarks, and spars swept from the ship.

* Letter from Capt. Berry. Several other Captains report a like effect of the most violent portion of the hurricane, in smoothing down the sea. Capt. Berry states, that from 7h. to 11h. p.m. the cards of his compasses were flying round from east to west like a top; perhaps at the rate of thirty times a minute. When the gale was from the western quarter the compasses were steady.

35. *Bessie Grant*, Sept. 8th, lat. 37° 30′, long. 63° in hurricane from N.N.E. was thrown on beam-ends and dismasted.

36. *Revenue*, Sept. 8th, lat. 38° 30′, long. 64° 48′, at 10h. a.m. the hurricane blew all sails from the yards; at 12.30 still increasing; hove on beam-ends at 1.30 p.m., and dismasted; at 5h. p.m. hurricane abated.

37. *Liverpool*, near lat. 41° 2′, long. 68° 23′, Sept. 9th; gale commenced from eastward, blowing hard at N.E. and N.N.E. about four hours, late in the afternoon, and veering westward; barometer at noon 29·20in. (Estimated as 210 miles to the left of the centre path).

38. *Abner Taylor*, Sept. 8th, lat. 39° 30′, long. 66° 20′, hurricane from S.E. to N.W.; dismasted.——*Georgiana*, dismasted on the 8th, in lat. 40°, and abandoned.——*Cairo*, thrown on beam-ends on southern edge of Gulf Stream, and abandoned.

39. *Glamorgan*, Sept. 9th, lat. 40°, long. 65°, hurricane from E.N.E.; dismasted.

40. *Saragossa*, dismasted in violent hurricane, Sept. 8th, lat. 39°, long. 63°.

41. *Queen of Sheba*, Sept. 7th, a hurricane in lat. 39° 50′, long. 64° 35′, in which lost spars, sails, and bulwarks; with other damage.

42. *Juanito*, Sept. 8th, severe gale from N.E., lat. 40°, long. 64°; thrown on beam-ends and dismasted.——*Tarquin*, Sept. 8th, thrown down in the hurricane, in lat. 40°; lost sails, topmast, &c.

43. *Conqueror*, Sept. 8th, lat. 38° long. 59°, hurricane; dismasted and filled.——*Haabet*, dismasted Sept. 8th, westward of the Grand Bank; abandoned.

44. *Matchless*, Sept 8th, lat. 39° 29′, long. 59° 45′, severe hurricane from south four hours, when it died away and suddenly shifted to the west, blowing very violent; dismasted.

45. *Ionian*, night of Sept. 8th, lat. 40°, long. 60°, took the hurricane from south; which shifted to north; was hove on beam-ends and dismasted.

46. *Henry Harbeck*, Sept. 8th, hurricane commenced at noon from the southward, lat. 40° long. 56°. While lying to was struck by a sea, on larboard side, with loss of bulwarks and deck house; five men lost or disabled. At 3h. a.m. blowing harder, lost topmasts and sails. Ship foundered.

47. *Tuscarora*, on beam-ends, with loss of sails, &c., in a violent hurricane, Sept. 9th, lat. 41°, long. 57° W.

48. *Cadet*, damaged in heavy gale from N.W. Sept. 10th, lat. 43° 30′, long. 61° 20′ W.

49. *Independent*, Sept. 9th, lat. 40° 20′, long. 50° 30′, hurricane from S.W. to N.W.; lost topmasts, sails, &c.; at 11h. a.m. the hurricane blew with its utmost fury, and the barometer had then fallen to 27.75.*

50. *Wildfire*, Sept. 9th, lat. 42° 4′, long. 51° 21′, at 11h. a.m. under close reefed topsails, wind E., was struck by the hurricane and hove on beam-ends; lost mainmast, topmasts, &c., and one man.

* From the official report and protest of Capt. Smith.

51. *Albert Gallatin*, Sept. 8th, lat. 39°, long. 48°, severe hurricane six hours, from S.S.E. to N.W.

52. *Charles Humbertson*, Sept. 9th, lat. 43° 16′, long. 45°, in the gale under double reefed topsails, wind suddenly changed from S. to N. without any warning and blew a hurricane; lost sails, &c.

53. *London*, Sept. 9th, squally, with rain; 9h. a.m. bar. 29·80; noon, lat. 43° 13′, long. 44° 12′; at 2h. p.m. bar. 29·60; blowing harder; 3h. p.m. bar. 29·40, with appearances of a heavy blow; wind S. veering to S.W.; 4h. p.m. bar. 29·20, nearly calm, but looked threatening. At 4·30 p.m. bar. 29, when the blast struck us from N.W., like a discharge of cannon; went before it furiously; burst the spencer and sprung main-yard; ship settling away every few seconds as if going down. At 5h. p.m. bar. had risen to 29·20; at 6h. p.m. the fury of the hurricane was broken, but the gale blew from N.W. through the night, moderating at noon of 10th in lat. 42° 27′, long. 46°, so that at 2h. p.m. we had set fore and main topsails.* [Estimated 165 miles to the right of centre path.]

54. *Connecticut*, Sept. 9th, lat. 44° 30′, long. 47°, terrific hurricane; at 10h. a.m. broached to; lost spars and sails, with four seamen; at noon gale gradually abated; ship lying to on port tack, with head N.E.

55. *Washington*, Sept. 10th and 11th, lat. 46°, long. 48, heavy gale at S.S.W., veering round to the northward.——*Wilton*, from Jamaica, was dismasted in the gale Sept. 10th.

56. *Nathaniel Thomson*, Sept. 10th, lat. 42° 46′, long. 38′, severe hurricane from S.S.W. to N.N.W. for twelve hours; ship on beam ends for three hours; lost all sails,——*Juno*, for Bremen, had the hurricane Sept. 9th, lost three men; was spoken 13th, lat. 41°, long. 42°.——*Kezia*, from Mirimichi, encountered it on the 10th, from S.E., with much damage.

57. *Mercury*, Sept. 12th (?), lat. 44°, long. 41°, took the hurricane from S.

58. *Hibernia*, Sept. 10th, lat, 45°, long. 42°, hurricane, from N.E. to S.W.

59. *Ossippee*, Sept. 10th, lat. 46° 30′, long. 42° 30′, very heavy gale from S.E. to N.; split sails, stove bulwarks, &c.

60. *Western Empire*, Sept. 9th, lat. 46°, long. 36°, hurricane, from S.E. and S. to N.N.E.; lost spars and sails, with other damage.

61. *Sardus*, Sept. 9th (10th ?), lat. 43° 16′, long. 32° 24′, in a hurricane; lost sails and bulwarks, with other damage.

62. *Burlington*, Sept. 10th, lat. 40° 45′, long. 29°, severe gale, sixteen hours.

63. *John Winthrop*, Sept. 9th, lat. 35° 48′, long. 29° 30′, severe hurricane, from S.W. to N.; lost spars, sails, &c.

64. *Olympus*, Sept. 10th, lat. 36°, long. 27°, hurricane, with loss of topmasts, sails, and rigging.

65. *John Dunlap*, Sept. 11th, lat. 46° 15′, long. 32° 15′, hurricane; lost sails, &c.

* From Professor C. U. Shepard, then passenger on the *London*.

66. *Eli Whitney*, Sept. 11th, heavy gale, with damage. Sept. 12th, lat. 47° 19′, long. 30° 38′, saw *Barbara Ann*, disabled.

67. *Clara Wheeler*, Sept. 10th, lat. 49°, long. 35°, was thrown on beam ends, with loss. 11th, gale still continuing, saw a large ship in dismasted condition.

68. *Robert Kelly*, Sept. 10th, lat. 46° 30′, long. 31°, hurricane; lost sails, &c.; bar. fell to 28·15.

69. *Rialto*, in the gale, lat. 50° 28′, long. 35° 43′, shipped a heavy sea, filled cabin, shifted cargo, &c.

70. Brig *Elizabeth*, Sept. 9th, lat. 45°, long, 29° 30′, heavy gale from S.E. to N.E.; hove on beam ends while under bare poles; gale abated at 4h. p.m. next day.

71. *Stephen Glover*, Sept. 10th, lat. 47° 13′, long. 30° 16′, hurricane from N.W. and W.S.W; thrown on beam ends and dismasted.

72. *Emperor*, Sept. 10th, lat. 47° 30′, long. 30° 30′, severe gale from S.S.E. to N.W., ending in a perfect hurricane; lost sails, spars, &c.

73. *Royalist*, dismasted in the gale, Sept. 10th, lat. 48°, long. 30° 30′; abandoned.

74. *Southerner*, Sept. 9th, ended with increasing gale from E.S.E.; 10th, at 4h. a.m. gale heavy from N.E.; 5h. a.m. a hurricane; 7h. a.m. broached to under bare poles; 2h. p.m. wind hauled to N.N.W. blowing tremendously, bar. 28·27; 7h. p.m. heavy cross sea; 10h. p.m. seven feet water in hold; at 11·30 p.m. crew took to the boat. Sept. 11th, at 6·30 a.m. ship went down head foremost, in lat. 47° 15′, long. 30° 24′.

75. *Caroline*, Sept. 10th, lat. 48° 12′, long. 30′, gale commenced in heavy squalls from E.S.E., soon hauling to different points of the compass, and blowing a hurricane; laid six hours under bare poles; the furled canvass blown from yards, with other damage.

76. *Harvest Queen*, severe hurricane, Sept. 10th, lat. 47° 10′, long. 29° 30′, from S.S.W. to N.W.

77. *George Hulburt*, for Havre, violent gale Sept. 10th, between lat. 48° and 49°, long. 30°; was hove down and lay many hours on port side.

78. *Palermo*, Sept. 10th, lat. 49°, long. 31°, in hurricane from S.E., decks swept, with loss of the mate; gale continued next day from N.W.; in lat. 48°, long. 30°. On three following days strong winds from S.W. to N.W., to long. 18°.

79. *Wm. Hitchcock*, lost sails, &c., in the hurricane from W.S.W. Sept. 10th, lat. 46° 30′, long. 27°.

80. *Devon*, in violent gale, under bare poles, Sept. 12th (?), lost spars, bulwarks, binnacle, &c., &c.; lat. 46° 33′, long. 26° 40′.

81. *Victoria*, dismasted and water-logged in terrific gale from westward, Sept. 10th, lat. 47° 17′, long. 27° 9′.

82. *Chesapeak*, Sept. 10th, lat. 47° 10′, long. 27° 30′, severe hurricane from S.E. to N.; received much damage.

83. *Metropolis*, Sept. 10th, lat. 47°, long. 26°, gale from S.W. to N.W.; dismasted.

84. *Josephine*, hurricane, Sept. 10th, lat. 47° 1′, long. 24°.——Next day passed *Lady Seymour*, dismasted.

85. *Larpool*, Sept. 11th, lat. 48°, long. 25°, heavy gale; on beam ends four hours, with much damage; bar. 28·52.

86. *Solway*, abandoned Sept. 11th, lat. 48° 30′, long. 24° 30′, at 9h. a.m.; wind then heavy from N. Was wrecked the day previous in the gale.

87. *Alexina*, hurricane, Sept 11th, lat. 46°, long. 22° 50′; hove on beam ends, with much damage.

88. *Brown*, Sept. 10th, lat. 49° 45′, long. 25°, lying to with strong gale from S.E.; about 4h. p.m. it fell dead calm for about half an hour, while rain fell in torrents; at 4·30 a sudden gust came up from the west, and continued to blow a perfect hurricane; ship hove to under bare poles, and leaking badly; 8h. p.m. hurricane as violent as ever. At 1h. a.m. vessel fell over and was dismasted; crew taken off on 16th.

89. Barque *Elizabeth*, at Quebec, reports; Sept. 11th, lat. 47° 56′, long. 22° 7′, experienced a hurricane from S.W. which proved to be a revolving storm. At midnight wind veered from W. to W.N.W. At 2h. a.m. being most violent, it blew away the close reefed topsails. The ship being laid to with head to the southward, escaped the vortex.*

90. *Avalanche*, Sept. 10th, lat. 48°, long. 20° 15′; at 4h. p.m. (civil time) gale very severe at S.S.E.; brought the ship under a single topsail; (bound west) at 5h. p.m. bar. 28·50, was struck with a heavy gust from N.W., and thence twice round the compass; 6h. p.m. lying to under bare poles, bar. 28·70; gale, after the crisis, mostly N.N.W. by compass. (N.W. nearly.) Sept. 11th, at 8h. a.m. wind N.W., and so far moderated as to allow a close-reefed main-topsail.†

91. *Rufus K. Page*, in the gale, Sept. 11th, lat. 39°, long. 17°, was struck by a heavy squall from the northward and dismasted.

92. Barque *Swan*, from Lisbon, Sept. 12th (?), lat. 36° 50′, long. 15° 25′, severe gale from E.N.E. round by S. to N.W.

93. *Wm. Ray*, Sept. 11th, lat. 49° 10′, long. 20° 30′, hard gales; at 4h. p.m. furled all sails and hove to, in a mountainous sea; midnight, dreadful sea, ship lay on her broadside; 6h. a.m. got before the wind under double reefed fore-topsail; water-logged; abandoned on 14th. The gale veered from S.b.W. to W.N.W.

94. *Euterpe*, Sept. 9th, lat. 48° 42′, long. 19° 30′, severe hurricane, which came on at S.E. and abated at N.W.

95. *Esther G. Barney*, severe gale Sept. 10th, lat. 48° 4′, long. 18° 36′; threw over part of cargo.

* It too often happens that ships, when running westward in a southerly gale in these latitudes, and being thus in the right side of the storm-path, are hove to unwittingly on the *port-tack*; perhaps as more convenient, or with a view to avoiding some loss in distance. Of the increased danger of this tack, *when in the right side of the storm-path*, in the northern hemisphere, every navigator should be informed.

† Statement of Capt. Leach.

96. *Nicholas Biddle*, lat. 52°, long. 19°, dismasted Sept. 14th (?), while lying to in a gale from W.N.W.

96 *a*. R.M. steamer *Andes*, severe gale, S.S.W. veering to N.N.W.; lat. 51°, long. 18° 30′; bar. 28·48.

97. *Constantine*, lost sails, top-gallant masts, and sprung fore-top-mast in the gale from W.S.W., Sept. 14th (?), lat. 52° 34′, long. 17° 30′.

98. *Devonport*, took the gale Sept. 10th, lat. 54°, long. 22°; continued till 6h. a.m. of 12th, with heavy sea.

99. *Commerce*, lost spars and sails in the gale Sept. 10th, lat. 48°, 53′, long. 13° 40′.

100. *Mary Glover*, in gale from S.W., Sept. 11th, lat. 50°, long. 14°, lost mainsail, with other damage.

101. *Susan & Sarah*, Sept. 11th, lat. 55° 20′, long. 15° 30′, in severe gale from S.W. was hove on beam ends; lost mizenmast and one man. Returned to port.

102. *Anne*, from Orkney, for Limerick, lost bulwarks in the gale, with sundry other damages; was as far as lat. 55° 20′, long. 10° 15′ W.; hove to for sixty hours, and drifted off Tory Island; never experienced such a sea.——*Neptune*, with loss of foremast, was passed Sept. 13th, lat. 50°, long. 25° 40′.

103. *Zanoni*, from Greenock; Sept. 11th, lat. 57°, long. 15°, heavy gale; sprung a leak, and was abandoned. This position is on the Rockall Bank.

104. *Virginia*, from Gothenburg, Sept. 12th (naut. ?) in lat. 60° 40′, long. 11° 34′, encountered a heavy gale and was struck by a heavy sea which caused the ship to leak; in continuance of the bad weather, lost topmasts, and bore up for the nearest port. Had good weather previous to this gale.*

The master of an English brig, who was off the Lands End of Cornwall in this gale, reported to Capt. Leach, of the *Avalanche*, that its strength was only sufficient to bring him to two-reefed topsails.

At Scilly, Sept. 10th, wind S.S.E. to S.W. fresh, with heavy rain; bar. 29·50: Sept. 11th, wind S.S.W., fresh, with rain; bar. 29·70, to 29·75.

At Holyhead, 70 miles west of Liverpool, Sept. 10th, wind East to S.E., fresh: 11th, S.W., hard gale and squally.

On the western coast of England and coast of Ireland, the exterior portion of this cyclone set in from the eastern or southern quarter, and

* The whole number of vessels noticed in the foregoing reports, is 125; of which 104 are seen to have reported their several positions at the time of the gale, or the same is otherwise indicated. I have a further list of 17 vessels, lost or disabled in the gale, making an aggregate of 142 vessels reported. Of these, no less than 75 were lost or dismasted; and 46 were crippled, or damaged: while of the remaining 21, no report of injuries was made.

Of this vast series of disasters, not one was occasioned by rocks, shoals, or a lee shore. The fate of a far greater number of vessels (probably of less commercial value), which were doubtless exposed in this gale, cannot now be ascertained.

veered to the westward as the body of the storm passed on to the northward; with "a very heavy ground sea on the coast."

At Tobermory, Isle of Mull, lat. 56° 37′, long. 6° 4′ W., Sept. 11th, a.m., a heavy gale from N.E.; evening more moderate. The variation being 28¼° W., shows the wind at N. 6¼° W., true. In view of the trending of the strait and the high land along its northern opening, this may consist with an outside gale from N.N.W.

The foregoing accounts show the right border of the storm to have extended to the shores of England, but in no extraordinary force, and with a depression of less than half an inch in the barometer; while the axial area, with the more active portion of the cyclone, appears to have passed over the Rockall Bank, or on a centre path still more distant from the British Islands, in its course towards the polar basin. See Track xxiv on the Chart.

In reviewing the daily progress and phenomena of the storm, it should be recollected that most of the sea accounts are given in nautical time, and thus are often one day in advance of the calendar. The direction of the winds being given by compass, a correction of ten to thirty-two degrees is required for the westerly variation, from off Georges Shoals to the Rockall Bank, and the shores of Europe.

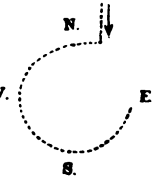
The first report in the above series is important, viewed as the earliest notice, and as from a region long supposed to be free from hurricanes and gales; of which more hereafter.

The commencement of the gale at N.E. with the *Independence* (2) marks nearly its centre path. On carrying back the trace-line derived from this and subsequent reports, it appears that the *William Money* (1) was north of this line, in the right side of the gale, as relates to its course of progression. The *Independence* was also on the right of the centre path, during the middle and latter part of the gale, as is shown by the veering of the wind; both vessels being bound northward. The positions reported are probably those of the noon immediately preceding the onset of the gale.

The *Hermann* (5) was bound southward. Hence her final position in the gale was probably more southward than that reported. The remarkable fall in her barometer showed a position near to the axis of the storm.*

* In the *New York Daily Times*, I find a letter of which the following is an extract; which, with an obvious correction, probably gives the true place of the *Hermann* in the gale:—"St. Thomas, Sept. 19th, 1853. On the 4th, the barometer fell, and the wind was fresh from the north, giving rise to some apprehension that a hurricane was at hand. But it was only the wind from the wings of one passing just to the north of our island. The Danish bark *Hermann* encountered it on Sept. 2nd, lat. 53°, and long. 18° (obviously *lat.* 18°, *long.* 53°). On the 4th, it had arrived to the N.E. of us, where the French brig *Diamond*, and the American brig *Carlton*, from Boston, and the schooner *Ann Maria*, from Baltimore, struggled with its fury. Colonel Reid's theory, or rather Mr. Redfield's theory of the gyratory movements of these storms, can no longer be doubted. A vessel was seen by the *Diamond* on the 4th, dismasted."

The *Ocean Bird* (8) first encountered the gale at E.N.E., which places her in the right-front of the storm. Had she then hove to on the starboard tack, the wind would have veered by the east, as with (2); but steering south, and then scudding before the wind during the night, she crossed the centre-path and ran partly round the axis of rotation; and had the gale been slower in its advance, she might thus have completed an entire circuit. This case of running with the wind, with another which I shall adduce, may be of interest to some who think we have not shown the wind's rotation.



The rate of advance appears to have lessened as the storm approached the line or axis of equal diurnal motion; the position of which, on this occasion, appears to have been somewhat above the 30th parallel of latitude.*

* From the physical relations between the diurnal rotation of the earth's crust and that of the immediately incumbent atmosphere, which result from the inertia and unstable mobility of the latter, the great storms of the inter-tropical regions must necessarily have a westerly progression; the rate of which denotes the existing difference of the diurnal motion. It is shown also by numerous investigations of these storms, that their westwardly movement as integral portions of the lower atmosphere, is united, in most cases, with a constant movement *from the equator*. Hence the relative movement becomes northwesterly; and is continued until the storm reaches a parallel of latitude where the diurnal motion of the earth's crust and that of the lower incumbent atmosphere are equal. This line, or belt, I call the axis of *equal diurnal motion*. It often marks the exterior limits of the trade winds; and its position is found to vary at different times, and in different seas or regions: good examples of which are found in the several points of recurvation seen in the storm-tracks on the chart. On crossing this axis, the diurnal motion of the lower atmosphere is found to exceed that of the earth's surface, and produces a relative movement from the west, which, combined with the continued movement from the equator, determines the route of the storm through the temperate latitudes.

This prevailing tendency or movement from the equator, in the inferior strata of the atmosphere, is equally developed in the temperate latitudes, at all seasons of the year. It is probably due to the general gravitation of the atmosphere, acting counter to the centrifugal effect of the earth's rotation: for the latter force, owing to the greater axial radius, is necessarily greatest in the higher atmosphere, in regions beyond the cognizance of our observations.

In those cases where the easterly and westerly currents of rotation are less active, or in other words, when the diurnal motion of the lower atmosphere is least unequal to that of the earth's surface, the alternate westerly and easterly progression of the storm becomes greatly modified, in degree, though subject to the same general law of planetary dynamics. This may be seen exemplified on the chart, in tracks vii, xix, xx, and Col. Sir Wm. Reid's Bermuda hurricane, of Sept. 1839. This dynamical law governs the progress of all cyclones, however gentle in their rotary action; and necessarily applies to the general movements of the lower atmosphere.

The *lower atmosphere*, in my apprehension, includes all that portion of the atmosphere in which the direction of its currents can be discerned by means of natural phenomena; and, in the largest sense, with an upper limit not higher than is indicated by a pressure of fourteen inches of the barometer.

The progression of the gale, as in former cases, appears to have been greatly accelerated after it passed the axis of equal diurnal motion, on its recurvated course through the temperate and higher latitudes. The following estimates are roughly made, by setting off the progression on the chart, as shown in trace xxiv, reckoning in English miles, at seventy for a degree of the meridian.

From a point opposite the position of the *William Money* (1) to that opposite the *Hermann* (3)

	Hours.	Miles.	Av. per hour.
Say, ...	84	1942	22
To position of *Ocean Bird* (8) ...	50	980	19·6
„ *Georgia* (20)	62	814	13
„ *Addy Swift* (27)....	7	175	25
„ *Independent* (49) ..	36	1102	30·6
„ *Avalanche* (90) ...	30	1505	50
„ *Virginia* (104)	15 (?)	758	50·6 (?)
	284	7276	

Thus we have an estimated distance of 7,276 miles, traversed by the storm in about twelve days: at an average rate of progression of nearly twenty-six miles an hour.

The slower rate of progression at and near the axis or belt of equal diurnal motion, accords with results ascertained in my previous inquiries, and with those severally shown by Reid, Thom, and Piddington, in the gales of the Southern Ocean and the Asiatic Seas.

(To be continued.)

Proceedings of H.M.S. "Sphinx."—*Extracts from a Journal of Commander C. F. A. Shadwell.*

(Continued from vol. xx, p. 631.)

On January 25th, 1851, the *Sphinx* left Hong Kong, in company with H.M.S. *Hastings*, Admiral Austin's flag-ship, and proceeded to Sincapore. During the night the *Sphinx* being under sail only, with wheels disconnected, parted company from the *Hastings*, owing to the

In a more restricted sense, I would apply it to the lower winds and currents so far only as to include an elevation of four thousand, to six thousand feet above the surface. The latter limits will probably include the entire volume of all our great storms; except on high table lands or in mountainous localities.

But as regards the movements in the upper atmosphere, in regions higher than the limit first mentioned, almost nothing appears to have been yet learned; although inferences, urged with great confidence, have been sufficiently common. These inferences may be as variant as the hypotheses on which they are founded; and seldom appear reconcilable with visible phenomena, if these be widely and carefully considered.

freshening of the breeze, nor did we again fall in with the Admiral, till we rejoined at Sincapore, on the 4th February.

On the passage down the China Sea we passed between the Paracels and the Macclesfield Bank. The monsoon was light and uncertain, and the weather fine. The average set of the currents S.W., about twenty miles per diem.

On February 9th, we left Sincapore, with the *Hastings* in tow, and proceeded to Calcutta. We made the passage up inside the Andaman Islands, and after clearing the Straits of Malacca, experienced strong currents, setting to the southward, averaging twenty to thirty miles a day.

After clearing the Andamans, and standing out into the open sea, we had at first a diminution of this set, and even afterwards north-westerly currents in our favour.

I am inclined to think it would have been better, after clearing the Straits of Malacca, to have passed out into the bay through the "Ten Degrees Channel," and to have passed to the northward along the west coast of the Andamans. In all probability we should have had less adverse current, and more favourable winds.

From the 18th to the 24th, we were under sail only, with light, variable, and northerly winds. On the 25th, we reached the anchorage at Saugor, and on the following day the Admiral proceeded to Calcutta in the *Sphinx*.

We again left Calcutta on March 13th, and finally departed from Saugor on the 16th, in company with the *Hastings*, proceeding to Madras. During the passage we experienced light southerly and south-westerly winds, and a drain of N.N.E. currents, of from ten to fifteen miles per diem. We reached Madras on March 23rd.

On April 5th, at sunset, we again left Madras, and taking the *Hastings* in tow, proceeded to Trincomalee, which we reached on the 8th, having had during the passage light southerly and south-easterly winds, and a N.N.E. set of about twenty miles a day.

On April 10th, the *Sphinx* proceeded to Columbo, conveying three detachments of H.M. 37th Regt., and returning from thence with detachments of H.M. 15th Regt., for the purpose of relieving the garrison of Fort Frederick.

We arrived at Trincomalee again on the 16th, having had during our course light and variable winds, chiefly south-westerly, and a drain of current along the coast to the northward, of from fifteen to twenty miles per diem.

The S.W. monsoon set in with a gale on the 2nd May, which lasted with more or less violence till the 5th. H.M.S. *Fox*, which had left Trincomalee on the 1st to proceed to Madras, was in the thick of it, and experienced very heavy weather.

On June 25th, the *Sphinx* went to Madras for a cruise, and returned to Trincomalee on the 12th July; with the exception of going in and out of harbour under steam this cruise was performed wholly under sail.

On the voyage to Madras we had moderate south-westerly winds, and a N.N.W. set of about thirty miles per diem. On our passage

back the current set so strongly to the northward along the shore, that we found it impossible to make southing when keeping in shore. By keeping an offing of from twenty-five to thirty miles, we made better progress; but on approaching Pondicherry we were so baffled by the wind hanging to the westward and blowing off shore, and by the northerly current, that we were ultimately obliged to get our steam up to reach the anchorage.

On the voyage from Pondicherry to Trincomalee, by keeping well off shore we made good progress to the southward, having a set to the south-eastward of from twenty to thirty miles a day. On approaching Trincomalee, westerly winds, and a return to the influence of the northerly current, again baffled us, and obliged us, in order to enter the harbour, to fall back on the aid of our steam power.

I may take occasion to remark here, that the lumbering wheels of a paddle steamer are a great impediment to her sailing qualities, a disadvantage which alone in the great question of "screw *versus* paddle," gives a great superiority to the former.

The frequent practice of taking off the floats, causes the wheels to wear out much faster than otherwise, and is productive of an extravagant expenditure of floats, screw-bolts, nuts, &c., while it must not be forgotten, that a paddle steamer without her floats is *pro tanto* no longer a steamer, and at the same time only an imperfect sailing vessel.

The practice of disconnecting the wheels can only be conveniently resorted to when there is plenty of sea room, and in light winds the wheels are always a great drag on the vessel; so that practically speaking the imperative injunction to officers in command of steamers "never to use their steam power if the service they are employed upon can possibly be performed under sail," can only be imperfectly carried into execution.

The happy invention of the screw, which admits of a vessel being a perfect steam ship or a perfect sailing ship at pleasure, is certainly the greatest triumph of our times, for while on all suitable occasions it permits us to avail ourselves of the "glorious simplicity of steam," it seems destined at the same time to reconcile and reunite the rival arts of steaming and sailing, and to restore to the ancient art of seamanship its pristine importance, which of late years has seemed in danger of being superseded by the useful but less noble science of "stoking and poking."

On July 24th, the *Sphinx* left Trincomalee for Hong Kong. Although so early in the season, we had light winds all across the bay, at first calms and south-easterly winds, afterwards S.W. and westerly.

After calling at Penang on August 1st, we reached Sincapore on the 4th, having anchored for the preceding night under the Carimon Islands.

To facilitate the approach to Sincapore from the westward, there certainly ought to be a light on Baron Island or Tree Island, or perhaps on both. With the increasing steam communication through the straits, the want is becoming yearly of more and more importance.

On our passage up the China Sea, we had light southerly and west-

erly winds, which gradually freshened up to a steady S.W. monsoon as we advanced to the northward; we generally experienced a north-easterly set of about thirty miles a day.

On the night of the 11th, we passed between the Paracels and the Macclesfield Banks.

As we approached the coast of China on the 13th, the weather was so decidedly typhonnoidal in appearance, that having obtained no observations that day, we deemed it prudent to wear and stand off shore again during the night. On the following day we anchored at Hong Kong.

We found that all the shipping there had prepared for a typhoon; but the threatening weather passed off without one actually occurring.

Having received on board the officers and crew of H.M. late sloop *Reynard*, recently wrecked on the Prata Shoal, we again left Hong on August 19th.

On our passage down the China Sea, we kept in shore by the coast of Hainan, going to the westward of the Paracels. We had at first light southerly and variable winds, and less northerly currents than we had had coming up in the middle of the China Sea.

After passing Pulo Sapata and emerging into the open sea at the mouth of the Gulf of Siam, we experienced a heavy cross swell and a strong breeze from the S.W. The uncertainty of the S.W. monsoon and the capricious alternations of light winds and strong breezes which characterize it, form a curious feature in the hydrography of these seas.

After calling at Sincapore, we reached Penang on the morning of the 1st September.

We remained at Penang until the 17th, when in company with the Admiral in H.M.S. *Hastings*, we again left for Hong Kong, calling at Sincapore on our way.

In the early part of the voyage up the China Sea, we had light southerly winds, and variable currents setting to the E.N.E., thirty to forty miles a day.

On Sept. 29th the wind drew round from S.W. through west to N.W., and at midnight was at north, force 5; bar. 29·95.

During the 30th the weather was cloudy and unsettled, but the barometer though falling was still high, and I confess that I myself did not anticipate a typhoon, attributing the altered condition of the weather and the fall of the barometer to the change from the recent south-westerly to the incipient N.E. monsoon. All the preparations made on board were therefore more with a view of battling against the approaching adverse monsoon than to encounter the hostility of a typhoon.

At about 7h. p.m. the storm came on and raged with increasing fury till after midnight; towards daylight it degenerated to the violence of an ordinary gale.

All our boats were blown away from their davits, and the return of daylight revealed a long catalogue of misfortunes.

> "Tremendous sea! what time thou liftest up
> Thy waves on high, and with thy winds and storms
> Strange pastime took, and shook thy mighty sides
> Indignantly,—the pride of navies fell."

An account of this storm having already appeared in the pages of the *Nautical Magazine*, (vol. xxi, p. 34,) I shall not in this place give any further detailed account, and shall merely make a few observations which the occurrence suggested.

For some days after the return of H.M.S. *Hastings* and *Sphinx* to Hong Kong, a daily comparison of their barometers was instituted, by which it appeared that the average correction to be applied to the readings of our barometer to make it comparable with that of the *Hastings*, was 0·16.

This leads me to observe, that it would be advantageous to the cause of science, if at each of our chief naval and mercantile ports there were a first rate "standard barometer," with which the barometers supplied to ships might be compared, and their *index errors* determined, before they proceeded to sea.

This arrangement would make the observations taken on board different ships at the same place, or in different places, affected by the same gale, comparative one with another, and would thus not only prevent undue anxiety from the indications of a low barometer on the one hand, and undue confidence in the readings of a high barometer on the other; but would also render such observations more conveniently applicable to the further developement of our knowledge of the laws of storms.

I will add here another remark, which I think may be useful in increasing the confidence of the inexperienced in the truth of the rotatory theory of the tropical storms, having observed that the ideas of some people, otherwise intelligent and well informed, are somewhat hazy on the matter, and that they are inclined to be sceptical as to the total truth of the theory.

For instance, it is customary to enunciate the general law of the rotatory theory by saying that in the northern hemisphere the revolution of the storm is from right to left, or against the hands of a watch, and in the southern hemisphere from left to right, or with the hands of a watch. Now with reference to a hurricane in the northern hemisphere, the stumbling block of the objectors seems to be this: If their position happen to be on the northern side of the path of the storm, they are first taken by the N.W. edge of the cyclone, with the wind at N.E. As the gale passes over them, the wind successively changes through E.N.E., east, to E.S.E., and finally leaves them with the wind at S.E. (as pointed out, Raper, 3d edit., art. 1021, p. 349). But, say the objectors, how can this be? You say, "that in north latitude the storm revolves against the hands of the watch, whereas we experienced it in the exactly opposite direction." Hence they infer that at any rate in this instance the theory fails.

Their mistake arises from not fully comprehending the facts of the

Abstracts of the Meridian Distances measured on board H.M.S. *Sphinx*.

No.	Date.	Places.	Points to which the Meridian Distance has been reduced.	Meridian Distance	Position.	No. of Chronometers.	Range.	Interval Time Observtns.	Interval Rate Observtns.	Remarks.
				h. m. s			s.	d.	d.	
1	Jany.	Hong Kong	Victoria Cathedral..	0 41 11·31	W.	5	19·94	18	18	The letters W. and E. in the column headed Position, indicate the situation of the second named place relative to the first.
	Feb..	Sincapore ..	Battery Point							
2	Feb..	Sincapore ..	Battery Point	1 2 0·99	W.	5	39·20	29·5	29·5	
	Mar.	Calcutta ...	Fort William flgstff.							
3	Mar.	Calcutta ...	Fort William	0 28 19·92	W.	5	14·13	40·5		The Interval Time Observations is the interval between the dates when the errors on mean time were determined.
	April	Trincomalee	Ft. Frederick flgstff.							
4	Mar.	Calcutta ...	Fort William flgstff.	0 32 23·03	W.	5	13·33	24·33	40·5	
		Madras	Observatory							
5	Mar.	Madras	Observatory	0 4 2.51	E.	5	10·95	16·17		
	April	Trincomalee.	Ft. Frederick flgstff.							
6	June	Trincomalee.	Fort Frederick.....	0 4 0·41	W.	5	14·21	13·33	31·5	The Interval Rate Observations, that between the dates when the rates were determined.
		Madras	Observatory							
7	June	Madras	Observatory	0 4 1·93	E.	5	20·03	18·17		
	July	Trincomalee.	Fort Frederick.....							
8	July	Trincomalee.	Ft. Frederick flgstff.	1 16 21·49	E.	2	2·82	54 816		While at Penang in September, three of the chronometers accidentally stopped; the connection with the preceding observations was consequently destroyed.
	Sept.	Penang ...	Fort Cornwallis							
9	July	Trincomalee.	Fort Frederick.....	1 30 25·45	E.	2	5·95	18·328	54·816	
	Aug.	Sincapore ..	Battery Point							
10	Aug.	Sincapore ..	Battery Point.....	0 41 13·66	E.	2	2·63	12·08		
		Hong Kong.	Victoria Cathedral..							
11	Aug.	Hong Kong.	Victoria Cathedral..	0 41 12·02	W.	2	0·78	11·029	54·816	
		Sincapore ..	Battery Point.....							
12	Aug.	Sincapore ..	Battery Point.....	0 14 5·63	W.	2	4·98	13·369		
	Sept.	Penang ...	Fort Cornwallis							
13	Sept.	Penang ...	Fort Cornwallis	0 55 9·92	E.	3	13·35	35·474		This return includes the results of another chronometer, lent me by Capt. Cracroft, H.M.S *Reynard*.
	Octr.	Hong Kong.	Victoria Cathedral..							
14	Sept.	Penang....	Fort Cornwallis	0 14 2·90	E.	3	2·73	12·622	35·474	
		Sincapore ..	Battery Point.....							
15	Sept.	Sincapore ..	Battery Point.....	0 41 6·99	E.	3	10·60	22·852		
	Octr.	Hong Kong.	Victoria Cathedral..							

case, and from not perceiving that when it is stated, that in north latitude the storm revolves against the hands of a watch, and in south latitude with them, the observer is supposed to be standing as it were externally to the storm, viewing its general features; the apparent changes in the direction of the wind noticed by a spectator within the storm, as the gale sweeps past him, being only coincident with the motion of revolution of the whole gale, on the *south* side of the path of the focus in the northern hemisphere, and on the *north* side of the path of the focus in the southern hemisphere. These facts will appear quite evident to any one who will read with attention Raper's article on Revolving Storms (Practice of Navigation, No. 1018-20).*

To resume: H.M.S. *Sphinx* arrived at Hong Kong on the 4th of October, and was followed by the *Hastings* on the 9th.

During the remainder of the year 1851, the *Sphinx* did not make any further voyages, being chiefly stationed at Whampoa.

The accompanying Table exhibits an abstract of all the Chronometric Meridian Distances measured during the year 1851.

A paper containing a more detailed account of the data, circumstances, and results of each measurement, is lodged in the Hydrographic Office.

REPORT ON THE WEST COAST OF AFRICA.—*By Commander Lynch.*

Commander Lynch left the United States on the 13th November, 1852, and taking steamer from England, first saw Cape de Verd, the westernmost point of Africa, on the 13th January following.

From thence he proceeded along the coast, stopping at Goree, Bathurst, and Sierra Leone, until he reached Monrovia, the capital of the Republic of Liberia, on the last day of the same month. The place is thus graphically described:—

At daylight, on the 31st January, we made Cape Mesurado, dimly visible through a thin white mist which shrouded the horizon. The mist, hanging over the lowlands, but not rising above the tops of the trees, gave to the scene very much the appearance of a general inundation. We soon after heard the splashing of paddles in the water, and in a few moments a number of canoes came swiftly forth from the obscurity, and revealed two or three natives nearly naked, sitting upright in each, and handling their paddles with great dexterity. These canoes are dug out of the bombax ceiba, the pullam or wild cotton-tree of the country, and being very light, narrow, and long, with a

* This is clearly explained in page 13 of the *Storm Compass*, a little handy book on Hurricanes, by the Editor of the *Nautical*, published by Potter in the Poultry; a second edition of it being now in the press.—ED. *N.M.*

slight upward curve at each extremity, float buoyantly and gracefully upon the water.

As we slowly sailed along, the mist in the meanwhile rising with the sun, the surrounding scenery, feature by feature, was unveiled, and by the time we cast our anchor in the bay, the whole was distinctly revealed.

Abreast of us was a lofty promontory; a little beyond, and partly hidden by it, was the town of Monrovia; and to the east and north a densely wooded country, its sandy shore interrupted only in two places, where the rivers Mesurado and St. Paul find outlets to the sea, those outlets marked by the foam of breakers flashing in the sunlight.

The pitch of Cape Mesurado is gently rounded; but its face is abrupt, and would present a rugged appearance, were it not covered with a mantle of the richest green I have ever looked upon, resembling, if any thing, the hue of lichens and mosses in some sequestered ravine, from the sides of which water imperceptibly trickles. Except a very narrow strip of beach, with a few outlying rocks at the very water's edge, all is one mass of foliage, tangled vines and shrubbery beneath, but above a dense growth of trees, becoming more and more lofty, until those on the summit rear their heads above and half conceal the lighthouse, an indifferent frame building, stained and defaced by the weather; which, except in its greater height, recall to mind one of those narrow and neglected tobacco-houses so often seen in our southern States.

The anchorage is an open one; but the winds rarely blow fresh from the shore, and the only danger to shipping is a heavy sea which sometimes comes tumbling in without the slightest premonition. The ridge of highland, the rounded extremity of which forms the Cape, tends inland, in a diagonal line from the coast; and on a depression of that ridge, about half a mile from the lighthouse, the principal part of the town is built. But many houses are scattered about on the inland slope, at the foot of which are several stone warehouses, facing the broad sheet of water formed by the junction of the Stockton Creek coming down from the north, and the River Mesurado from the east. A stone's throw from the shore, is Cary Island, on which the settlement was first made; where the colonists were obliged, with arms in their hands, to procure water for their daily use. Stockton Creek separates Bushrod Island, a densely wooded flat from the mainland; and connects, at its northern extremity, with the River St. Paul, one and a half mile from the mouth of the latter.

Just within the swell of the Cape, in a kind of bay, where, except in northerly winds, the sea breaks gently upon the shore, is the usual landing. Immediately back of the crest of the shelving shore, just beyond the reach of the heaviest breakers, is a small African village, inhabited mostly by males, who come from their native districts in search of occupation. Their huts are constructed of wattled cane, lined with mats, and are smaller than those at Sierra Leone and the Gambia. They have no enclosures, and make no attempt to cultivate the soil; but look only to the sea for their subsistence. They are called Kroomen, and their distinctive mark is an arrow tattooed on

each temple, the point towards the eye. Their only dress was a piece of blue cloth, sometimes merely a handkerchief, worn around the loins.

From the village we crossed the neck of the low peninsula which terminates in Cape Ashmun, at the river's mouth; and, walking along an elevated footpath, we saw a number of small cattle, spotted black and white, in fine condition. These, with the exception of some goats, a dog, and a few lean prowling swine, were the only quadrupeds we encountered.

Instead of turning up to the town by a road which led to the right, we kept along the base of the ridge, and soon came to the wharves, where two small vessels were building, and one undergoing repair, and about the stores were a number of palm-oil casks and some large canoes, all indicating a degree of commercial activity; thence ascending the rough hill-side, we passed several houses, one of them a substantial church, nearly finished, and in a few moments reached Broadway, the central and principal street of the town. This street, and those parallel to it, run nearly north and south, and at regular intervals, and intersected by others at right-angles, all broad and straight, but, excepting a path in the centre of each, much overgrown with senna and wild indigo.

Monrovia, which contains about 300 houses and 2,000 inhabitants, is built, as I have said, on a depression of the ridge which sweeps inland from the cape. About midway the length of the principal street, the land swells up like an earth-wave, and sinks immediately down the street, crossing the summit and following the declivity. On the summit is Fort Hill, where, in December, 1822, in the infancy of the settlement, the heroic Ashmun, rising from his bed of sickness, with thirty-four brave colonists, repulsed an assault made by eight hundred savages.

The houses are detached, being built on lots of a quarter of an acre each. They are of good size, some two stories, but most of them one and a half, consisting of a single story of frame resting on a basement of stone, with a portico front and rear. Many of them were neatly, and two or three handsomely, furnished. There were twelve houses under construction, mostly of stone; and there were, besides, a few which looked in good preservation, but most of the frame dwellings presented an old and dilapidated appearance, owing to the humid climate during the half year, the scarcity of whitewash and paint, and the ravages of the beeg, a bug, a destructive species of *termite*. For the last reason, all the new houses are not built in the native fashion, of wattles, mud, and grass, but are constructed of stone, while the old frame ones are abandoned to decay.

In almost every yard there were fruit trees, mostly the lime, the lemon, the banana, the pawpaw, and the coffee-tree, sometimes the orange, and, now and then, the soursop and the tamarind. The oranges were good, but scarce, and the lemons large and fine. The cocoa grows abundantly, and the pomegranate, the fig, the vine, and a tree bearing the cashew nut are to be seen, but not in abundance.

The soil is thin and not productive, resting upon a ferruginous rock

which occasionally crops out. The gardens are enclosed by wooden palings, generally in a state of decay, or by stone walls without mortar. In them were only a few collards and some cassada, sweet potatoes and arrow-root. But it is not the proper season for vegetables, and a few months hence these gardens may, and doubtless will, present a more gratifying appearance.

The suburbs, the river, and the inner harbour are commanded by Fort Hill, as the outer anchorage is by that of Fort Norris at the Cape.

The view from Fort Hill is a very fine one. To the west and S.W. it overlooks the houses and the trees far out upon the sea; on the north and east, Stockton Creek and the two branches of the Mesurado flow gently through an alluvial plain; and to the S.E. the eye follows the direction of the ridge which stretches far into the interior.

On Broadway, south of Fort Hill, is the Government House, a large stone building with arched windows and a balcony in front. The lower floor is used as a court-room and printing-office, and the upper as the hall of legislative council. Behind it is the jail. Directly opposite is the President's mansion, a double, two-story, brick house, with a front portico, its roof sustained by lofty columns. It is the most imposing building in the place.

There are five churches, all well attended. Indeed, I never saw a more thorough-going church community, or heard a greater rustling of silk on the dispersal of a congregation than here; all were at least sufficiently attired, and the dresses of the children were in better taste than those of their mothers. One of the most gratifying things I noticed was the great number of well-dressed and well-behaved children in the schools and about the streets. The schools are also numerous and well attended. I did not see sufficient to justify the expression of an opinion except that, while I noticed the attendance was full in almost every one, it seemed to me that, in some instances, the acquirements of the teachers were surpassed by the capacities of their scholars; but for all the purposes of rudimental education the materials are ample. I feel a delicacy in alluding to this subject, and only say what has escaped me from a solicitude that the generation now coming forward may sustain the institutions of the Republic.

The colonists were all decently clothed; and of the natives moving about the streets, with very few exceptions, the most indifferently clad wore a long loose shirt, but their heads and legs were bare. One of the latter I saw reading apparently a book which he held before him as he walked.

On the outskirts of the town is a large coffee grove, which did not seem to be in a thriving condition; and altogether, in and around Monrovia, agriculture wore a languishing appearance. This is doubtless owing, in part, to the poverty of the soil, and, in part, to the overweening spirit of trade; there being evidently a preponderance of petty retail shops. I must say, however, that the town presented a far more prosperous appearance than I had been led to anticipate. From its fine situation it must evidently be a salubrious one. The sea breeze at all seasons blows directly over it, and in this respect it

is far preferable to Sierra Leone. The bifurcation of the river St. Paul to the north gives, through Stockton Creek, its southern branch, a direct and easy access to that river at all times, without encountering the perils of either bar. On the S.E. the east branch of the Mesurado is separated by a portage only five miles from the head of Junk river which flows into the sea thirty-five miles down the coast. Monrovia will, therefore, be the outlet of the products of an extent of country not less than 1,250 square miles.

Of the run up the St. Paul river our author remarks, after journeying six miles in a canoe manned by natives:—

There was not a sign of cultivation, nor of an attempt to reclaim the soil; and the stifling hot weather, the sluggish stream, and the tainted odour of putrescent vegetable matter, painfully depressed my spirits; but when we passed the lower settlement of Caldwell and entered a bold, swift flowing river, three-fourths of a mile in width, with banks ten to thirty feet high, dotted with farm houses, few of them a quarter of a mile apart, it was like the shifting of a scene in a theatre, and I gazed with satisfaction upon the beautiful sight.

Nothing had been told me to excite anticipation, and the transition was, therefore, as unexpected as it was gratifying. The breeze, no longer intercepted, swept refreshingly up from the sea, but half a mile distant by the river; and, turning our boat's head up stream, we joyfully pursued our way.

The banks are uneven, at some places high and steep, at others coming down with a slope to the water's edge. On each side is a belt of cultivation, with a dense forest-growth behind it; and the most conspicuous objects of the scene were the light green, broad leaved foliage of the banana, clustering about every settlement, and the detached and distant palm trees, which reared their dark tufted heads above the surrounding mass of vegetation.

The appearance of this tree is majestic, yet graceful. Its round, smooth trunk springs, shaft-like, into the air, from sixty to upwards of a hundred feet, and then expands its rich, fringe-like leaves into a canopy, twenty or thirty feet in diameter.

The St. Paul narrows very gradually in ascending it, and to the head of navigation is nowhere less than one fourth of a mile in width. For the whole distance of fourteen miles from its mouth, there is a greater depth of water in the channel of the river than on the bars; and, for its length, it is a magnificent stream, pouring down such a volume of water as to render it certain that, however soon its navigation may be interrupted, it has sources far in the interior.

The soil on both sides is a loamy clay, equal in fertility to the best sugar lands in Brazil. There are on the banks of the river four hundred farms, and three thousand cultivators. Many of the houses are built of brick, two of them double-sized two-story ones, and there were seven brick-kilns.

I landed at four or five places, and saw every indication of comfort and prosperity—far more so than in Monrovia. The houses were well

furnished, and in one of them was a room, specially assigned for the purpose, which contained a small but good library. The principal articles I saw in cultivation were sugar, coffee, cassada, arrowroot, yams, sweet potatoes, and a few ground nuts. Among the fruits were the luscious pine-apple, oranges, lemons, limes, bananas, plantains, and the paw-paw; the last, in cooking, an excellent substitute for the apple. A little cotton is raised for domestic use. The sugar cane was growing finely, and at one of the farms I witnessed the operation of grinding it. The apparatus, in part the invention of the owner, was an ingenious one, but very wasteful in its process; yet the proprietor expected to make nine thousand pounds of sugar, and several hundred gallons of molasses this year. I tasted the syrup, which, owing I presume to the high temperature, was thinner than I have seen it during the grinding season in Louisiana. Some of the sugar of last year's crop was as light in colour, and as well granulated, as the best Porto Rico I have seen. I scarce think, however, that sugar can to any extent be profitably cultivated, owing to the deficiency of capital, and the consequent want of machinery.

Coffee will, I think, become eventually the great staple of this section of country. The tree grows indigenous, can be transplanted with ease, and requires little care in its cultivation; and, where it is not extensively grown, its berry may be gathered as a pastime by women and children. I was shown one sample raised on the St. Paul, and tried another gathered in Monrovia. The last, which I did not see in the berry, was excellent; but I cannot sustain the assertion that it is better than the Mocha. The former was of a clear light colour, and the grains were the largest I have ever seen; I am not aware, however, that the large size of the grain is, *per se*, an indication of superior quality.

From all that I could observe or learn from others, a taste for agriculture is becoming prevalent; and I cannot give a better idea of the prosperity of the settlements on the St. Paul than by stating that cleared land fronting on the river sells at from 40 dollars to fifty dollars per acre. Some of the country seats looked beautiful from the river, and their names are characteristic of their owners; some being unpretending, but expressive; some classic, and some scriptural—"Pleasant View," "Iconium," and "Mount Horeb,"

After examining this portion of Liberia, Commander Lynch visited the Bassa County. Of it he says:—

We anchored off the mouth of the St. John too late to enter it by daylight. On the following morning we started for the shore, and, passing a Liberian schooner, bound to Monrovia with a cargo of palm oil, and an English cutter coming up from the southward, we steered for the opening in the line of beach, where, with a graceful curve and a rapid sweep the river finds an outlet; and, crossing the bar on a heavy roller, we landed at Buchanan.

Within the bar are concentrated the waters of three rivers; the Mechlin, flowing from the north; the St. John, from the north-east;

and the Benson River, from the east. This great body of accumulated water is forced through a passage narrower than the principal stream; and when the tide is ebb and the wind blows fresh from the shore, there is drawn across it a line of terrific breakers. At this season, however, the winds are ordinarily light, and with a skilful pilot the bar can be passed in safety.

The Benson River pours in its tribute opposite to Edina; and on the west side of the junction is the flourishing town of Buchanan. This settlement was founded by the New York and Pennsylvania Colonization Societies, in 1835, and consists of the emigrants who escaped from the massacre at Port Cresson, two miles further down the coast. In 1838 the population of Buchanan was 200; it now contains 600 inhabitants, and musters 100 fighting men.

This colony was first founded on the peace principle, but the massacre of its unarmed inhabitants conclusively proved the folly of such an experiment on such a field; for in the space of one month, in the very year of its selection, 500 slaves had been embarked from the cove; and it was known that the native chiefs regarded the settlement of colonists in their vicinity as destructive of their traffic with the slave ships.

On Benson River, adjoining the town, there was a steam saw-mill in operation; and in the cove beyond it, one small vessel was hauled up for repairs, and two others were anchored in the stream.

Between the Benson River and the confluent streams, before they mingle with the sea, Buchanan is built, on wide streets running parallel with the beach, and they are less encumbered with weeds than those of Edina. Unprotected by whitewash or paint, the houses all present a dingy, semi-dilapidated appearance, except the house of Judge Benson, on the south side of the cove, which looks fresh and beautiful, embowered, as it is, in an extensive grove of coffee-trees.

The St. John River is as wide as would be the united streams of the Mechlin and the Benson. It is half a mile wide at the estuary; and for a mile further up, is fringed with the mangrove. Thence it gradually lessens in width, and at the distance of three miles is divided into two channels by Factory Island, on which Mr. Ashmun contemplated forming a settlement. Above the island the river narrows more rapidly, and does not exceed 200 yards in width at Bexley, a missionary school station, and rather a farming settlement than a village, seven miles from the river's mouth.

Opposite to the mission is the town of "King Soldier," a venerable and friendly old man, upwards of one hundred years old. A little above is another island, half a mile beyond which is the head of the navigation, where the immediate banks are above twelve feet high.

The scenery is the same as that on the Junks, except that there are more frequent indications of agricultural improvement. After the mangrove ceases, the soil is a yellowish clay; and the principal growth on and near the water's edge is a medium sized tree, from its peculiar properties called the soap-tree; and the more lofty pullam or wild cotton-tree, the sassy-wood tree, and the palm tree. The qualities of

the soap tree are the same as those Herodotus mentions, of the shavings of which the Scythian women made a soft paste, wherewith they plastered their bodies, and stripped it off again when quite dry; by which means the skin was thoroughly cleansed.

One of the farm houses at which I stopped was finely situated on a rolling piece of ground some eighty feet above and one hundred and fifty yards distant from the river. It was well furnished, and contained two rooms and a kitchen below stairs, and an attic sleeping room above. It was the workmanship of the owner, an emigrant from Staunton, in Virginia; and the neat yet strong stairway of wattled cane, and the partitions made of rushes, attested his industry and skill; while a small but good library proved that he possessed yet other resources. Himself, his wife, and daughter, made the same declaration, which, with two exceptions, (and those unprotected females,) I have heard from many others, that nothing could induce them again to take up their residence in the United States.

On the banks of the river, between Buchanan and Bexley, are the farms of eight or ten colonists, with as many native settlements; and I think that I counted two brick-kilns; but, as on the branches of the Junk and the St. Paul, the settlements extend only a short distance back from the river. Including Bexley, there are 250 colonists on the St. John above Buchanan.

There is a considerable tract of land under cultivation at Bexley. I could not ascertain how much its products have increased; but some years ago it yielded 600lbs. of coffee; nearly 3,000lbs. of ginger; 1,120 baskets of sweet potatoes; 1200lbs. of arrowroot; and 300 bushels of cassada. There were raised, besides, a great many fowls, and some sheep, goats, and cattle.

Beyond the rapids, the St. John is navigable by canoes six miles further; from whence it is about ten miles to the base of Mount St. John; beyond which is a broad valley, bounded on the east by elevated ridges.

The principal forest growth beyond the head of navigation is camwood, bastard mahogany, African hickory, two kinds of wisniore, both admirably adapted for articles of furniture, and the oak, differing essentially from the species found from the tropics nearly to the polar circles, which is, throughout those regions, a cosmopolite of vegetation, being alike in its fruit, although much diversified in growth and the form of its leaves.

From thirty to fifty miles from the sea is one uninterrupted camwood forest; and the wood is used by the natives as fuel, and for building purposes. They fell the trees, and split them up into billets fifteen or sixteen inches long, which they carry in bundles on their heads to the nearest point of canoe navigation. Instead of this slow and laborious process, it is strange that it has never occurred to them to launch the trees, denuded of their branches, and raft them down the river. The whole world might be supplied with camwood rafted down the St. John.

Most of the land bordering upon the sea has been at different times

under cultivation; but after yielding the first crop, a piece of land is abandoned, and a new clearing made for the succeeding one. As a natural consequence, a rapid growth of vegetation supervenes in the deserted field, and it becomes in a few years a tangled thicket of trees and shrubs, bound together with the lacings of interminable vines and creepers. Added to which, from the incessant wars heretofore for the purpose of supplying the slave trade, the country along the coast has been half depopulated. Thus stripped of a great part of its primitive growth, and cultivated only in spots detached and distant from each other, the general aspect of the coast is that of a forest of dense and matted trees and shrubbery, almost destitute of its original characteristics.

In ascending the rivers, however, a wholly different scene presents itself. The primitive forest, in all its native grandeur, covers the earth; the graceful palm tree waves its feathery branches in the breeze, and the lofty wisniore, and huge bastard mahogany rear high their towering heads, while among the green foliage is seen the gay colouring of blossoms on many a stately tree, which gave a kaleidoscopic variety to the deep embowering wood. Far up the streams, the eye is charmed with the ever-varied landscape: the dense trees which overhang the banks, their towering height and majestic size, the vivid hues of their foliage, and the sombre shade, despite the rays of an unclouded sun.

The profound stillness which prevails in these solitudes was disturbed at our approach, not only by the harsh grating of the oars in the rowlocks, but also by the wild and not unmelodious songs of the boatmen, which caused the basking crocodile to plunge into the stream, the monkey to retire into the recesses of the wood, and the fish-hawk to seek another position from whence to pounce upon his prey.

The territory of little Bassa has many subdivisions, under as many names. It is compressed nearly into the form of a triangle by the Atlantic and the branches of the Junk and St. John Rivers; and is also a peninsula, as these streams approach each other very nearly in the interior. The country abounds in camwood and palm-oil, and the demand for the last is rapidly increasing, as it is now used instead of Russian tallow in the manufacture of soap. Hundreds of tons of camwood, and many thousand gallons of oil, are annually shipped from these rivers.

The new clearings on the river-banks, the saw-mill at Buchanan, the vessels in the cove, and the buildings under construction, all attest with the exception of Edina, that the settlements on the St. John are flourishing.

About three miles further down the beach from Buchanan, is Fishtown, now being resettled, where there are twenty houses under construction, and a considerable tract of land cleared for cultivation. In the environs of the former, and on the road to the latter, I saw a number of cattle, larger in size than those of Monrovia. Their excellent condition verified the statement of respectable settlers, that the neighbourhood is a fine grass country.

After leaving Bassa, the next course was to Sinou, about eighty miles distant.

As much by drifting as by sailing we reached Sinou, where a Liberian schooner and a square rigged vessel were at anchor; and one of the latter was in sight, bearing down from the north. The anchorage is an exposed one for large vessels, but smaller ones find a partial shelter from the S.W. wind, and its accompanying heavy sea, behind Bloobarre Point. The Sinou, a small but placid river, was selected, about eighteen years ago, by colonists from Mississippi and Louisiana, with a few from South Carolina, who, after acclimating at Monrovia, founded the town of Greenville on the right bank, just above the river's mouth.

From the sea this settlement presents an attractive appearance. Directly abreast of it the shore curves inwards, and then stretches to the north, a long line of yellow beach, fringed with a deep forest. To the south are two shallow bays, separated from each other by projecting crags of ferruginous rock, the curved beach of sand bordered like that of the northern shore. At the N.W. extremity of the northernmost bay is the promontory of Bloobarre, a broad, high rock, its surface bare and smooth to the summit, which is covered with luxuriant foliage. At the inland base of the promontory are the brown conical huts of the Bloobarre tribe. Outwards, in a line with the promontory, and at half a cable's length distance from it, is a ledge of detached rocks, washed smooth by the surf, which, at low water, are covered with sea-gulls; and between the two is the bar.

Immediately after crossing the latter, the river, which is about sixty yards wide, opens short to the right, round the bluff promontory, and in fifty yards turns sharp to the left by a low sandy point; immediately opposite to which, near the southern shore, are two smooth rocky islets, the nearest one bare, the farthest capped with vegetation, presenting a fine contrast between the iron-tinted rock and the rich green upon its summit. Ascending the river, there is a low sandy peninsula on the left, which becomes wider and more elevated until reaching the settlement, half a mile distant.

The opposite bank is high, with several abrupt patches of ferruginous rock. Greenville faces the sea, and the river flows behind it. It is regularly laid out, and Mississippi Avenue, with a row of dwellings on one side and open to the sea on the other, is a delightful promenade. The houses I considered by far the neatest I had seen, two of them were quite handsome two-story ones; and the gardens were in better condition than those of Monrovia. There are about sixty houses and between three and four hundred inhabitants in the settlement. The churches are the least reputable features of the place; but, although unprepossessing in their exterior, their congregations were creditable in costume and deportment. My visit was at the time of the annual meeting of the Baptist Association, and the members of that persuasion thronging into the settlement gave it quite a lively appearance.

There are a number of mechanics in Greenville, particularly car-

penters, and in the outskirts of the town I saw a steam saw-mill, to which lumber was rafted from the river by an artificial canal. The Bloobarre district, opposite to the settlement, is very properly described by the Rev. Mr. Gurley, as high, rich, and inviting, and he judiciously points out the summit of the promontory as an eligible sight for a lighthouse.

Above Greenville were founded the settlements of Rossville and Readville; but the country around them, although slightly rolling, is subject to inundations. The soil is composed of stiff clay overlaid with vegetable mould, excepting the river bottoms, which are made up from the deposits of annual inundations. Rice is the principal growth relied upon as an article of food; but, like the settlements on the Junk and the St. John, the colonists do not cultivate sufficient for their own consumption. A great quantity is, however, raised by the natives; and such is the productiveness of the soil, that slave vessels, when that baleful traffic was at its height, resorted to the Sinou to purchase their stores of rice. The principal article of export at present is palm-oil; but much attention is now being paid to the culture of the coffee-plant, which in beauty and fragrance of foliage and flower, equals the orange tree, and far surpasses it in the utility of its fruit. Its deep-green leaves and snow-white blossoms, would remind one of the orange, if its delicious perfume, borne on the wind, had not anticipated the comparison.

The river, although deep within the bar, is navigable only seventeen miles to the falls, beyond which it runs shallow and obstructed, through the same belt of wilderness which lies behind the colony, inland throughout its entire length, and constitutes the great barrier to the more speedy improvement of the settlements along the coast, and the civilization and conversion of the natives in the interior. The forest is dense beyond conception. The crowded branches of the trees, twisted and interlaced, each bearing its full crop of foliage, form one wide canopy, which the sun looks upon but cannot penetrate; while beneath shrubs and climbing plants weave themselves into tangled and impenetrable thickets. The timber of many varieties is harder and heavier than any in the United States, the live oak excepted, and much of it, even when seasoned, will not float in water. There are also others, corresponding to our pine in lightness; and whether for houses, ships, or furniture, the mechanic need never be at a loss for a selection.

Cape Palmas, settled by the Maryland Colonization Society, is next described at considerable length. Had we room we would gladly republish it.

The Report then proceeds to give the author's judgment as to the best place to disembark an exploring party; the proper inland route; the precautions to be taken, and the difficulties to be encountered in an excursion inland to discover some of the interior resources of the great unknown continent, and concludes with some just and discriminating remarks respecting an increase of the rapidly growing commerce between this country and Africa, and suggests certain reforms and additions for the more perfect suppression of the slave trade.

In the body of the work accounts are given of the native tribes of the coast, their appearance, and character, descriptions of African towns and scenery, and other matters, which make the whole one of interest and merit. It will be noted that Commander Lynch was favourably impressed by the prosperity of the various Liberian settlements.

Electrical Action on the Sea Level.

Portland, August 23d, 1854.

Sir,—The last number of your valuable Magazine contains an article on the subject of an ocean current, which is assumed by the writer to have been caused by a "storm of electricity." There can, I think, be little question, that the origin of this current was that suggested in your remarks, viz., that the *Aries* was at the time on the outskirts of a hurricane. My object, however, in now addressing you, is not to discuss this question, but to call attention to a fact which I have observed on the occurrence of, I believe I may say, *every* electrical storm in this immediate vicinity for the last four years. The fact to which I allude is one which will, I imagine, be deemed of some interest, and which, as far as my inquiries have extended, appears not to have been previously known to scientific men, it is this:—That an electrical storm, or even a highly electrical state of the atmosphere, will cause a very appreciable amount of variation in the level of the sea. This has been ascertained through the medium of a sensitive self-registering tide-guage, which I have arranged for the breakwater mark here, and I send you a fac simile of a portion of one of the diagrams traced by it, which will give a much clearer idea of the action than I can hope to convey by any description. The diagram from which this is taken, was registered on the 13th July, 1852; it has been selected from a number of others on account of the total absence of any swell at the time. Under ordinary circumstances the result would have been that indicated by the dotted line, the variations from this line are certainly remarkable, particularly from 7.30 to 8h. p.m.*

The *theory* of this action on the sea level I must leave to electricians to discuss. I am quite satisfied, however, that the presence of an unusual amount of electricity is the *cause*, as the same thing is shown, in a greater or less degree, on the occasion of every thunder storm.

I am, &c.

John Coode.

To the Editor of the Nautical Magazine.

* The diagram came too late for a woodcut, which, however, it scarcely requires; the effect alluded to here showing the depression and elevation of the surface of the tidal wave from its regular curve to the extent of *three inches* each way, as denoted by the register, forming an interesting subject for further inquiry.—Ed. *N. M.*

Rev. Dr. Livingstone's Geographical Discoveries towards Central Africa, *in the Year* 1853.

On the request of Mr. Maclear, we take over from the *Commercial Advertiser*, the following interesting paper:—

With the despatches for the Rev. Mr. Thompson and others, received from Dr. Livingstone last March, there was one for me which contained a copy of the greater part of his Astronomical Observations, with explanations, and a despatch, together with a tracing, to be transmitted to his friend Lieut.-Col. Steele, of London.

The observations consist of meridian altitudes for latitude, extra meridian altitudes for time: Lunar distances and altitudes, two occultations of Jupiter, and two of fixed stars by the moon for longitude. These are spread over thirty-two stations, commencing in latitude 22° 56′, and terminating in latitude 14° 11′.

Over these observations, to a certain extent, my friend gave me a discretionary power. I wished to discuss the whole of them before the departure of the March mail, but found this to be impracticable.

The tracing displayed his route across the Chobè River, in lat. 17° 58′, thence along the course of the large River Leambey, to its confluence with the Leela River, in lat. 14° 11′. This tracing and the despatch for Colonel Steele, were forwarded to that gentleman by the *Lady Jocelyn*, steam-packet, on the 25th of March: and a copy of the observations and of the results deduced from them followed, on the 19th of April, by the *Indiana*.

Presuming that the despatch and tracing were handed over to the Royal Geographical Society by Colonel Steele, with the celerity which a communication so interesting would be likely to command, we shall not, perhaps, at the present date, infringe upon the rules of the Society by publishing at the Cape a list of the geographical points so accurately fixed by this remarkable man, while carrying the torch of Christianity within the precincts of the slave-market, and combating that vile traffic at the fountain head—together with the latitudes, where the longitudes either could not be observed or were unnecessary; leaving to his own graphic pen, through another channel, those details that remind us of Bruce when opening up the Nile. But before venturing such a liberty with the documents sent to me for a particular purpose, I have deemed it right to obtain the concurrence of the Rev. Mr. Thompson, the superintendent of the London Missionary Society—the society under whose auspices and support my friend is labouring so successfully for the benefit of his fellow-creatures and the advancement of geographical knowledge.

Dr. Livingstone's route to the Chobè River on this occasion was new, being shaped so as to escape the threatened personal hostility of the Boers; and, as a matter of course, it was travelled with all practicable speed. The observations sent to me were commenced at Manakalouwe or Unicorn Pass, lat. 22° 56′, on January 26th, 1853. Advancing towards the Chobè, he discovered nearly due north, at the distance of ten miles, a new feature to him in that flat country, viz., a hill (Ngwa) about 300 feet in height. He was then only eighteen miles in latitude south of his waggon station in the year 1851, from whence he ought to have seen this hill. Suspecting his longitude, he observed a lunar distance which placed him in 24° 26′ East of Greenwich, instead of about 26°. Advancing to the hill, he there, on the 15th of April, had the good fortune to observe the occultation of 52 Geminorum by the moon, from which I have been able to calculate the longitude of that spot

with great accuracy;—to verify his suspicions, and to test the goodness of his lunar distance, taken the day before ten miles to the south.

It is proper to mention, that on the journey with Mr. Oswell in the year 1851, Mr. Livingstone's sextant was injured by a fall; that an error in the angular measure for latitude affects the latitude by its absolute amount only, whereas the same angular error would affect the longitude by nearly thirty times its amount.

Mr. Livingstone crossed the Chobè River with great difficulty, owing to the flooded vicinity being covered for many miles with impenetrable jungle. In this arduous task he had no other assistance than from one man, who was an invalid from fever. But on arriving at Sekeletus Town there was no lack of assistance, of which we have a proof in the voluntary supply by the Chief, of thirty-three canoes and 160 men, to trace the course of the Leambey River, with which imposing force he actually threaded that river from Seshekè, lat. 17° 32′, to the confluence with the Lecla River, lat. 14° 11′, long. 23° 35′ 40″. He reached this confluence about the 30th of August, having secured astronomical observations at every interesting part of the river; thence he returned down the stream with his flotilla to the point of departure, observing occasionally as before.

At the date of his despatch (Sept. 29th), he was waiting for the rainy season to attempt a journey to Loanda on the west coast, on foot or on horseback, according to circumstances. From Loanda he proposed to push inward again for Londa—the capital of a powerful tribe, through which town the Leela is said to flow; thence to trace the Leela to its confluence with the Leambey, before mentioned, in lat. 14° 11′.

Such is Dr. Livingstone. A man blessed with his powers and motives fears nothing. May he be spared!

With this explanatory outline, I proceed to record the latitudes and longitudes he has fixed. For the amusement or instruction of those who may be inclined to dip into such matters, I propose to give hereafter the calculation of the occultations at full length. Indeed, I am desirous to call the attention of travellers and surveyors to this species of observation for longitude, because of its great accuracy. The apparent intricacy of the calculation should not be an impediment; for there is sure to be some one ready to perform it.

The whole of the observations sent to me have been calculated without reference to previous computations by Dr. Livingstone, except for comparison. In taking the mean of the results for longitude at a station where lunar distances and an occultation were observed, a weight has been given to the latter proportional to its superior precision, because it is free from instrumental errors and errors of limb contact. This applies to hill Ngwa, Sekeletus Town, and Naliele Island, the capital of the Barotse; which places, as far as I am aware, are better fixed geographically than any point within the Cape colony, except the arc of the meridian stations and Graham Town.

Sekeletus Town is three miles north nearly of the waggon stand of Oswell and Livingstone in the year 1851, which, until lately, was supposed to be in long. 26° E. of Greenwich; whereas its true long. is 23° 50′. Therefore, the waggon stand, and all points laid down on the map of 1851 relatively to it, have to be shifted 2° 10′ in longitude westward. Before altering the map geographically, it would be desirable to observe an occultation at the Latakoo Missionary Station, the latitude of which place is perhaps known already.

THOMAS MACLEAR.

No.	Names, &c.	Lat. S. ° ′ ″	Long. E. ° ′ ″
1.	Manakalouwe, or Unicorns Pass, ...	22 55 52	
2.	Lettoche Station	22 38 0	

No.	Names, &c.	Lat. S. ° ′ ″	Long. E. ° ′ ″
3.	Kanné Station	22 26 56	
4.	Lotlakane, "where the first Palmyra trees occur; about twenty-five trees"	21 27 47	
5.	Kobé Station	20 53 14	24 52 0
6.	Kamakama	19 52 31	
7.	Fever Ponds. "Here all my people were prostrated with fever."	19 15 53	24 55 0
8.	Ten miles south of Hill Ngwa	18 38 0	24 26 0
9.	Ngwa Hill, 300 feet high, an occultation observed here	18 27 50	24 13 36
10.	Ngwa Valley, "a lovely valley"	18 27 20	
11.	Station east of, and in the parallel of the waggon station of 1851	18 20 0	
12.	Sekeletus Town. Two occultations observed here	18 17 20	23 50 9
13.	Station on the banks of Sanshurch River	18 4 27	24 6 20
14.	Island of Mahonta in the Chobè River	17 58 0	
15.	Town of Sesheke, "clouds prevented lunar observations here"	17 31 25	
16.	Sekhosis Town on the Zambese, twenty-five miles west of Sesheke	17 29 13	
17.	Cataract of Nambwe	17 17 16	23 59 0*
18.	Cataract of Bombwe	16 56 33	23 52 0*
19.	Falls of Gongé	16 38 50	23 30 0*
20.	Seoori sa Mei, "Island of Water"	16 0 32	
21.	Litofé Island, "Town"	15 55 2	
22.	Loyela, south end of Island: a town of the Mamochisané	15 27 30	23 2 0*
23.	Naliele Island, chief town of the Barotse. Occultation observed here	15 24 17	23 5 54
24.	Linangelo, old town Santuri. Site nearly swallowed up	15 18 40	
25.	Katongo, where the Portuguese slave merchant built his stockade	15 16 33	23 12 0*
26.	Point of junction of the Mariele branch with the main stream	15 15 43	
27.	Quando Village	15 6 8	
28.	Town of Libonta	14 59 0	23 4 0*
29.	Island of Tongane	14 38 6	
30.	Cowrie Island	14 20 5	
31.	Confluence or junction of the Loeti with the main stream	14 19 0	
32.	Confluence of the Leela or Lonta with the Leambey River	14 10 52	23 35 40

Note—An * implies that the longitude is derived from Azimuths.

It is proposed after this to form a *skeleton* of established points (from Astronomical Observations) within the Colony and by Livingstone:—to be added to from time to time.—*Cape Monitor*, 20th May.

EXTRACTS FROM LETTERS.—THE BALTIC FLEET.

Ledsund, August 1.

We have captured a commissaire, one of that mysterious and powerful force, the Russian police.

In consequence of the frequent disappearance of the buoys which were laid down for the safe navigation of this archipelago, an inquiry was set on foot, and at length some clue was obtained of the whereabouts of the troublesome and annoying marauder.

Captain Sullivan, of the *Lightning*, landing upon one of the islands, visited a snug little cottage, embowered in trees and surrounded by many social rural comforts. Introducing himself with much *suaviter in modo* to the lady portion of the household, he expressed a wish to purchase a few necessaries from them, the produce of the farm, and at the same time stated his desire to be on the most friendly terms with them on all occasions. They told him they dare not sell anything, as the Emperor had issued positive orders forbidding the use of English money, and therefore they could not receive it, especially as his minions, whose vigilance nothing could escape, were on every side of them. While this friendly conversation was being maintained, an individual, who seemed to strike awe into every countenance, walked brusquely in, and looking around him with the triumphant air of a 'man clad in a little brief authority' (not a little), said, "How now? What do I see? I observe you" (addressing the palpitating women, who quailed before his gaze) "receiving English money. I will send you to the interior. I will not tolerate proceedings like these." To exonerate the innocent, and show himself the guilty one. Captain Sullivan said, "No; on the contrary, these people have refused to take the money I tendered;" but he now added that he required a few supplies, and that if they hesitated in taking the money, he would lay it down and help himself to the articles. "I won't allow you," quoth the ubiquitous imperial spy. "I have a duty to perform, and"—"Ah, then," rejoined Captain S., assuming the *fortiter in re*, "and so have I, too, a duty to perform. You are a Russian; you are, therefore, my enemy. You are now my prisoner." The tables were now turned, as two sturdy seamen took him in the rear, and bringing his elbows in closer proximity behind his back than is ever found agreeable to the chest and shoulder-joints, they ran him down neck and crop into the boat. The scene was too ludicrous. The women could bear it no longer; they laughed to pain on beholding this hated disciple of the Fouché system driven ignominiously, imperial buttons and all, to the sea shore. The sly arch rogues now quietly threw out a hope that we would never let him go again; at least particularly requested if he was set free, that he would be landed far away from the Aland islands. This man is now a prisoner on board the *Duke of Wellington*.

> Condemned a double debt to pay,
> He stole our buoys by night, and stopped our grub by day.

There is another gentleman of this class lurking somewhere in the vicinity of the island of Brousso—one of the many islands clustered here in such wild profusion. The natives possess much pristine innocence, and seem to welcome the English on their soil in the same ratio that they abhor the Russians. I do not pretend to know their many causes of complaint against their rulers, but I will mention a recent occurrence, which has made the blood of all this innocent population run cold. Two fine young lads, from Ango, another of the islands, went on board one of our ships of war, and on their return to the shore were met by some Russians, who found some English money upon them. They were immediately taken up to the fort, decapitated, and their mutilated bodies were sent to the island whencethey came. *Ex uno disce omnes*. This narrative

was told us by some of the innocent peasantry, with tears in their eyes, on presenting them with money for a few requisites that we stood in need of.

The enemy are not asleep on their posts; they are daily strengthening their defences. With jackets off, they seem to ply the pickaxe and shovel with energy in throwing up works, opening loopholes for musketry, forming glacis, and, I think, filling some of the embrazures with sand bags; they are well supplied with ordnance stores, have a three years' store of provisions, and are quite prepared for a prolonged resistance. The ships are guarding the passes in every direction, so that the garrison must see themselves completely hemmed in on every side, and cut off from all relief. All the ships are within signal distance of each other. The French ships cut off all retreat on the Swedish side. Capt. Ray, of the *Amphion*, took advantage of a dark, gloomy evening, when a fresh breeze was blowing, and heavy rain falling, to sound the waters close in by the forts, and make a general reconnaissance of the works. He quietly proceeded with muffled oars, and succeeded without being discovered. Such zealous acts are worthy of being recorded to an officer's credit, for in doing so he ran considerable risk of being shot, even by less vigilant sentries than those posted along the front of the fort on that night. The following ships are employed investing the place:—*Edinburgh* (Admiral Chads), *Leopard* (Admiral Plumridge), *Hogue*, *Blenheim*, *Ajax*, *Arrogant*, *Amphion*, *Basilisk*, *Odin*, *Gorgon*, *Cuckoo*, *Zephyr*, *Hecla*, *Porcupine*, *Alban*. The *Driver*, *Lightning*, and *Pigmy* are employed variously between the two squadrons, sounding, carrying despatches, &c. The islands looked beautiful. We are now in the very midst of an Aland summer. Everything is crowned with vegetation. The trees have assumed their greenest tints, and everything is refreshing to look at. Only seven weeks ago the site of this blaze of flowers and sea of green was dazzling white, and knee deep in snow. An Aland summer is very fleeting. Already a perceptible change has taken place in the length of our evenings. There is not much time to delay operations before the winter, which is very severe, sets in.

Early on the morning of Sunday (30th) the transports made their numbers, and between one and two o'clock they came into the Sound, the *Hannibal* leading, the *Algiers* following. The English squadron manned and gave their brethren in arms a good English cheer of welcome, which was heartily responded to by the French troops, who crowded the booms and boom boats. The *Royal William* was towed by the *Gladiator*, the *St. Vincent* by the *Sphinx*, the transport No. 105 (Clifden) by the *Stromboli*, transport No. 106 by the *Penelope*. In round numbers, about 5,000 of the French contingent have arrived. Colonel Jones and Brigade Major Hoare, of the Royal Engineers, also arrived. The *Nicolai* brought in the mail from Dantzic.

General Baraguay d'Hilliers, in *La Reine Hortense*, the Emperor's royal yacht, steamed in about half-past three o'clock to-day (the 31st), and was loudly hailed with thrilling cheers. He called upon the Commander-in-Chief, Sir Charles Napier, on board the *Duke of Wellington*, where he was received with all the honours due to his rank. He is a fine soldier-like looking officer, and, in the loss of an arm, bears evidence of service. Rear-Admiral Plumridge, with three deserters (who pulled off to the *Locust* in a small boat) from the forts, came down from the investing squadron and placed those men on board the flag-ship. The garrison is determined to hold out while they have a leg to stand upon, or, as the saying is, "while there is a shot in the locker." They have got plenty of red hot shot to greet us, as soon as we commence. They are already piled up in the furnaces, fit for immediate use. In addition to the garrison of regular (Finnish) troops within the forts, ranging from 1,500 to 1,800 men, part of the population of the island itself are armed, altogether there are about 3,500 of all arms. Out of those 500 are equipped as sharpshooters. There are about 80 Cossacks of the Don, and some horse artillery with field

battery. The large fort mounts 100 guns. The large Martello tower on the hill, commanding the other forts, has 30 guns; and another small tower on the right mounts ten guns, and a masked battery on a promontory contains seven guns.

The squadron in the Gulf of Finland is composed of the *Nile*, *Neptune*, *Monarch*, *Prince Regent*, *Royal George*, *St. George*, *Euryalus*, *Cressy*, *Cæsar*, *Magicienne*, *Desperate*, *Impericuse*, *Dragon*, *Rosamond*, together with some French ships. The following ships are in Ledsund:—*Duke of Wellington*, *Cumberland*, *Acre*, *Princess Royal*, *James Watt*, *Majestic*, *Penelope*, *Valorous*, (*Driver*, *Zephyr*, *Pigmy*, *Cuckoo*, and *Lightning*, constantly on the move between this and Bomarsund), *Belleisle* (hospital ship), *St. Vincent*, *Royal William*, *Algiers*, *Hannibal*, *Stromboli*, *Gladiator*, and *Sphinx*.

Ledsund, August 8th.

I think I told you in my last that the greater part of the French troops joined us on the 30th of July. Since they came, the continual arrival and departure of large steamers and sailing transports have converted the quiet and pretty little bay of Ledsund into something very like a large commercial port; the whole place seems busy with life, and at the moment I write, we have 71 ships here, and everything is activity and bustle. We certainly cannot now complain of monotony or too much quiet, for, what with provisioning, watering, manning and arming boats, exercising and landing troops, we have enough to do; but as for quiet, I never expect to be quiet again—the never-ceasing din of the busy scene is most extraordinary. Fancy twelve or fourteen brass bands, all practising different tunes at the same time, in the space of a square half mile; bugle-calls in twenty different keys continually blowing, as if all the French troops were learning the trumpet; the lowing of cattle, bleating of sheep, blowing off steam, and the boatswain's rough voice and shrill whistle heard above all, and you may, perhaps, form some idea of the noises going on around us. A cheer, or a merry peal of laughter sometimes mingles with the rest, and tells how happy and contented the men are. A very different picture is presented at Bomarsund; not a living thing to be seen, and the silence of death reigning over the smouldering ashes of the town and woods around the forts, which have been burnt down by the Governor, while inside them all are down-hearted and discontented; they well know they can have no succour, for our ships completely cut it off, and they must either die or be taken prisoners. The garrison consists of about 3,400 men, 500 of whom are militia riflemen, and they have two years' provisions. It has been reported by a deserter, that an attempt was to be made last night to reinforce the place with 1,400 men from Abo, who were to come over in 24 gun-boats, sixty in each, but nothing has been heard of them yet. An Aide-de-camp of the Emperor managed to cross from St. Petersburg and got into the fortress on the 5th. Deserters join our ships almost daily; one man, a fine fellow, who says he has served fourteen years nearly without pay, and living upon very little else but brown bread and water, says he will do so no longer, and, having obtained leave to bathe, left his clothes upon the beach and swam off two good miles to the *Leopard*.

On August 2nd the *Termagant*, *Julia*, *Prince*, *Rajah*, and transports 108, 109, and 110, arrived with troops, horses, and stores. On the 4th the *Julia* was towed up to Bomarsund by the *Locust*, with 100 sappers and miners on board, who went to prepare the way a little. The Emperor's yacht, *La Reine Hortense*, which came out here all white, has to-day changed her colour to black, and is very much improved by it. Several yachts that have been with us have left to see the operations at Bomarsund, the famous little *Mosquito* among the rest; she now belongs to a Norwegian gentleman named Faye. On August 5th the *Tilsit*, *St. Louis*, *Asmodée*, *Cleopatra*, and *Syrene* arrived, with

the much looked for and anxiously expected siege guns, horses, and their stores. The next day the *Tilsit*, *St. Louis*, *Inflexible* (flag-ship), and *Asmodée* proceeded up to Bomarsund, and yesterday they were followed by transports and steamers taking up the troops and English marines. They were to land this morning at 3 o'clock. I believe it is the intention not to employ the ships at all, if it can be done without them. Sir Charles Napier shifted his flag on board the *Bulldog*, and, accompanied by his staff, went up to Bomarsund. As the marines were leaving their different ships (from 60 to 80 being taken from each) to go on board the ship which was to take them up, their comrades and shipmates of course "cheered" them, when the Admiral immediately made a signal, "Cheering highly disapproved of," so the men confined themselves to waving their hats and caps in bidding adieu to their messmates for, perhaps, the last time. The *Dove*, yacht, belonging to Mr. Arbuthnot, arrived to-day, just in time to be towed up by the Admiral in the *Bulldog*. All our men went away in fine high spirits, and, of course, certain of victory. Every fellow among them is considered a lucky dog by those left behind. We have heard nothing of them up to this time (4 o'clock on the 8th), but it will take at least three days to get the guns into position before the attack can be commenced; these guns weigh 45 cwt. each, and will have to be dragged three miles on sledges, over rocks and marshy ground, from the landing place to where they will finally be planted, and if the forts do not surrender, it will take at least a fortnight to reduce them. Their strength has been very much underrated. By-the-bye, I hear on good authority that the French troops are to return home as soon as Bomarsund is destroyed.

5 o'clock.—A French steamer, the *Zenobia*, has just come down from Bomarsund; she brings word that all the troops landed this morning at 3 o'clock, without opposition. The *Phlegethon* silenced a small battery which opened upon her.

The Fall of Bomarsund.

(From the *London Gazette*.)

Admiralty, Aug. 21st.

Despatches, of which the following are copies, have been received from Vice-Admiral Sir Charles Napier, K.C.B., Commander-in-Chief of Her Majesty's ships and vessels in the Baltic:—

Bulldog, off Bomarsund, Aug. 16th.

Sir,—At 4 o'clock in the morning of the 13th inst., the French battery of four 16-pounders and four mortars opened a splendid fire on the western tower, which commands the fortress of Bomarsund and the anchorage. A white flag was displayed in the afternoon, which led to nothing; but on the morning of the 14th, the tower was surprised by the Chasseurs. General Jones's battery of 32-pounders was finished in the night and ready to open; but, not being wanted, was turned against the eastern tower; and on the morning of the 15th he opened his fire. The battery was manned by seamen and marine artillery from the four ships named in the margin,* under the direction of Capt. Ramsay, of the *Hogue*, assisted by Commander Preedy, Lieut. Somerset, of the *Duke of Wellington*, and the officers named in the margin.† Their fire was beautiful.

* *Edinburgh*, *Hogue*, *Ajax*, *Blenheim*.

† H.M.S. *Blenheim*.—Lieut. F. A. Close; J. J. Ball, master; L Wildman, acting-mate; Lieut. T. L. Ward; David Orr, acting-mate; P. B. Nolloth, brevet-major, R.M.; William Saunders, first-lieutenant, R.M.; S. Wade, assistant-surgeon.

H.M.S. *Ajax*.—W. L. Sayer, captain, R.M.; Thomas Bent, first-lieutenant, R.M.; K. L. C. Robinson, mate.

At 6h. p.m. one side was knocked in, and the tower surrendered.

In the attack on the western tower the Chasseurs, with Minie rifles, were employed so successfully, that it was difficult for the enemy to load their guns; in the attack on the eastern tower we had no Chasseurs, and they were enabled to load their guns with more facility.

Our loss has been trifling, one man killed and one wounded, but I have to lament the death of the Hon. Lieut. Cameron Wrottesley, R.E., who was mortally wounded by a cannon ball, and died twenty minutes after he had been sent to the *Belleisle*.

The enemy had 6 men killed, 7 wounded, and 125 were taken prisoners. I have sent the latter to the *Termagant*.

The loss of the French at the western tower was also trifling.

Both batteries were admirably constructed and admirably fought, which accounts for the small loss. General Jones speaks in high terms of the conduct of the seamen and marine artillery, and the precision of their fire.

During the time the operations were going on, General Baraguay d'Hilliers was employed in establishing his breaching batteries against the great fortress, and the French and English steamers, as per margin,* supported by *Trident*, (bearing the flag of Rear-Admiral Penau,) *Duperré*, *Edinburgh*, and *Ajax*, kept up a well-directed fire from their shell guns, and very much damaged the fortress, while Capt. the Hon. F. T. Pelham, of the *Blenheim*, kept up a beautiful fire from a 10-inch gun, landed in the battery we had driven the enemy out of a few days before. His position was one of great danger, but the battery was put in such good order by Captain Pelham, that the men were well covered, and he had no loss.

The General's breaching batteries will be ready by to-morrow, and they shall be well supported by the ships-of-the-line of both nations and the steamers. The narrowness of the ground on which the General has established his breaching battery, very much circumscribes the space; the greatest caution will be necessary to prevent firing on his troops, and the little space in the anchorage before Bomarsund, and the intricacy of the navigation, will prevent ships approaching the main fortress so near as could be wished; but when the batteries are established, acting in the rear of the fort, and supported by the shell guns in front, it cannot hold out more than a few hours.

I have put off to the last moment the departure of the mail, but I shall send an extra courier the moment the fort surrenders.

The western tower was fired either by accident or design, I do not know which, and blew up at 11h. a.m. yesterday.

I am sorry to add, that Lieut. Cowell, Royal Engineers, Aide-de-Camp to Brigadier-General Jones, was unfortunately wounded in the leg by the accidental discharge of his pistol. He is now on board the *Belleisle*, doing well, but the loss of his services is much to be regretted.

I have, &c.,

CHARLES NAPIER,
Vice-Admiral and Commander-in-Chief.

The Secretary of the Admiralty.

P.S. A return of the whole of the force landed and of casualties will be forwarded by the next opportunity, together with an inventory of stores and list of prisoners.

H.M.S. *Hogue*.—Charles Smith, mate; M. Singer, lieutenant, R.M.; Captain Fosbroke, R.M.; A. R. Bradford, surgeon.

H.M.S. *Edinburgh*.—Lieut. G. F. Burgess; Capt. Delacombe, R.M.; A. Tait, lieutenant, R.M.; and E. J. Giles, passed clerk.

* *Asmodee*, *Phlegethon*, *Darien*. *Arrogant*, *Amphion*, *Valorous*, *Driver*, *Bulldog*, *Hecla*.

Bulldog, off Bomarsund, August 16th.

Sir,—In continuation of my dispatch of this date, I beg you will inform their lordships that, after sending away the mail, the fortress opened a heavy fire on Captain Pelham's battery, which had annoyed them much, and which he maintained all yesterday and to-day, and it is wonderful how he and his men escaped. He had with him Lieut. Close and Mr. Wildman, mate, of whomhe speaks highly. Seeing his position, I immediately ordered the ships and steamers named in the margin,* who were within range with their 10-inch guns, as well as the French mortars on shore, which had been playing on them some time, to give them a shot and shell every five minutes; and their fire was so well directed that the enemy held out a flag of truce.

I sent Capt. Hall (of the *Bulldog*) on shore, who was shortly joined by Admiral Parseval's Aide-de-Camp and two of General Baraguay d'Hilliers' staff, and the troops in the fortress agreed to lay down their arms and march out.

After I had landed I was joined by the French Admiral and the Commander-in-Chief of the army; the prisoners (about 2.000, I believe) were marched out and embarked in steamers, and proceeded to Ledsund, to Commodore the Hon. Frederick Grey, who will conduct them to the Downs to await for further orders.

I beg to congratulate their lordships on the fall of this important fortress, which will be followed by the submission of the Garden of Islands, with so small a loss; and I am happy to say the greatest cordiality has subsisted between the French General and Admiral and myself, as well as between the soldiers and sailors of the two nations.

As soon as I can collect a list of the stores captured, it shall be forwarded to their lordships, and a commissary has been named for that purpose.

This despatch will be delivered by my Flag-Lieutenant, (Lieutenant John de Courcy Agnew,) whom I beg to recommend to their lordships for promotion.

I have, &c.

CHARLES NAPIER,
Vice-Admiral and Commander-in-Chief.

The Secretary of the Admiralty.

Bulldog, off Bomarsund, August 11th.

Sir,—I am sorry to inform their lordships that the *Penelope*, in going through between Præsto and Tafto to watch the passage, unfortunately ran ashore on an unknown rock off Bomarsund. The enemy soon discovered her position, and opened fire upon her. The *Gladiator* and *Pigmy*, who were at the other end of the passage, immediately came to her assistance, and the French Admiral sent boats from the *Trident* and *Duperré*. The boats of Rear-Admiral Chads' squadron were unfortunately on shore, and their crews engaged in the operation of dragging up guns to General Jones's batteries.

The *Hecla* (Capt. W. H. Hall) had just arrived, with Rear-Admiral Plumridge, and I sent her down also to render assistance. Captain Hall, with his usual skill and activity, assisted by the *Gladiator*, immediately took hold of the *Penelope*, and endeavoured to tow her off, but she was immovable.

Seeing the enemy had got her range, and were frequently hulling her as well as the *Hecla*, I sent Admiral Plumridge down with orders if she could not be moved to throw her guns overboard, and otherwise lighten her, which he did, and she fortunately floated. I hope their lordships will see that, under the circumstances, I was justified in ordering her guns to be thrown overboard. The enemy had got her range as well as that of the other ships, and were throwing shell and redhot shot; the shell fell short, but the redhot shot frequently hulled her.

* *Edinburgh*, *Ajax*, *Arrogant*, *Amphion*, *Valorous*, *Sphinx*, and *Driver*.

I am very much obliged to Rear-Admiral Plumridge, and he speaks most highly of the great exertions and cool conduct of Captains Hall, Caffin, and Broke, and of all the officers and ships' companies (not forgetting Lieut. James Hunt, of the *Pigmy*,) under very trying circumstances.

I am happy to say the loss has not been great, neither was the damage sustained very serious.

I have, &c.,

CHARLES NAPIER,
Vice-Admiral and Commander-in-Chief.

The Secretary of the Admiralty.

Stockholm, Monday, August 21st.

Many Russians were suffocated in the Bomarsund casemates by the smoke of their own fire. After the surrender there were great rejoicings in Aland, and prayers were offered in the churches for Queen Victoria and the Emperor Louis Napoleon. The fortress was found to contain ammunition and provisions for one year.

One thousand Russian prisoners, forming half the garrison of Bomarsund, have been embarked on board the *Cléopatre* and the *Syrène*, in order to be taken to Brest. The other 1,000 prisoners were disposed of by Admiral Napier.

THE LATE CAPTAIN HYDE PARKER, OF H.M.S. "FIREBRAND."

The town or village of Sulina, at the mouth of the Danube, is almost surrounded by a jungle of reeds, where stockades had been formed for the defence of the place by the enemy. After the capture of Sulina last month, it was thought that the Russians had entirely left the vicinity, and a degree of confidence or negligence was inspired, which has terminated most unfortunately. It appears that so far from the enemy having abandoned the neighbourhood, they have never ceased to occupy the jungle which lines the bank of the river, and have waited the opportunity to revenge the off-hand capture of this important point. On Friday, July 7th, Captain Parker of the *Firebrand*, was ascending the river in his gig, and at some distance behind was the boat of the same vessel, and Commander Powell, of the *Vesuvius*, in a third. The excursion seems to have been entirely unconnected with any warlike object, and so completely was the presence of an enemy unanticipated that the Chaplain and Surgeon of the *Firebrand* were in the boat with their Captain. As the first boat came abreast of a stockade, supposed to have been long deserted, a shower of musket balls were poured in from an unseen enemy. No one was struck; but a ball passed through the Surgeon's coat, and one or two others narrowly escaped. The boat immediately put back to obtain the assistance of the others, and Captain Parker and his companions were disposed to treat the matter very lightly, laughing at the Russians for not being better shots. Commander Powell with the other boats came up almost immediately; the sailors rowed for the stockade, and Captain Parker sprung on shore to lead the attack. He had made but a few steps when he was struck through the heart with a musket ball and fell dead. Commander Powell then took the command, and in a few minutes drove the enemy from their stronghold. The Russians, however, made a brave resistance. An eye witness declares that the only two of the enemy to be seen at first were a couple of officers, who stood calmly at the embrasures of the stockade and were picked off by the English sailors, while directing their men where to fire.

The *Spitfire*, 5, steam-vessel, Commander Spratt, returned to Varna from a little expedition on Saturday the 22nd July. It appears that on the 16th the *Vesuvius*, 6, paddle sloop, Commander Powell, and the *Spitfire* were cruising off the Sulina mouth of the Danube, when it was resolved by the two Commanders that they would feel their way up to the scene of Captain Parker's death. On the morning of the 17th, Lieut. Mansell, of the *Spitfire*, went up towards the bar in one of the boats and ascertained from the Captain of an Austrian vessel coming down that there was one small buoy left to mark the channel over the bar. He ran up accordingly, found the buoy, and discovered that there were eleven feet of water on the bar, instead of six or seven feet as is generally reputed. The channel was found to be about a cable's length across, and when Mr. Mansell had buoyed it down he returned to the vessels, which were ready with their paddle-box boats, launches, gigs, and cutters. The little flotilla proceeded up the river, destroyed the stockades as it passed, without a show of resistance, and at last came to the small town of Sulina, on which the boats opened fire. Only three musket shots were fired in return, and at 3h. p.m. the place was a heap of ruins, nothing being spared but the church and lighthouse. The *Vesuvius* still remained off the mouth of the river. It appeared that it blew so hard for the last few days, that the English fleet had to put into Baltschik with Sir George Brown on board one of the ships, so that his mission was not then accomplished.

The Wreck of the Steamer "Douro."

The following is a copy of the log of the jolly-boat of the Peninsular and Oriental Steam Navigation Company's steam-ship *Douro*, Chas. G. Baker second-officer, in charge, on a voyage from the wreck of the above ship on the North Shoal, Paracels, to the Island of Hainan, and thence to Hong Kong, for assistance.

Friday, 26th May, 1854, 0.30 p.m.—The jolly-boat of the Peninsular and Oriental Company's steam-ship *Douro*, containing Mr. Norie, late first-officer of steam-ship *Lady Mary Wood*; Mr. C. Baker, second-officer of *Douro*, in charge; Mr. Pestonjee, a Parsee, passenger; Henry Pacey and Woon, two quartermasters; two Lascars; and one Chinaman as interpreter, in all eight souls, left the steam-ship *Douro* for the Bay of Galong, in the Island of Hainan, distant 125 miles, for the purpose of procuring assistance from fishing boats or the Mandarin of the port, to rescue the crew and passengers of the above ill-fated vessel in their perilous position. 4 p.m., rounded the south end of the reef, and shaped a course (N.W.b.W.½W); fresh breezes from south and S.S.W., with cloudy west and a southerly swell, with constant lightning to N.W. throughout the night. Rate of sailing from four to five knots per hour.

27th.—Daylight; squally, with very heavy rain, and the weather assuming a threatening appearance, with calms at intervals (when oars were got out). At 10 a.m. very hard squalls, with torrents of rain, and constant vivid lightning, accompanied with thunder. The sea rising fast, and threatening to swamp the boat. Scudded under storm-lug till breeze abated, and again hauled up with single reef in large lug-sail, making five and six knots. No observations, the sky being cloudy. About noon made some high land ahead. Stood in for the southernmost portion of it, sailing and pulling. 5.30. Drawing into the land close, but, seeing no signs of human habitations, at sunset, under two oars and lug, commenced pulling further to the southward. The appearance of the land leading us to suppose ourselves to the northward of our destination. Under oars all night, and at daylight, Sunday,

28th.—Found ourselves only two miles further south, a strong S.W. current setting up the coast. Out all oars, and after four hours' hard pulling, gained the mouth of a large bay, but could discover no signs of cultivation, fishing villages, boats, or houses. The weather becoming calm and showery, with S.W. squalls, upon consultation, it was decided that as Galong Bay being at least some twenty-five miles to the southward, with heavy S.W. swell and current rolling up, and the impossibility of making headway towards it, and the further improbability of fishing boats venturing to work down to the reef, with indication of foul weather, we should at once take advantage of the S.W. wind setting in, to run up the coast as far as Timhosa Islands, and if no opportunities occurred of procuring assistance, to risk our little craft on a voyage to Hong Kong, calculating if six days completed our sea service, should the Almighty spare us, to procure a steam-ship to run down to the rock. At 9h. proceeded up the coast. At noon our latitude, by (doubtful) observation 18° 37′ N., long., by D.R., 110° 30′ E. Course and distance to Asses Ears, N. 45° E., 280 miles. Noon, two islands ahead (supposed to be the Timhosa Islands). Breeze freshening from S.S.W., with long heavy swell. Stood to E.N.E. to clear the islands and get an offing. At 2h. observed two sail on west quarter, hauled on a wind to cross their track. 4h. Made them out to be two junks. 4.30 Hove to under the lee of one, and dropped alongside. Junk immediately commenced making us suspiciously secure under their quarter. Sent our Chinaman on board to ask assistance—food and water. All were refused unless the boat was first submitted to plunder, and the junk's crew commencing to rob and strip our Chinaman, hauled him on board, and slipped our painter, floating under the junk's stern, and getting 100 yards weather guage of him. Junks gave chase. One, after a time, leaving us, and the other remaining in pursuit of us, keeping us hauled on a wind off our course. Steered to S.S.E. At night all kept away on our course, standing N.E.b.E.

29th.—Throughout the night, steady fresh breeze with constant showers of heavy rain and long S.W. swell. 10h. a.m. Decreasing and clearing up. Saw a junk standing towards us; having had sufficient reason to doubt the amicability of their designs, stood away, and at — crossed her bows. Wind falling very light, with excessively hot sultry weather, out oars, and pulled in turn. Lat. at noon by observation, 19° 27′ N.; long., D.R., 112° 20′ E.; course and distance run N. 68° E. 116 miles; course and distance to Asses Ears, N. 38° E. 175 miles. 3h. p.m. Falling calm; about 5.30, light variable winds, making from southward, with squally appearance. In oars at 7h. Constant fall of heavy rain for one hour. Two hands employed baling out fresh water. Filled up our water casks, having been on short allowance for two days. 10h. Weather clearing up. Passing squalls throughout the night.

30th—Daylight, steady light breeze and cloudy; rigged a mizen mast and set storm lug on it, sea becoming smooth. Lat. at noon by observation, 20° 1′ N.; long. by D.R., 112° 52′ E.; course and distance made, N. 30° E. 130 miles; course and distance to Asses Ears, N. 30° E. 130 miles. p.m. Breeze continuing steady till about 3h., when it fell light. Commenced pulling and sailing as requisite throughout the night.

31st.—4h. a.m. Much distressed by the close locality of a shoal of whales, gambolling sufficiently to place us in danger; at 5h. whales disappeared. Unsettled weather throughout the forenoon, with variable winds and thunder; a swell making from N.E., cloudy, no observation. Put all hands on short allowance of provisions, as our stock was rapidly decreasing.

31st.—Breeze freshening, with squally, unsettled appearance all round; frequent showers and shifts of wind. Towards sunset strong S.E. breeze, with heavy N.E. swell. Reefed the lug and took in mizen. Wind gradually increasing; moderate gale, with high sea running, and the wind shifting to E.N.E. at 4h. Consulted as to the best means of saving the boat and our own lives,

as the appearance of the weather indicated a hard gale from N.E.; scudding was considered out of the question, as high sea would becalm and swamp us at once. But few methods presented themselves of availing ourselves of, and despair of preserving the boat, and the only means of communication from the wreck to the shore, began to get the better of our cool consideration, till Mr. Norie most fortunately proposed the construction of a floating anchor, as the only method to lie head to the sea, and in half an hour completed a very good one of boats' gratings, broken oars, &c., with a market hammer and pieces of iron to sink it; the boat's painter being bent on for a cable, and our anchor hove overboard. To our infinite satisfaction, the little craft continued riding over the heavy seas as lightly as possible; a boat's oar being lashed over the stern to keep her head to the seas. I placed Henry Pacey to act as coxswain; to Mr. Norie's excellent device, and to Pacey's coolness and exertion at the oar throughout that gale of wind, I wholly attribute the saving of our little craft in that unenviable night, with as high a sea (though more regular than in some instances) as I have ever experienced. Before sunset the boat was covered, fore and aft, with the large lug, which we nailed down all round as far as the after-thwart, masts and spars being stowed underneath, with our passengers and the crew, (saving those I required above,) who had instructions on feeling a sea breaking on them to throw it off at once, by raising the sail with their hands and feet. This plan also succeeded admirably. The gale continued blowing, accompanied with heavy rain, till midnight, when it lulled, and again freshened up from south for a short time, gradually veering to S.E. Two hands employed constantly baling out throughout the night.

June 1st.—About 5h. a.m. gale abated. 6h. Moderate breeze from E.S.E., with high cross sea running. Up mast and sail, and stood on our course; cloudy at noon; no observations; steering N.E.b.N. At 1h. p.m. sighted land to westward and N.W. Stood on, expecting to make the "Asses' Ears." At sunset high land resembling the Asses ahead, distance 10 miles; stood towards it, and ran slowly to N.E. till daylight. Fine weather, with light south winds.

2nd.—Run past the island resembling the "Asses' Ears," and sighted another resembling the ragged rocks; pulled towards it, and stood on to northward and eastward. Being perfectly lost in our position, and surrounded by islands, allowed a fishing boat to come alongside, and offered him, through Mr. Pestonjee, 200 dollars to pilot us to Hong Kong, which they declined doing. At noon, by observation, found ourselves 11 miles to the southward, in latitude of Hong Kong, and imagined our best course to be E.N.E. through the islands. Proceeded pulling and sailing through the (Wizards and Ladrones) islands, and at sunset made high land ahead; supposed it to be Hong Kong; proceeded through several narrows, narrowly escaping being carried away by the currents, and at midnight hove to under the high land.

3rd.—Daylight; found ourselves off the S.E. end of the Island of Lenton. Calms and S.E. squalls. Pulled round the island, and at 10h. made Green Island and Hong Kong. At 3h. passed through Green Island and Hong Kong, and at 4.30 arrived at Peninsular and Oriental Company's office, and reported the wreck of the *Douro* to Mr. Walker, Superintendent.

CHARLES G. BAKER.

THE SCREW STEAMER "BRANDON."

The iron screw steam ship *Brandon*, belonging to the London and Limerick Steam Shipping Company, left Cowes Roads on the evening of the 17th July for New York, with a valuable cargo of French goods shipped in Havre, and 90 passengers. She also takes out 30 sheep of the finest and best description that England can produce, for breeding in the neighbourhood of New York.

The *Brandon* is 800 tons, o.m., 210 feet long, and 28 feet beam, of beautiful model, and from the peculiarity of her engines, is enabled to carry a large cargo, with a great number of days' fuel, at a high rate of speed, a desideratum long wanted for extensive sea voyages. This is accomplished by the adoption of Messrs. Randolph and Elder's patent double cylindered engines, in which the steam is worked to the greatest extent of available and useful expansion, thereby eliciting nearly double the effect in power from the steam used than is obtained by the ordinary mode of working. The *Brandon* is the first vessel afloat fitted with these engines, and her performances up to this period have been very satisfactory. Upon her first trial trip, from Greenock to the Cumbrae, in July last, her speed was found to be nearly 12 knots per hour, with a consumption of 14 cwt. of Scotch coal, the usual consumption for engines of the same power being 28 cwt. per hour, thus showing a saving of 50 per cent.; of which fact the directors of the company for whom the *Brandon* was built are so satisfied, that they have paid Messrs Randolph and Elder the premium of £1,600 agreed upon to be given should they succeed in accomplishing what they had stipulated for in the contract. The *Brandon* took in 650 tons of cargo at Glasgow, and arrived at Limerick in thirty-six hours; she then loaded a cargo of general merchandize for London, running the entire distance from the Shannon Docks to the Pool, London, 700 nautical miles, in sixty-four hours, with head winds the whole voyage, not even a fore and aft sail set. She then took in 350 tons of fuel, and proceeded to Havre, running the distance from Gravesend to Cape Le Heve, 190 knots, in sixteen hours and a half, with a head wind, no sail set all the voyage.

The pressure of the steam used is at a maximum 22lbs., but 18lbs. is the ordinary strength. And here we may allude to a popular error which very generally exists, that there is a great advantage in using high-pressure steam, as being a saving of fuel. To show the fallacy of this opinion, we may mention that steam at 15lbs. above the atmosphere, contains double the quantity of water in the state of vapour which steam at the atmospheric pressure does; and steam at 30lbs. three times the quantity of water, and so on progressively increasing with the pressure; and it requires equal quantities of heat added in proportion to the quantity of water evaporated or held in suspension in the steam. To this has also to be added the sensible or apparent heat due to the additional pressure. From this it follows that there will be equal or even greater economy of coals raising steam at a low than at a high pressure.

On going into the engine room, we found the engines to be a pair, each consisting of two cylinders, one of 41 and the other of 64 inches diameter, with direct connection to two crank shafts, one over each pair of cylinders; both the smaller cylinders being connected to one crank shaft, and the two large cylinders to the other shaft. Each of these crank shafts carries a large mortice spur wheel, both of which gear into the pinion on the screw propeller shaft. On one of these shafts there is a novel mode (part of the patent) of at once reversing or stopping the engines by simply holding on a break handle.

The steam is admitted into the 41 inch cylinders only during four-tenths of the stroke, and then allowed to expand until the piston reaches the end of the cylinder. The steam is then withdrawn into the larger cylinder, in which it is still further expanded, and from thence exhausted into the condenser. The sizes of the cylinders are so proportioned to each other that there is an equal amount of power applied to the cranks of the small cylinders that is exerted by the large cylinders to their shaft. The result is, therefore, that the screw is driven with a degree of regularity which is not attained by the ordinary engines.

The rest of the engines consist of air, bilge, and force pumps, and the usual appliances of a sea-going steamer. We may, however, mention, that the engineers in attendance have easy access to all parts of the engines.

The two double engines will exert a cumulative force of 160 nominal horse-

power, working at a pressure of about 18lbs to the inch; being equal to a pair of engines with 50 inch cylinders as ordinarily made.

Still further to secure the economy of fuel, the boilers have been fitted up for burning anthracite coal, having steam-jets under the furnace-bars of each fire-place. As anthracite possesses heating powers one-third greater than ordinary caking coal, an important saving in the weight required to be carried will result from this fuel being burnt.

Mr. George Peacock, of the firm of Seymour, Peacock, and Co., late Superintendent of the Southampton Docks, proceeded round to Havre in the *Brandon*, and took the opportunity of trying the measured mile in Long Reach, which gave a speed of eleven and a half knots per hour. This gentleman also bears testimony to the extraordinary qualities of the ship, and the beautiful smooth working of the engines.

NAUTICAL NOTICES.

THE PRINCE SHOAL.—*Atlantic.*

[Our best thanks are due to Messrs. Falconer and Mercer for the following communication. That their vessel grazed a shoal their careful examination of her bottom would appear to have placed beyond a doubt, and that something has long been hatching in the locality mentioned, many former accounts testify. We trust that it will be subjected to a critical examination by some competent person, and as it seems to be not much above a hundred miles East of St. Paul rocks, which would be a good check on the chronometers, a few good deep sea casts of the lead would no doubt bring it to light.]

19, East India Chambers, Leadenhall-st., Aug. 16, 1854.

DEAR SIR,—The enclosed was handed to us by Capt. Thomas, of the brig *Prince*. Should you deem it worthy of insertion in your valuable publication, it will indicate a dangerous shoal, and be the means of putting shipmasters on the look out in passing the tract passed over by the *Prince*.

We are respectfully your's,
FALCONER & MERCER.

To the Editor of the Nautical Magazine.

Brig *Prince*, of Scilly, from London to Algoa Bay.
Sunday, 11th December, 1853.

At 3h. 30m. p.m. clear weather and very smooth water, all sail set, ship going four knots through the water; suddenly felt a grinding tremour go through the vessel, as if dragging over something rough and yielding. It continued for about a ship's length; did not stop her way through the water. Hove a cast of the hand lead about five minutes after, no bottom, and no appearance of a shoal discernible, or any floating substance. The ship did not strike, only dragged over it, much the same as a light drag over sand or coral; the tremour alarmed all on board; was felt by all below and on deck.

Lat. by sun's mer. alt. reduced from noon ..... 0° 54′ N.
Long. chron. per morning and evening sights..... 26 50 W.

The above is a copy of the Log, duly attested by all the officers of the ship, The ship made no additional water, and not apprehensive of any injury received, being new coppered before leaving London.

London, August 15, 1854.

Since the arrival of the *Prince* in London, we have examined the vessel's bottom, and find clear proof of her having gone over something rough, as her copper is very much grazed on her lee bilge, no doubt done by coral tops; draft of water at the time 12 feet.

JAMES THOMAS, Master.

BALTIC SEA.—It appears by the Reports of the Commander-in-Chief of the Baltic Fleet to the Lords Commissioners of the Admiralty, relative to the present state of the Lighthouses and Beacons in the Gulf of Finland, that, at the following places,—

No. 146 to 164* inclusive .... the Lanterns have been removed.
,, 165 ..... the Lighthouse destroyed.
,, 167 ..... the Vessel gone.
,, 168 to 177 inclusive ..... the Lanterns removed.
,, 178 ..... the Tower destroyed.
,, 179 ..... the Lantern removed.

That the Beacons on Segelskar, Yassari and Soderskar have been pulled down; and that Grohara Beacon, which originally stood on the islet of that name, has been removed to an islet near Stor Enskar, so as to lead an unwary vessel upon the Lierbim Shoal.

Vessels should be very cautious in trusting to the buoys which have been recently placed on the shoals by H.M.'s ships, or on the rocks whitewashed by them, as after our cruizers have quitted the anchorage, the former have often been carried away, or cunningly removed to a short distance, so as to tempt a stranger into danger; and in some instances the whitewash has been obliterated.

FORT WILLIAM 29th May, 1854.—*Distinction of Lights in the Eastern Channel of the Hooghly River.*—With reference to the notification issued from this office, dated the 6th May, 1851, to the effect that from and after the 15th March, 1852, the Eastern Channel Light-vessel would show a Bright Red Light instead of a plain one, to distinguish it from the Gaspar Channel Light: Notice is hereby given, that in consequence of the change above indicated in the colour of the glass greatly shortening the distance at which the light could be seen, plain glass will be restored to the lantern on and from the 15th of June; and in order to distinguish the Eastern Channel Light from that in the Gaspar, the former will during the night from the above date burn a Blue Light and a Maroon alternately every quarter of an hour.

H. HOWE, Secretary.

Lieutenant Horton, R.N., commanding H.M.S. *Shearwater*, states that a Lantern on a White Turret, elevated about 60 feet above high water, and which in clear weather may be seen from 8 to 10 miles, is shown on the Eastern side of Kapsali Bay, Island of Cerigo, at the Western entrance of the Archipelago.

SOUTH COAST OF SPAIN.—LIGHT ON PLANA (OR TABARCA) ISLAND, MEDITERRANEAN.—[No. 173.]—The Spanish Government has given notice, that on the 1st of June last a Fixed Light, varied by a flash every two minutes, was established on Plana (or Tabarca) Island, off Cape Santa Pola, on the coast of Valencia, and being elevated 92 feet above the level of the sea, may be seen in all directions at the distance of 10 miles.

The Lighthouse stands 621 yards from the East Point of the island, and 173 yards from its North shore, in 38° 10′ 13″ N., and 0° 26′ 22″ W. of Greenwich.

IRELAND, SOUTH COAST.—FIXED LIGHT ON THE OLD HEAD OF KINSALE.—[No. 174.]—The Corporation for preserving the Port of Dublin has given notice, that a new Lighthouse has been constructed on the South Point of the Old Head of Kinsale, at about half a mile S.S.W. ½ W. of the old light, which has been discontinued.

The new Lighthouse is a circular stone tower, 100 feet high, and is marked by two Red horizontal belts.

The Light stands 236 feet above the high water level of the sea, and is visible

* The numbers refer to those given in the Admiralty Lighthouse List of 1854.

at the distance of 21 miles, between the bearings of E.b.S. and S.W. ½ S. Its position is 51° 36′ 11″ N., and 8° 31′ 58″ W. of Greenwich; and bears—From Fastnet Rock, E. ½ S., distant 42¼ nautic miles; Cape Clear Island, (South Point,) E.b.S., 38½ miles; Stags Rocks, E. ½ S., 27¼ miles; Bulman Rock, S.W. ¼ W., 4¼ miles; Charlesfort Light, S.W. ¼ S., 5¾ miles; Ballycottin Island Light, W. ½ S., 24½ miles. The above bearings are magnetic.

NEEDLES CHANNEL AND ENTRANCE TO PORTSMOUTH.—PEACOCK'S REFUGE BUOY BEACONS.—[No. 175.]—Notice is hereby given, that the Red S.W. Buoy of the Shingles on the western side of the Needles Channel, and the Black Buoy on the southern extremity of the Spit Sand off Southsea Castle, at the entrance to Portsmouth Harbour, have been removed, and that their places are now occupied by Peacock's Refuge Buoy Beacons.

These buoy beacons, which are constructed of iron, are rendered very conspicuous by their large size, upright position, and conical frame-work. The upper part of this frame-work is terminated by a triangular glass reflector, which in the beacon on the Shingles is 20 feet, and in that of the Spit Sand 14 feet above the water.

There is a refuge deck or platform round these buoys, with a seat and rail about two feet above the surface of the water.

Positions.—The S.W. Buoy Beacon of the Shingles lies in 6¾ fathoms water, one mile West of the tail of the Shoal; its marks being, the Red Beacon on Hurst Point in one with the High Lighthouse, E.N.E., and the Middle Needle Rock in one with the Needles Lighthouse, S.E.b.E. ¼ E.

The Buoy Beacon on the extremity of the Spit Sand is moored in 22 feet water, (but there is no channel between it and the Spit.) From this beacon the inner or Eastern Swatchway mark appears half-way between St. Paul Chapel and the west end of the large Chalk Pit, bearing N.b.E. ¼ E., and the Dock Mill lies in one with Portsdown Semaphore, N.E. ½ E.

HARBOUR OF CEDAR CAY, FLORIDA, WEST INDIES.—FIXED LIGHT, VARIED BY FLASHES, ON SEA HORSE CAY.—[No. 176.]—Notice has been received from the Government of the United States, that a Fixed Light, varied by a Flash once in every minute, was, on the 1st day of August, to be established on the Eastern end of the Mound on Sea Horse Cay, Harbour of Cedar Cay, Florida. It is a plain brick structure, one story in height, surmounted by a watchroom and lightroom, both of which are painted white.

The light is 75 feet above the level of the sea, and visible about 5 leagues distant. The building stands approximately in 29° 5′ 30″ N., and long. 82° 57′ 30″ W. of Greenwich.

The light is intended to guide vessels to the principal entrance of the harbour of Cedar Cay from the southward. By keeping it within the bearings of North and N.N.W. (by compass) the harbour may be safely approached to within one mile, and a dangerous reef will be avoided which exends in a southwesterly direction for 12 miles from Sea Horse Cay.

BOHUS BAY, COAST OF SWEDEN.—CHANGE IN THE KOSTER LIGHTS.—[No. 177.]—The Swedish Government has given notice that the Blue Revolving Light, or the Northernmost of the two lights on the North Koster Island, has been recently altered, and is now a Fixed Bright Light, but varied by Flashes which succeed each other at intervals of about seven seconds, and which are visible at the distance of three miles.

The tower stands in 58° 54′ 10″ N., and 11° W. of Greenwich. The above change took place on the 23rd of June last.

SAN FRANCISCO BAY, CALIFORNIA.—FIXED LIGHT ON ALCATRAZ ISLAND.—[No. 178.]—The United States Government has given notice, that on the

1st of June last a Fixed Light was established on Alcatraz Island, in San Francisco Bay.

The Light is 160 feet above the level of the sea: it is visible in all directions, and in the ordinary state of the atmosphere should be seen at the distance of 12 miles off the heads.

REVOLVING LIGHT ON THE WHALSEY SKERRIES, SHETLAND.—[No. 180.]—Notice has been given by the Commissioners of Northern Lights, that a Lighthouse is now building on the Out Skerries of Whalsey, off the eastern coast of the Shetland Isles, and that until it is completed a Revolving Light will be exhibited on September 15th from a temporary tower on the eastern part of the Island of Gruna, in 60° 25′ 24″ N., and 0° 44′ 20″ W.; and bearing from the Bound Skerry about West by compass. The outer, or seaward extremity of the Bound Skerry is about half a mile from the site of the temporary lighthouse, so that vessels in rounding the light must give it a wide berth.

This light will revolve once in every minute, but to a near observer it will not wholly disappear during any part of that interval.

The temporary tower is constructed of timber; and the light, which is to be 108 feet above the level of the sea, will be visible at a distance of 16 miles, clear weather.

QUEEN ADELAIDE NAVAL FUND.—A meeting of the committee of this society was held on the 3rd of August at Mr. Skyring's apartments, Somerset House. The chair was taken by the President, Rear Admiral Sir W. Edward Parry, and a sum of £42 was awarded in grants to the Necessitous Orphan Daughters of Naval and Marine Officers, being the amount of annual subscriptions and dividends received since the last distribution. We regret to see that the funds of the institution are still so limited, but we trust it is now firmly established, and we were pleased to notice the names of Vice-Admiral Dundas and Sir Edward Lyons among the recent contributors, as well as a munificent donation of fifty pounds from an Officer who formerly owed much to the kind bounty of the late Queen Dowager, and has now taken this means of paying an appropriate tribute of respect to Her Majesty's memory. During the meeting Capt. Stokes, R.N., was elected a member of the committee.

NEW CHARTS.

Published by the Hydrographic Office, Admiralty, and Sold by J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

WHITE SEA, Index, from Russian Surveys	-	-	-	-	2	6
,, by Gustav Klint	-	-	-	-	1	6
,, 9 sheets, from Russian Surveys	-	-	-	each	2	6
,, Arkhangel Bay, ditto	-	-	-	-	2	6
SKAGERRACK, from Swedish Surveys	-	-	-	-	2	0
BOTHNIA GULF, 7 sheets, from Swedish Surveys	-	-	-	each	2	6
BLACK SEA, 9 sheets, from Russian Surveys	-	-	-	each	2	6
Great Circle Sailing and Index, 5th edition, J. T. Towson	-	-	-	-	1	0

EDWARD DUNSTERVILLE, Master, R.N.

Hydrographic Office, Admiralty, August 22nd, 1854.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

OCTOBER, 1854.

Shipwrecked Mariners: Collisions at Sea.—*By K. B. Martin, Royal Harbour Master, Ramsgate.*

We look with an eye of incredulity upon the chart of wrecks, and, till stubborn facts arrest our attention, are ready to exclaim, "Can this thing be?" We read of a legion of sailors perishing annually, while labouring for "the bread which perisheth," and, but for the irresistible documents published periodically by the Admiralty, the Board of Trade, and the benevolent societies, we might well be sceptical as to their accuracy; but it is so, and melancholy in detail are the facts thus recorded. Such are the effects; and every seaman with one spark of philanthropy or patriotism is in duty bound to endeavour to trace out and furnish his quota of information as to the cause, or causes, which lead to these lamentable results.

I have been a Commissioner of salvage nearly thirty years, during which period I have assisted to adjudicate upon two hundred cases, at the least, of ships and vessels brought off from the Goodwin and other shoals in this locality, and every year strengthens my conviction, that if proper attention (as of yore) had been paid to the deep sea and hand leads in crossing the German Ocean, or coming up channel, nine out of ten of those casualties would have been avoided. I have listened to depositions on the part of boatmen, met by excuses from master mariners, which would be too ridiculous to recite. It would appear incredible that a vessel should be put on shore in broad daylight, with not a soul on deck but the cabin boy at the helm, whose head was but just distinguishable above the bulwark by the lugger's crew, who

afterwards boarded and carried out her anchors, and rescued her from the sand: Or that twelve ships should leave the Scheldt together, and four only of the number should hit the course through the Straits of Dover, while the other eight, with a "heavenly breeze," (as the captain called it,) were sailing leisurely into the Thames, the North Foreland on the port beam believed to be Blancnez; till (again to quote the captain) "my ship being the fastest, I guess, took the ground, and my companions took the hint, and just let go their anchors in time, and as I was their beacon, I calculate it would have been fair to have sent their boats to help me out of the scrape. But no, a Margate lugger came alongside, and says the boatman, 'Do you know where you are?' Not exactly, says I; suppose it's the Varne. 'Ha! ha!' says he, 'you're on the Long Sand.' Well, gentlemen, I have no fault to find with the men; they carried out a heavy anchor and did their work well, and must be paid."*

I could multiply such instances of neglect of the lead, but once more. A thick fog, and one of the hovelling luggers was cruizing in the Gull Stream when it came on, and for safety sake they stood in to Trinity Bay, in the heart of the Goodwin Sand, and anchored, not dreaming that anything but a boat like themselves would come near them. All hands wrapt themselves in their gregos and composed themselves to sleep, when on a sudden crash went their mizenmast by collision with the head gear of a stout vessel going under their stern. Up they jumped and hailed the intruder, "Let go your anchor, or you will be on shore." There was a contemptuous reply to this warning, and on shore he went on the top of high water with all his sails set. Then the boatmen boarded and assisted in getting him off, and he paid for his neglect and impudence. Could there be any excuse for a man acting thus recklessly in a thick fog, and without a hand at the lead, or the anchor a cockbill to let go under foot, and check her clear of any other craft, whose commander had more prudently brought up till a more favourable tide presented itself in this dangerous locality. Is the neglect of the deep-sea and hand-leads a primary cause? I believe it is, and year after year I have repeated it through the public press and in your valuable periodical; and I am especially struck with a passage in Sir Edward Parry's excellent address, *On the Responsibility of Seamen*, recently published, and circulated by every means in the power of those who are well wishers to the mercantile marine. I mean the cautions (three) of an old officer as to entering the British Channel. The first is the lead—the second is the lead—the third is the lead. If then this be once admitted, we must ask, what is the cause of this neglect? That is the material question, and, as far as my experience goes, it is easily answered. In my pamphlet, *On Harbours of Refuge*, I have given a statement, that out of 884 sail registered as entering Ramsgate Harbour for shelter during a period of five winter months, anno 1838, 101 sail were under circumstances of severe distress, such

* The indraught of the tide in the entrance to the Thames requires to be especially guarded against by a regular course of soundings.

as loss of anchors, sails split, leaky, partially dismasted in collision, brought off the sands or main, &c., &c. Now I took some pains to ascertain the position and feelings of the persons in charge of these vessels generally, and I found that not one captain in ten had any earthly interest whatever in his vessel, or her cargo or charter-party, save and except his bare salary, which in many instances did not amount to more than the merchant would give to a junior clerk in his counting-house; a few indeed were as high as twelve, many as low as six, and the average would certainly not have exceeded eight pounds per month. Surely this cannot be good policy. Can a master mariner, with a family, support them decently? Is it not rather a temptation to make an average, than to prosecute a voyage to a successful termination. God forbid that I should judge any man, or set of men harshly, but poor human nature is sadly tried under such circumstances, and the long-shore persuaders are always cruising in their headway to cause them to deviate from their course.

Forty years have elapsed since I was a master mariner in the mercantile marine; there were fourteen of us in the same employ. Our owner, when parting and shaking hands when we were outward bound, used to say, "Captain, don't draw upon me abroad while you have spare cash of your own; when you return and we square yards, there's your seven per cent. for any disbursements on my account." And there it was, generously, aye and thankfully paid. We were allowed a primage on the realised earnings, annually paid also, and a moderate private trade for the voyage. Now mark the consequence. Our families drew from the owner's office (on advance notes) just a sufficiency for current expences, and that only. Our real property, small or great, was under our foot; and we all were allowed a share in the vessel, to work out by such instalments as the good or ill fortune on our venture would allow. To make a bad voyage, or an average, might be a loss to the owner, but it was ruin to us, and we kept an especial sharp look out upon soundings, strange sail, and squalls of every description. Every motive then tended to one point—the preservation of ship and cargo. Now it is of infinitely less consequence to the master mariner. He is in no way identified with his owner but as a mere labourer for hire; for hire too which affords him no prospect of an independence in age or infirmity. Only restore to the master mariner an interest in the vessel he commands—a stimulant to get the best cargoes, and to land them in first-rate order and well-conditioned at their port of destination, and believe me that salvage, and fraud, and wreck, and the loss of life, will not continue to so great an extent as it now is, a blot on the escutcheon of our mercantile marine.

In conclusion, much has been written and said upon the frequent collisions now so prevalent. Rules for the maritime highway have been promulgated and enforced, and it appears to little effect as to the prevention of accident. There is, however, one great cause which may be easily remedied. I have remarked that in such cases, generally speaking, the helmsman has had little chance of seeing the approaching

danger, and I pointed this out to Captain F. W. Beechey, R.N., of the Board of Trade, in the especial case of a ship lying in Ramsgate Harbour. I allude to the deck cabins, their elevation being a complete blind to the man steering, especially when he stoops to exert any sudden effort upon the steering wheel. Nay, to such an extent is this carried in some ships, that the helmsman must depend entirely upon same one to con the ship, and call to him as to how and which way he is to right or shift the helm. Surely no one will dispute the propriety of remedying this evil, who reads of the sinkings and drownings of late years, consequent upon these fatal collisions. "Lead and look out" was the proud boast of our forefathers, and if we thus dispense with the one and neglect the other, we cannot lay claim either to their industry or foresight.

The chart of wrecks alluded to by our respected correspondent, and perhaps unknown to many of the readers of the *Nautical*, is a chart of Great Britain and Ireland, on which are inserted the places on the coasts of these islands where wrecks occur, the number of which is designated by a sign. It will be found in a Parliamentary paper, and is at once a document symbolical of the great wealth of this country, as well as of the riches annually cast into the sea, exhibiting, were it not for the loss of life by which it is accompanied, the proof of that glorious flourishing condition of our land that can afford to throw away so much of this world's goods and yet to prosper! As to the causes of this state of things, which very naturally excite the attention when new to any one, they have been pointed out over and over again in the pages of this journal. It was in our own inexperience of such matters when we commenced this work that we preserved a list of them every month, beginning with the month of April 1832, and persevered with it most religiously down to two or three years ago, when we found the subject was taken up by the government. There they stand in fearful array, and full often have we pointed them out, and showed over and over again how the evil went on flourishing, and how some people benefited by it, although poor Jack might suffer, and hence the country, to which his life was indeed a loss.

But what has been done to prevent them, or, indeed, can they ever be prevented? We fear not, while certain reasons for them are left untouched. Shipwreck committees have sat by decree of Parliament, but what good did they ever do? Nothing in preventing wrecks. The government, however, we are happy to say, is alive to the evil, and have adopted some good stringent measures. But how little is this in comparison to what is yet to be done. So little he says, that "we look with an eye of incredulity on the chart of wrecks, and are ready to exclaim, 'Can this thing be?'" No doubt it can be and is, and Dibdin was quite wrong when he made Jack say to his sweetheart,

> Don't you see the world's wide, there is room for us all,
> Both for seamen and lubbers on shore,

for it cannot be so, or why do the fearful collisions so constantly take place that we are so repeatedly hearing of. Ships were not so plentiful in his day, nor indeed were seamen either, and they could navigate the ocean without running over each other.

This is one cause of wreck, and a fearful one it is; but a heavy gale of wind comes on, and wrecks strew our coast more plentifully than ever, a tolerable proof of which is that which occurred in January last, and recorded in our February number, when a hundred and ten ships were wrecked in a few hours within a space of coast amounting to thirty miles. There are more causes than one for all this, which John Bull, good honest man as he is, puts up with, making up his mind with the conclusion, "what can't be cured," &c.

Captain Martin, our old and valued correspondent, has however pointed out a cause of disaster and wreck, that if it were taken up in earnest would do much to reduce the number, (assuming such a thing to be desirable for the sake of the lives jeopardized,) and with a view to call the attention of shipowners to it we have placed his letter at the commencement of this number. We trust it will be not without its good effect. And to show that matters are much the same now in regard to wrecks as they were years ago, we shall conclude these remarks with some on the same subject that appear in our volume for 1841, by which it will be seen that in many particulars concerning wrecks, what applies in 1841 unhappily continues to be repeated even in 1854.

Ipswich, December 8th, 1840.

SIR,—The separate as well as combined causes of shipwreck, and other losses at sea, are more numerous than are generally imagined:—the following list, the result of some experience and observation, though set down at random, may perhaps surprise some, but if the consideration of it should at all tend to liberality in the outfit on the one hand, and to increased alacrity and circumspection on the other, it will have the desired effect.

Causes of the Loss of Ships at Sea, by Wreck and otherwise.

1. Short complement of men.
2. Deficiency of materials and stores.
3. Deficiency of water and provisions.
4. Bad materials—anchors, chains, boats, spars, sails, cordage, &c.
5. Bad quality of water and provisions.
6. Teatotality—coffee instead of rum, &c.
7. Bad condition of the ship, from age, want of repairs, caulking, and looking properly to.
8. Bad construction of the ship, out of trim, &c.
9. Incapacity of masters and others.
10. Presence of Captains' wives, and other women.
11. Insanity.
12. Inability of men, or crews, from sickness, maims, exhaustion, &c.
13. Drunkenness, revelry, &c.
14. Discipline, too lax or too severe.
15. Mutiny and insubordination.

16. A dead-and-alive set: no devil on board.
17. Discord and dissension: the devil let loose.
18. Deaths, desertions, and discharges.
19. Fire.
20. Collision.
21. Upsetting in a squall, &c.
22. Shifting of cargo, &c.
23. Consternation: the ship on her beam-ends, on fire, water-logged, &c.
24. Shipping of seas, foundering by stress of weather, &c.
25. Springing a leak by starting a butt-end, &c.
26. Deep lading, crowded stowage on deck, &c.
27. Striking on rocks, grounding on shoals, &c.
28. Driving on a lee shore.
29. Impressment at sea, detention, and deviation.
30. Incorrectness of charts, compass, &c.
31. Want of care: bad dead-reckoning.
32. Want of vigilance: bad look-out.
33. No latitude by observation on account of fogs, &c.
34. No flying the blue pigeon: no regard to lights, bells, drums, &c.
35. Capture or destruction by an enemy or pirate.
36. Struck or blown up by lightning.
37. Masts, &c., rolled or pitched away.
38. Driving with a foul anchor: a kink in the cable, &c.
39. Parting a cable.
40. Staving of boats, carrying away of masts, splitting of sails, &c.
41. Sleeping on watch, drowsiness of helmsman, &c.
42. Breaking adrift of floating lights, &c.
43. Mistaking of headlands, lights, &c.
44. Sinking or destroying a ship purposely.
45. Rising of prisoners, convicts, &c.
46. Fool-hardihood: guns run out when blowing hard upon a wind, press of sail with a crank ship, &c.
47. Carrying away topmasts from neglect of breast back stays, after going about.
48. Broaching to when weathering a headland in a gale of wind.
49. Incapacity of persons having charge as pilots.
50. Abandonment of ship without sufficient causes, in case of wreck, officers leaving their juniors in command, with orders to land the treasure, the men, &c.

These perils and faults, often disastrous and sometimes fatal, to which sailing vessels are liable,—to say nothing of steamers, are not all that might be mentioned. A ship may be lost from circumstances which seem trifling in themselves, and even ridiculous. An East Indiaman was burnt owing to a boy wanting to look into the bung-hole of a puncheon of rum, to see if it was full; another, (as is supposed, for no one has told the tale,) from the habit of smoking between decks; and a third because a cask was not properly secured. I have known an officer's cabin set on fire, from the socket of a candle-lamp going with a spring instead of a screw; and an instance of a fine new ship of 300 tons within an ace of being driven on the Brake, with loss of mainmast and mizen-mast, because the carpenter, who had the quarter-watch, when riding at single anchor in the Downs, though he saw a ship driving broadside upon us, was afraid of calling the hands out, for fear

of making a *mistake*, and so getting himself laughed at, and though we had an experienced captain. A man should never go to sea after he is turned of fifty, Mr. Editor. We were not much the better off for that circumstance. There is a saying, "For want of a nail the shoe was lost, and for want of the shoe the horse was lost." This adage, I think, applies with peculiar force to so large, complex, and animated a machine as a ship at sea, in stormy weather.

AN OLD TAR.

Among other causes of wreck which our correspondent has not named are sudden gales, and imaginary dangers. The former no sooner visit our shores, than they strew them with wreck, and the latter appear in the protests of the captains, like the Lorton rock, in the West Indies, and the Madeline rock, among the Cape Verds; the former being impudently placed in the middle of the north-east Providence Channel, *where no rock exists, and the latter one of the same order*, probably the inventions of MARINE INSURANCE.

PROCEEDINGS OF H.M.S. "SPHINX."—*Extracts from a Journal of Commander C. F. A. Shadwell.*

(Continued from page 483.)

In consequence of information received at Hong Kong at the beginning of January, 1852, relative to the presence in the neighbourhood of Ningpo of a formidable piratical squadron, H.M.S. *Sphinx* was ordered to proceed to the northern parts; and, after making due inquiry was directed to take measures for dispersing and, if found necessary, for destroying the piratical squadron.

The pirates in question had been cruising in the neighbourhood of Chusan and Ningpo for some time previous, and reports on the subject from the Vice-Consul at Ningpo had been transmitted so far back as the early part of the November preceding.

H.M. brig *Contest*, then stationed at Sanghai for the protection of British trade, had gone to Ningpo (a port included within the limits of her station) on the 30th November. Commander Spencer had proposed to leave Ningpo on his return to Shanghai, the head-quarters of his station, on the 11th December; but, on the day previous, the Toutai of Ningpo sent an official despatch to Mr. Vice-Consul Hague earnestly requesting that he would endeavour to prevail on Captain Spencer to remain for the protection of the place six or seven days longer.

Captain Spencer acceded to the Toutai's request, and was subsequently induced, at the requisition of the Vice-Consul, to prolong his stay, the British residents at Ningpo having made urgent representation of the danger to their personal safety and property if the pirates,

as was expected, might make a descent on Ningpo and place the city under contribution.

Such a contingency was by no means improbable, for an engagement had taken place on the 7th December near Sinkong, in the Island of Chusan, between the Imperial and pirate squadrons, in which the latter were victorious.

The Imperial fleet from Shanghai was said to consist of twenty sail, under the command of a reclaimed pirate "Wong-fo-kien," and the pirate squadron of twenty-one, under a chief named "Poo-hing-hew." Previous to the fight a conspiracy had arisen among the Canton division of the Imperial squadron, and when the engagement took place six of the vessels fired blank cartridges and allowed themselves to be captured. Three others were taken; as was also their chief, Wong, himself. The rest of the vessels made their escape. After this victory the pirates repaired to Shinpoo, a convenient harbour having three outlets, about sixty miles from Chusan; from which position they could conveniently intercept the trading junks proceeding along shore from the southward.

As a general rule it was not the wish or policy of the British Government to interfere, more than was necessary for the protection of their own commerce, with the proceedings of native craft on the coast; and, indeed so much difficulty existed in ascertaining which vessels were pirates and which were not, that any general measure for their suppression required to be regulated with great caution. Nevertheless, in the present instance, circumstances seemed to justify a more active policy. The Chinese authorities had actually requested our protection, and the interests of our commerce seemed to be in some jeopardy, so that it was considered advisable by H.M. Plenipotentiary and the naval Commander-in-Chief that measures should be taken at least to disperse and, if necessary, to destroy the piratical squadron.

In pursuance of these intentions the *Sphinx* left Hong Kong on the 8th January, and proceeded to the northward. After clearing the harbour we experienced a strong N.E. monsoon, with a heavy sea; the direction of the wind generally following the trend of the land.

On the evening of the 11th, we anchored under the White Dogs, and remained under their shelter all night.

The next morning the weather was more moderate, when we resumed our voyage and, as we advanced to the northward, had finer weather and more moderate winds.

At sunset of the 14th, we anchored inside the Yang-tse-kiang, and at noon of the following day arrived at Shanghai.

On the 16th, accompanied by H.M. Consul, I waited on the Toutai to obtain information as to the recent movements of the piratical squadron. His excellency stated that, by the latest accounts, the pirates were lying off the mouth of the Wan-chew river, from whence they intended to proceed to Shinpoo; that, under directions from the Viceroy of the province, some correspondence had already taken place with the pirates to induce them to come to terms, but with what result he had not yet heard. Should they refuse the terms offered, he added,

that he had little doubt that the authorities at Ningpo would render every assistance in pointing out the piratical vessels. He denied that these pirates had any connection with the rebels from Kwangoe, whose proceedings about this time were beginning to attract serious attention.

On the 17th the *Sphinx*, having completed her coaling, left for Ningpo, and arrived at that place at noon of the 19th. H.M. brig *Contest* was lying off the town.

In the course of the afternoon, accompanied by Mr. Vice-Consul Hague, Captain Spencer, and the Messrs. Meadows, (the Interpreters,) I waited on the Toutae to offer assistance against, and obtain information about the piratical force.

The conference began by my informing His Excellency that, in consequence of the previous application of the Chinese authorities for the detention of H.M. brig *Contest* at Ningpo for the protection of the place, and the statement then made as to the presence of piratical forces in the neighbourhood, their Excellencies the Admiral and H.M. Plenipotentiary, ever anxious to afford assistance to the Chinese authorities, had dispatched the *Sphinx* to the northern ports to make inquiries and to render assistance, and that I was, therefore, desirous of obtaining every information as to the movements and recent proceedings of the piratical forces.

His Excellency the Toutae, almost interrupting the Interpreters, immediately replied that he was exceedingly obliged to the Admiral and the Plenipotentiary for sending, and to me for coming so far to their assistance, but that the negociations with the piratical Chiefs were concluded: that they had already agreed to cease from their depredations and to give over their vessels to the authorities. We were further informed that the Chinese Admiral and the Prefects had already proceeded to Chinhae (at the mouth of the Ningpo river) for the purpose of receiving the vessels, and that a portion of them had already arrived.

In order to prevent any subsequent misunderstanding, it was deemed expedient to notify to the Toutae in writing the cause and fact of the *Sphinx's* arrival. The Toutae's reply was characteristic. After acknowledging the receipt of the Consul's despatch, that functionary thus proceeds:—"In reply, I have to state that some time back, in consequence of certain piratical vessels committing disorders on the seas, and fearing that the vessels of war of this province might not be able all at once to assemble (to destroy them); I gave you a communication to request the temporary detention of the *Contest;* but, as the piratical vessels have already returned to their allegiance, it does not appear necessary to avail myself of the active services of your men-of-war. Captain Shadwell having done me service of coming a great distance across the seas on account of this affair, I really feel the utmost gratitude to him, &c."

The unexpected declining by the Toutae of our proffered assistance, and the intelligence that the pirates had already returned to their allegiance and hence, by that act, ceased to be any longer outlaws,

seemed at once to remove all possibility of treating them in a hostile manner; and it therefore only remained open to us, as we could not justifiably destroy them, to take measures for dispersing them by seeing that their new engagements with the Chinese authorities were fully and fairly carried out, their vessels and arms given up, and themselves disbanded.

With this object in view, it seemed advisable that our vessels should visit Shinpoo, the alleged head quarters of the pirate squadron, to verify the reports we already had about them, to make further inquiries, and, by visiting their haunts, to show the Chinese along the coast that we had an eye on all lawless proceedings.

Accordingly, on the 20th, we left Ningpo and, with the *Contest* in tow, proceeded down the river. As we passed Chinhae we observed a few junks at anchor having flags with an inscription on them "Return to Allegiance," and soon after, as we entered the Kintang Channel, we met fifteen other junks proceeding towards Chinhae, bearing flags with similar inscriptions.

The appearance of these vessels was a complete confirmation of the intelligence we had received respecting them from the Toutae at Ningpo as to their numbers, return to allegiance, and expected arrival at Chinhae. On consideration, it did not seem advisable in any way to interfere with their movements, but, on the contrary, rather the wiser course to let them and the Chinese authorities settle the details of the negociation entered into between them by themselves, reserving our subsequent intervention for a future occasion, should necessity arise. The *Sphinx* and her consort therefore passed slowly by them and continued their course.

After anchoring for the night, we resumed our course the next morning, the 21st January, and in the early part of the afternoon arrived off the entrance of the harbour of Shinpoo.

The Harbour of Shinpoo is formed by several rocky and mountainous islands contiguous to the mainland. It has three entrances from the seaward, and a back exit for junks and vessels of small burden. From its position it might easily be made impregnable, and is very favourably circumstanced as a rendezvous for piratical squadrons, from its facility of access and egress, and from its position just to the southward of the Chusan Archipelago, and in the highway of trading vessels coming from the southward towards the mouth of the Yangtse Kiang.

It had been surveyed by Captain Collinson, and we were provided with his charts. Of the three entrances from the seaward, the middle one seemed the most eligible, being less tortuous than the northern one, wider than the southern one, and not so long. The only circumstance which seemed to render any more than usual caution necessary was the Chow Chow in the narrow part of the channel, which frequently makes the steerage of a ship very difficult, and to require very careful attention.

Chow Chow water is the name given by the Chinese to the eddies caused by the tide flowing over a bottom of irregular

depth in the narrow channels among the islands and harbours along the coast.

At 2.30 p.m. the *Sphinx*, with the *Contest* in tow, entered the harbour of Shinpoo by the middle entrance between Tungmun and Sin Islands, when suddenly, when just in the middle of the entrance, a catastrophe occurred which had well nigh brought our further proceedings to an abrupt and disastrous termination. The ship struck, or rather slid up on a sunken rock, the sensation being much more like sliding up an inclined plane than the violence of a direct concussion. The engines were immediately stopped. The ship's bow was elevated considerably, her stern depressed in a corresponding manner, while the vessel had a considerable heel to starboard.

Immediately on the occurrence of the accident, the *Contest* let go an anchor, and put her helm hard a starboard, to sheer clear of the *Sphinx*, the hawsers at the same time being let go, but the tide (the young flood) had immediately begun to slew, the *Sphinx* hanging as it were on a pivot, so that the *Contest* could not sheer clear of her; a collision was inevitable. The *Contest* struck the *Sphinx* obliquely on the starboard quarter, just before the quarter badges, carrying away her jibboom and cutwater, and *Sphinx's* bulwarks and mizen rigging, and striking the mizenmast with her bowsprit cap.

By the force of the collision and the tide together, we felt the ship slide off the rock and partially right herself, but the *Contest* remaining hooked on to us by the wreck of her cutwater, still gave us a heel to starboard. Under the impression that the *Sphinx* was seriously injured, orders were given to bar all the ports in, and to lower the boats; but presently it was reported that the ship was making perceptibly very little water, and that nothing was wrong in the engine room.

We vainly endeavoured for some minutes to clear the two vessels one of the other; the tide meanwhile slewing the vessels round and round, when at length *Sphinx* was slewed with her head pointing up the harbour. Advantage was immediately taken of the opportunity. *Contest*, which had been veering, held on her cable, the engines were turned ahead, the vessels parted with a crash, carrying away some more of the shattered bulwarks, *Sphinx* rolled and righted herself, and went on cheerily.

The whole affair occupied about twenty minutes. *Sphinx* then proceeded up the harbour and anchored off the town of Shinpoo, the *Contest* remaining for the night at the entrance of the harbour in an uncomfortable and dangerous position, on account of the capricious strength of the tide and her proximity to the rocks, from which she did not extricate herself till low water, soon after noon on the following day, when, accompanied by *Sphinx*, which had gone to her assistance, she repaired to the anchorage off Shinpoo.

We remained at the anchorage within the harbour till the 24th, the interval being employed in examining the entrances into the harbour, and in searching for the rock on which the *Sphinx* had struck. At the same time the vessels temporarily made good their defects, and an

interview was had with the Sub Prefect, the civil officer in charge of the place, for the purpose of obtaining information relative to the pirates.

Our boats had great difficulty in finding the rock on which we had struck, on account of its smallness and the irregularity and velocity of the tide. The result of our examination clearly proved that it was a distinct rock, unmarked on the chart, and not to be confounded with a detached sunken rock noted in Collinson's plan off the S,E. point of Tungmun Island. The *Sphinx* rock is situated in mid channel, between the two points of Tungmun and Sin islands, where the entrance is narrowest. The least water on it (reduced to low water) does not exceed ten or twelve feet. The rock seems to be very small, and probably smooth; the soundings round it are very irregular, the deepest water being towards Sin Island. After the experience of the *Sphinx's* accident, the passage is not to be recommended for large ships, and if used at all, they should keep well over towards the southern shore.

The northern entrance, between Tungmun Island and the main land, although tortuous and narrow, is safe; there is also less "chow chow" water in it than in the middle entrance.

Time did not permit a thorough examination of the southern entrance, between Sin and Kyew Tew Islands, the entrance recommended in *Horsburgh's Directory*, although the reasons for its preference are not very apparent. It is long and narrow, and is never used by the Chinese junks, having a bad reputation from the rocks which they say abound in it.

When once inside, the harbour is capable of affording shelter for numerous ships, and if the entrances were fortified would be impregnable; and the place is certainly admirably adapted for the rendezvous of a piratical force.

Our interview with the Sub-Prefect took place on the forenoon of the 23rd. That functionary was at first not very willing to receive us, fearful, no doubt, of incurring any responsibility, and accordingly started all sorts of excuses to prevent the interview; and it was not until it had been fully explained that our visit to Shinpoo had the sanction of his superiors at Ningpo, and that we should complain of his want of courtesy, that he withdrew his objections.

The information obtained from this officer confirmed our previous knowledge, and added some further particulars. The pirates, it appeared, had first come to Shinpoo in August, 1851, and had made it their rendezvous ever since; but he would not admit that they had committed any depredations there. He stated that they had all left for Chinhae, under their leader, Poo-king-yew, a few days since, having returned to their allegiance.

We left Shinpoo on the forenoon of the 24th, by the northern entrance, towing the *Contest* out to sea. That vessel was then detached to return to Chinhae, while the *Sphinx* proceeded to the southward to make inquiries after a brig sailing under British colours, which from information received at Ningpo was said to be detained by the pirates at Wamhew (lat. 28° N.).

The *Sphinx* anchored for the night under the lee of the Tai Chow Islands. Soon after leaving on the following morning, we perceived a brig getting under way in shore of us, and on proceeding towards her and communicating to obtain information, ascertained that she was the identical vessel that we were in search of.

The information received from the master of this vessel, (the brig *Independence* of Sincapore, 147 tons,) is curiously instructive of the singular proceedings of the pirates on these coasts, both in relation to native craft and to vessels sailing under foreign flags.

The *Independence* left Sincapore in July and proceeded to Amoy, from which she sailed on the 9th September, taking under her convoy from that place a fleet of sugar junks, twenty-three in number. Proceeding to Ningpo, they arrived at Wamchew on the 3rd October. The master of the *Independence* had voluntarily remained there ever since, to afford protection to his convoy, for which service he was to be handsomely paid, five hundred dollars a month. The pirates had never interfered with him, and he might have left whenever he pleased. After levying a contribution on the sugar junks, the pirates gave them a "pass flag" and permitted them to depart.

The condition of affairs disclosed by these proceedings is very remarkable, for while the convoy, Chinese vessels, were made to pay ransom money, or black mail, for the liberty of departing, the vessel that was convoying them, being under British colours, was in no way molested; and as the vessel was to be handsomely rewarded for her services in piloting them along the coast, and was paid by the month, it is obvious that the existence of pirate squadrons on the coast was rather a source of profitable employment to her, than a hindrance to the freedom of trade.

This respect for vessels under a foreign flag confirmed the reports we had previously heard, that the pirates had openly declared that they had no intention of interfering with foreign vessels, unless molested by them; their business being only with those under the Chinese flag. How long this politic or prudent forbearance might have been adhered to had the piratical combination continued in existence, is, however, a matter extremely questionable.

In consequence of having fallen in with this vessel, (the object of our search,) having now no longer any object in proceeding to Wamchew, where we were also informed that there were no longer any piratical vessels remaining, the *Sphinx* turned about and retraced her steps to the northward and proceeded towards Chinhae, anchoring for the night near the Kwa-shan Islands, and arriving at Ningpo at 6h. p.m. on the 25th.

As we passed along the coast we perceived some rocks off the Cliff Islands, which do not seem to be noted in Collinson's charts. The vessel having been stopped, the following observations were taken to fix their position:—

Northernmost of the rocks in transit with the Northern extreme of the Cliff Islands	S. 81° 30′ W.
Angle between the extremes of the Cliff Islands	63° 20′

The rocks apparently consist of two rocky patches, about a boat's length apart; they would be covered at half tide. The *Sphinx* passed about a quarter of a mile to the eastward of them, and making allowance for this variation in position, the rocks are situated (according to the chart) in lat. 29° 18′ N., long. 122° 3′ 30″ E. In passing the Cliff Islands it would seem advisable to pass about midway between them and the half tide rock already marked down in Collinson's chart.

On Jan. 27th, the day after the *Sphinx's* return to Ningpo, his Excellency the Toutae having previously that morning sent messengers to the consulate to sound Mr. Hague, the Vice-Consul, as to the possibility of the *Sphinx* being detained for five or six days, as the business with the pirates was not yet completely settled, subsequently visited the consulate in person, and had an interview with myself and Mr. Hague, in which he was very urgent that the *Sphinx's* departure might be delayed for that time. As the Toutae had formally declined our proffered assistance against the pirates at our first interview on the 19th, and did not even now make any requisition for active intervention, I declined acceding to this request, foreseeing that my compliance would merely be the commencement of an endless series of delays, and be productive of no ultimate advantage. The Toutae pleaded hard for a short delay; but as he was unwilling to leave the matter of the pirates in my hands, in case the affair was not satisfactorily settled at the termination of the proposed detention, the conference ultimately ended without any result.

On the following day, the 28th, the Toutae again made some indirect overtures to induce me to extend the period of my stay; to which I courteously replied in the negative as before.

On the night of the 28th, the Toutae's fears of the responsibility of dealing with the pirates, overcame his reluctance to call in foreign aid, and he sent a despatch to the Vice-Consul requesting that I would cooperate with the Chinese forces in attacking and destroying the pirates as I passed Chinhae on my way down the river; for, says his Excellency, "the intentions of this piratical gang are difficult to fathom, and at times they waver in their proceedings: it has become necessary to destroy or serve them with rigour as a punishment and warning."

On the following morning the Messrs. Meadows, the interpreters, waited on the Toutae with the Vice-Consul's reply, informing him of my willingness to accede to his wishes. But, lo, the Toutae's morning reflections did not sustain his evening resolutions, and his Excellency therefore revoked his request, on the ostensible ground that the piratical vessels were so intermingled with the trading junks at Chinghae, that the destruction of the former could not be effected without destroying the latter at the same time also.

During all this time we were aware, from information derived from other sources, that active negociations were going on between the Chinese authorities and the expirates as to the terms on which the force was to be disbanded; and it was understood that the pirates were bought over by the distribution of handsome sums and honorary

rewards. Their chief, Poo-hing-yew, receiving the distinction of a button, and a good round sum in dollars.

No doubt the earnestness of the Toutae at one time and his vacillation at another, were in unison with the varying features of the negociation; his object of course being to get as much assistance from us as possible without committing himself with his own superiors, who would be, no doubt, extremely unwilling to receive foreign aid except in the last extremity.

On the 30th the *Sphinx* passed down the river, and joined the *Contest* at Chinhae. As we passed through the crowd of vessels anchored above Chinhae, we observed that all the vessels of the pirate squadron were disarmed, but three.

Immediately after anchoring, I waited on his Excellency Shen, the Commander-in-Chief of the naval and military forces of the province of Chekeang; this functionary being superior in rank to the Toutae of Ningpo.

After briefly narrating to him my former proceedings with reference to the affair of the pirates, I offered any further assistance that might be necessary to enable him to terminate the business satisfactorily, at the same time plainly intimating that before finally leaving the port it was absolutely necessary that I should be positively assured that the whole affair was terminated and the remaining junks disarmed.

His Excellency received this communication very courteously; repeatedly thanked me for the offer of assistance; but declared that the whole affair was on the point of termination, and that all the junks but three were already disarmed, and the greater part of the reclaimed pirates on the point of being sent to Canton.

On the 1st of February the Chinese Admiral returned my visit on board the *Sphinx*. He was a fine, handsome, old man, courteous in manner and dignified in appearance; altogether the most striking specimen I have ever seen of a Chinese gentleman.

He announced the complete termination of the whole business; that all the junks were disarmed and the crews disbanded. He repeatedly thanked me for the countenance afforded them by the presence of the British vessels, and for our offer of a more active intervention if necessary. His Excellency of course made no allusion to the peculiar means by which the authorities had succeeded in winning over Poo-hing-yew and his followers to a return to their allegiance,—golden arguments, containing within themselves the germ of future trouble; but he very unexpectedly volunteered a serious opinion that the coast would probably again be infested with pirates in the course of a year or two, as there were not less than one hundred vessels of the kind now surrendered, and that if the late pirates should in the sequel consider themselves unfairly or hardly dealt with by the authorities, they would certainly return to their former mode of life.

In reply to this I took the opportunity of observing that I had no doubt the British authorities would always willingly afford assistance to the Chinese officers for the suppression of piracy whenever distinct application was made to them to that effect.

On the 2nd I took the opportunity of personally verifying the facts stated by the Admiral as to the disarming and dismantlement of the late piratical vessels, so as to make quite sure that there should be no revival of any irregularities after the departure of our ships from the port.

In conclusion, a few remarks on the piratical vessels and their proceedings will not be out of place. Their number does not appear to have exceeded twenty-two. The largest vessel we saw had twenty guns of various calibre, one or two large ones, 32 and 24 pounders, the remainder smaller ones, 12, 9, 6, and 4 pounders, many of them were without carriages, all much crowded together; the vessels themselves clumsy and ill-equipped, and, together with the crews who manned them, are said to have chiefly come from the southern provinces.

The weakness of the authority of the Imperial Government, the corruptness of the local administration of the outlying districts, and the unwarlike habits of the people generally, will no doubt always be favourable to the existence of piratical practices along the extensive seaboard of the Chinese empire. The very means adopted by the authorities to suppress it, bribery and corruption, has in itself an indirect tendency to encourage the evil; and it is shrewdly suspected, that many of the large armed junks which trade along the coasts, frequently play at pirate and smuggler when temptation offers and they can do it with impunity. The government vessels being under ordinary circumstances quite powerless to suppress these practices efficiently, it becomes an important question how far foreign powers are called on to perform the part of a marine police, and to interfere with the pirates, unless their trade is previously molested by them. In this recent instance now under discussion, the piratical squadron confined their depredations solely to vessels under Chinese colours, and carefully abstained from interference with those under foreign flags, as curiously exemplified in the case of the *Independence*. As, however, any condition of affairs which tends to interfere with the freedom of trade and the security of commerce must eventually directly or indirectly affect our own commercial interests, it seems to be good policy from time to time to take measures for the repression of piratical practices of our own accord, in case our own vessels are directly interfered with, and in concert with the imperial authorities when our intervention is requested by them, and collateral circumstances justify its employment.

All the objects contemplated in the *Sphinx's* visit to the northern ports having thus, in so far as circumstances permitted, been attained, we left Chinhae on the 3rd February, and proceeded to Loo-hoo; the *Contest* remaining at that port a short time longer previous to her departure for Shanghae.

(To be continued.)

On the Cape Verd and Hatteras Hurricane, *of September*, 1851, *and other Storms.—With a Chart.—By W. C. Redfield.*

(Continued from p. 477.)

In my approximated delineation of the axis line or centre-path on the Chart, I have had reference to the path of greatest violence, where observations were had from both sides, and especially to the opposite veering of the wind, which is found in the opposite sides of an advancing cyclone. North-eastward of Cape Hatteras, we find the storm-centre to have passed between the *Georgia* (20) and the *Swan* (25) on one hand, and the *Addy Swift* (27) on the other.

The incurvation of the storm-path toward the Azores is quite remarkable. This feature I first noticed in the case of the storm of Sept. 1846, as shown by observations extending to lat. 62° 30′, far beyond the limits of my former map, on which its track (xix) was first delineated. This tracing, with that of the hurricane of August 1851, (xxii,) has been copied on this chart, and extended without further alteration. The number and extent of the reports obtained in the present case, have induced me to delineate this feature more fully than I first intended. Its probable relation to the expansion and perhaps the falling off of the southern portion of the cyclone toward the equator, may be considered hereafter.

Eastward of the Grand Bank, nearly all the reports are from the right side of the storm-path, and so far as appears, mostly at great distance from the true axis path of the gale. This may be owing to the diminished violence of the two left quadrants of the cyclone, caused by its accelerated progression, as well as to the paucity of reports from the more northern portions of the Atlantic, which are less frequented by navigators. That the cyclonic nucleus of the storm had become greatly enlarged, and that it pursued the general course I have indicated, appears from its wide-spread violence, and the intensity and wide extent of its influence on the barometer, and, especially, by the most northern reports. From these few northern reports, we see this violence extended beyond lat. 60°, in the general direction of the Feroe Islands, and the main entrance to the Arctic Sea.

In other cases we find, that after passing the latitude of Bermuda, the expansion of the storms is often so great that their southern portions advance nearly from west to east; but reach the successive meridians no sooner, and sometimes even later, than the axial portion of the gale, which pursues a more north-easterly course. Thus in the present case, east of long. 60°, and between lat. 35° 30′ and lat. 42° 30′, a belt of seven degrees, we have a series of thirteen observations, carrying us east to long. 15° 25′, in lat. 36° 50′; almost to the south-western extremity of Europe. See reports 43, 44, 46, 47, 49, 51, 56, (including *Juno*,) 62, 63, 64, 91, 92. If, instead of the broad range of our present inquiry, we were limited, as in the United States, to fewer parallels of the temperate latitudes, how readily might an east

progression of the storm be shown, by these partial observations, and its true course remain unnoticed.

But I apprehend this southward expansion of the storm to have been due to something more than the centrifugal force of the cyclone, acting against the statical pressure of the circumjacent atmosphere. In such a wide-spread cyclone, whose diameter on the 9th of September extended from Newfoundland,* to beyond the Azores, or more than 1500 miles, how could its vast entireness be much longer maintained, against both the centrifugal and gravitating forces of the earth, acting in opposite directions, and with opposite degrees of effect, or predominance, on the sides respectively nearest the equator and the pole? May we not suppose that the southern portion of the gale was in process of separation or falling off toward the equator, and thus supplying the influx which sustains the inferior trade winds in north-western Africa and the eastern Atlantic? And is not such a view supported, in some degree, by the gradually altered course of the nucleus of the storm, which in becoming more free from the equatorial influence, is left to pursue its course toward the polar basin under the predominating influence of direct gravitation?

In reference to these questions, it may be stated that the steamer *City of London*, in her passage from the Mediterranean, where she had fine weather, left Gibraltar Sept. 11th, and encountered strong gales from N.E., with heavy sea; arriving at Southampton on the 18th: thus showing a brisk movement of the winds, at this period, toward Madeira and the lower latitudes.†

Effect of the Storm-wind on the Barometer.—The unfailing mechanical effect of the cyclonic wind in producing a fall of the barometer within the area of its circuit, and greatest in the axial region of the cyclone, is clearly seen in this storm. The following are the cases reported in which the barometer fell below 29 inches: to which I have

* Through the kindness of R. Dinwiddie, Esq., I am in possession of observations made at Harbour Grace, in Trinity Bay, N.F., lat. 47° 40′, long. 53° 16′, which show that the left margin of the storm touched that place Sept. 9th, with a stiff wind from N.E. and cloudy.

† Taking into view the greatly diminished force of this gale at the entrance of the English Channel, and that we have no notice of its action in the Bay of Biscay, while we trace its violence *continuously* from off Cape Hatteras to the Rockall Bank and beyond lat 60° on one hand, and to lat. 36° 50′ and long. 15° 25′ on the other, with all the characteristics of a severe gale, I confess that some solution like the above is apparently required. The normal course of the circulation, or of the "current of rotation" in the basin of the North Atlantic, between latitudes 10° and 50°, as well as the routes taken by some storms which have recurvated in low latitudes, clearly indicate that a part of the outmoving atmosphere, from the inner-tropical latitudes, in the western Atlantic and the Mexican Gulf, moves in an elliptical circuit, and returns to the trade wind in the eastern Atlantic. This apparent tendency in storm-routes is seen in Colonel Reid's track of the great hurricane of Barbados in 1780, and in my track, xv, on the present Chart; also in track xiii of my former Chart, which is better seen on Chart III. in vol. i. of the *Am. Jour. of Science*, New Series.

annexed a rough estimate of the probable distance of the vessel from the axis of the storm at the time of nearest approach.

	Minimum of Barometer. Inches.	Supposed distance from gale's axis.
Hermann (5)	27·30	*near.*
Georgia (20)	28·20	45 miles.
Swan (25)	27·94	30 "
Independent (49)	27·75	220 "
Robert Kelly (68)	28·15	265 "
Southerner (74)	28·27	240 "
Larpool (85)	28·52	315 "
Avalanche (90	28 50	433 "
Andes (96 *a*)	28·48	280 "

From observations of the barometer and winds taken at various points in the United States near the Atlantic coast, and from those made at the signal station in Bermuda, it appears that the storm was but little felt at the latter place, except as exhibiting the true cyclonic wind, from the 6th to 8th, from S.E., veering gradually from S.E. to S.W., as the bearing and progression of the storm became changed; with a force of wind marked from 2 to 4; the barometer at 30·10 at noon of 5th, 6th, and 7th, and 30·07 at noon of 8th. The left side of the storm encroached to some extent upon the eastern borders of North Carolina and Virginia. At Scuppernong, N. C., lat. 35° 50′, long. 76° 20′, the cyclonic wind blew from N.E., with a force marked 3 and 2, with rain; and the lower stratum of clouds (the true storm-scud or cyclonic stratum) flew rapidly from N.E.; *the upper clouds quite still.* At 9 p.m., the wind had veered to S.W. No observations of barometer. At Fort Monroe, Va., the reported direction of the storm-wind and cloud, are the same as at Scuppernong, with rain from S.W. at 9 p.m., with thunder and lightning.

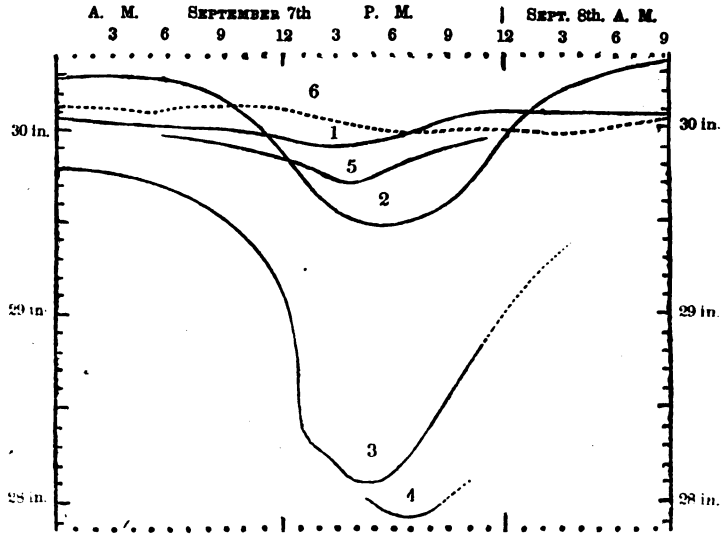
At Savannah, on the 5th and 6th, in front of the storm, the maximum of the barometer was 30·20, and 30·19; on the 7th, the minimum of the report is 30·06, and on the 8th, under the rear portion of its annular wave, 30·21. At Jacksonville, East Florida, nearly the same: as also at Charleston S.C., nearer to the path of the storm; and scarcely falling below 30 inches at New York and Nantucket, as the storm passed. But at Camden, S. C., 140 miles N.N.W. of Charleston, and 280 miles W.S.W. of Hatteras, the successive maxima on the 6th and 8th, were only 30·04 and 30 inches; showing this place to have been beyond the crest of the external barometric wave. When storm tracks recurvate on the interior meridians of the United States, the minimum depression of the barometer frequently moves nearly parallel to the direction from Camden either to Hatteras or to Chesapeak Bay.*

The annexed diagram shows the barometric curve at Washington,

* I am indebted, on this occasion, to the officers of the Smithsonian Institution, and to General Lawson, chief of the medical bureau at Washington, for observations from various parts of the United States; also to Lieut. Maury, Superintendent of the Naval Observatory, for abstracts of the log books of ship *Eagle* and steamer *Northern Light.* Surgeons Williamson and Harrison of the navy, and many shipmasters and others, have kindly aided my inquiries.

Fort Monroe, steamer *Georgia*, and Bermuda, while the storm was passing between the latter and Washington. These two places are distant from each other about 840 miles; which perhaps may be considered as an approximate measure of the *barometric* diameter of the storm on the 7th of September. The barometric curve of the *Georgia*, if increased so as to reach the minimum of the *Swan*, may represent a section through the centre of the cyclone, in the direction of the storm's progression.

Storm-Curves of barometric progression.



1. Curve at Washington: 2. at Fort Monroe: 3. Steamer *Georgia*: 4. Brig *Swan*: 5. Ship *Eagle*, crossing in front of storm: 6. Bermuda.

It will be seen that the above diagram includes a period of thirty-three hours; and if we rate the progression at twenty-five miles an hour, it will comprise a distance of 825 miles. It contains the curve derived from observations on board the ship *Eagle*. I add the following condensed statement, which is derived from the abstract of the ship's log sent me by Lieut. Maury.

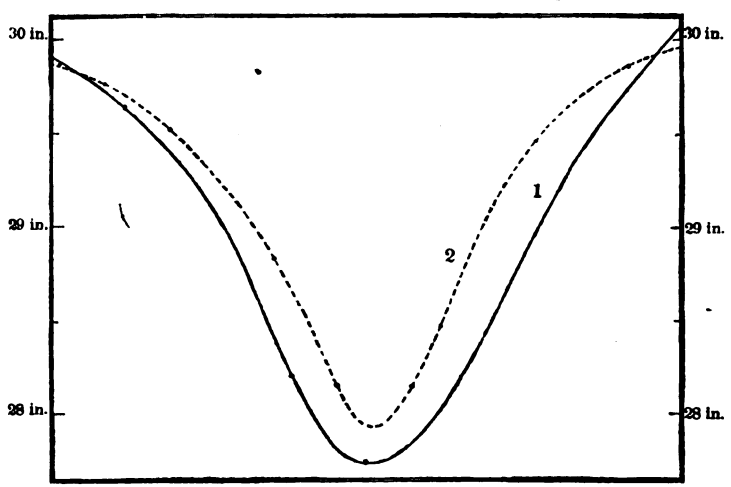
The clipper ship *Eagle*, Warren, from Rio, crossed the centre-path on the morning of Sept. 7th, perhaps 350 miles in front of the axis of the gale, while running in the direction of Cape May. It is interesting to find that this vessel, which crossed the equator Aug. 17th, was overtaken by the external barometric wave of the storm as early as 4th–5th of Sept., and by a *long swell coming up from* S.E., being then from 100 miles to 60 miles southward of Bermuda. Through the 6th winds from S.E. quarter, veering to South, with *a heavy swell from* S.S.W.; latitude at noon 34° 39′, long. 69° 32′; bar. 30·11. Sept. 7th, *a very heavy swell from* S.S.W.; wind fresh, from S.S.E. to

S.S.W., and from S.S.W. back to E.N.E.; bar. at 8h. a.m. 29·90, at noon 29·84; lat. 37° 17′, long. 72° 28′: p.m. very threatening appearances from S.E.b.S. to S.W., with *a very heavy swell from* S.W.; at 4h. p.m. bar. 29·70,—at 5h. p.m. 29·77; wind fresh, from E.N.E. to N.; 8h. p.m. lightning at N.W.; at 11h. p.m., in a heavy squall, wind shifted to N.N.W.; no rain; heavy sea still. Sept. 8th, cloudy; no sea; lat. at noon 38° 38′, long. 74° 13′; bar. 30 inches.

The steamer *Northern Light*, bound for the Isthmus, was several hours ahead of the *Georgia*, and on a more eastern track. She crossed the centre-path in front of the gale, and ran through its eastern side. Sept. 7th, lat. 34° 30′, long. 73° 25′; through the day strong gales from the South, with a heavy sea from S.W. Sept. 8th, lat. 32° 01′, long. 73°, strong gales from S.W., with heavy squalls, and *a large sea from* W.N.W.; clear in the S.E., with stormy appearnces in the N. and W.; found the weather improving as we made south. This account is probably in nautical time.

The succeeding diagram represents, in its horizontal scale, the distance of 840 miles between Washington and Bermuda. The full line (1) represents, approximately, the barometric curve through the centre of the storm, *transversely to its path*. The comparison of this transverse curve with the central curve of *progression*, indicated on p. 532, is of some interest, although we have no observations intermediate to the *Swan* and Bermuda. The resemblance of the two central cross-curves may show that the storm was of nearly equal extent and force on all of its sides at that time.

Barometric Storm-Curves, transverse to the progression.



1. Transverse centre-curve of Cape Verd and Hatteras hurricane, Sept. 7, 1853.
2. Transverse centre curve of Cuba hurricane of 1844, Oct. 6th.

I have been apprehensive of a clerical error in the barometric report

from Fort Monroe for 3h. p.m. and 9h. p.m. of Sept. 7th; and that 29·063 and 29·087 should have read 29·63 and 29·87, respectively. In preparing the second diagram I became convinced that the correction is required, and have accordingly applied it in tracing the transverse curve, but have drawn a short trace line to show the observations as found in the report.

I have also inserted in this diagram, in broken lines, the transverse barometric curve through the centre of the Cuba hurricane of October, 1844, when in nearly the same geographical position. This curve is approximated from twenty-eight observations in the path of that storm.

Vortical Rotation of the Gale.—The true character of this gale as a cyclone, is made evident by the foregoing series of observations. This is most extensively shown by the various observations made on all sides of the storm during its passage between Bermuda and the nearer portions of the United States. The absolute whirlwind movement of the storm stratum, and the increasing rapidity of its leftwise rotation ↻ which is found in approaching the axial area, from whatever side of the storm, as well as the direct effects of this increased rotation on the fall of the barometer, in the interior portions of the gale, are made manifest by direct observation. This I might point out in full detail, were it at all necessary in the present stage of the inquiry. Nor can these results be evaded by denominating any one portion of the cyclone wind, on either side of the cyclone, as another or distinct gale. The local variations and inequalities of the cyclonic action, and the errors, imperfections, or defects which may exist in the reports, are alike overborne by the amount of evidence, which serves to show the extent and general entireness of the vortical rotation in the gale.*

It would be an error to suppose that the gales and hurricanes which have been traced on our storm charts, were but exceptional cases of cyclonic action and progression in the winds of our globe. For there is a constant succession of rotary movements, greatly variant in their activity and their visible effects, and to which I shall further allude.

* While the printing of these pages was in progress, I received from the government of Denmark, through Consul Bech, observations made at Oefjord, on Skage Strands Bay in the north of Iceland, in lat. 65° 40′ N., long. 20° 40′ W., which show the maximum pressure in advance of the cyclone to have been 29·75 in., at 1h. p.m. Sept. 10th, under an east wind, the force of which is marked 2. The fall of the barometer under the cyclone continued till the night of 12th; the lowest observations being 29·12 in. at 10h. p.m. of 12th, and 29·11 in. at 6h. a.m. of 13th. The wind was S.E. on the 11th and 12th, and on the rising of the barometer was followed by the N.W. wind of the cyclone on the 13th, which afterwards changed to S.W., its force being marked 1. The normal effect of the cyclone at Oefjord, a position which is remarkably sheltered from the force of the cyclonic winds, by the peculiar outline and the extensive elevations of Iceland, is deserving of notice; not taking into account the modified direction and the abatement of force which appears to occur in the left quadrants of the gales in this highly northern portion of the Atlantic.

It is the more violent cyclones, however, that afford us complete evidence of their geographic routes, and their continued movement of rotation.

Of this active class, designated as hurricanes, gales, and storms, it is believed that the tracks or routes of several hundred might be added to our storm maps, by carefully collating the records which already exist. It is certain that a large number might be traced from the records and notices now in my possession or otherwise at hand, of which the case I have now presented is but a single example. But the storms noticed in the succeeding portions of this article are selected in reference to their peculiar localities, as showing the uniform extension of the cyclonic system in equal latitudes around the globe, rather than for the amount of information possessed regarding their extent and progression.

West African Hurricanes, and Gales of the Eastern Atlantic between the Tropics.

As the great hurricane whose path we have already indicated, appears to have been of African origin, it may be well to show that the occurrence of storms in this region is not uncommon.

1. A violent hurricane swept over St. Nicholas, one of the Cape Verd Islands, lat. 16° 33′ N., long. 24° 20′ W., on the 2nd of Sept., 1850. Its duration exceeded twenty-four hours; although the chief damage was done in three or four hours, during the morning of that day. All the crops, and nearly six hundred houses, were completely destroyed.* The marine accounts from the vicinity, date this gale on the 3rd; doubtless in nautical time.

The ship *Sir Robert Peel*, for Bombay, after a run of about 120 miles from Bona Vista, encountered this hurricane Sept. 3rd, and was completely dismasted.

The *New Margaret* was dismasted in the hurricane on the same day, in lat. 18° N., long. 25° W.

Ship *Sir Edward Parry*, was in the hurricane Sept. 4th, off the Cape Verd Islands, St. Antonio bearing E.N.E., about eighty miles, (lat. 16° 30′ N., long. 26° 40′ W.) It came on from eastward, increasing in violence till it blew the masts out of the vessel, while under bare poles.

H.M.S. *Portland* encountered the gale in this vicinity.

The *Eliza Johnson* was spoken Sept. 20th, in lat. 6° N., long. 22° W., having lost mizenmasts and topmasts in the gale, about two weeks before.

Most of these vessels put into Rio Janeiro, where these reports were obtained by Capt. Theodore Lewis, from whom I received them in New York.

I can find no reason for doubting the continental origin of this hurricane. Its progression was evidently slow: and its subsequent course is placed under some doubt by the following report from the *Russell*.

* London *Times*, February 1st, 1851.

The *Russell*, from Salem for Rio Grande, was spoken 24th Sept., lat. 4° N., long. 20° W., by the *Richard Thornton*, arrived in the Thames from Batavia, and reported having experienced a hurricane on the 6th Sept., in lat. 28° N., long. 32° W., in which she lost foretopmast and main top-gallant masts, boats, &c., also topsails, courses, jib, &c., blown away.

The position and date here given, led me first to lay down the track of this gale as having recurved on a route which passes between Tenerife and the Azores. But the meteorological observations made by the British Consuls at the Azores and Madeira, for the English Government, with other observations collected by Mr. Hunt, Consul-General at St. Michael, which were communicated by the Government to Col. Sir W. Reid, and by him kindly sent to me, do not render this course probable: unless the gale passed near to the Canary Islands, from whence no definite report could be obtained. The route of the gale, therefore, was probably westward; corresponding to Track xxiv. If we suppose the correct latitude to have been 18°, instead of 28°, it will place the *Russell* in a far more probable position, and one which sufficiently coincides with the foregoing reports. The nautical date, however, will then appear about one day in advance; unless the progression of the storm was at the low rate of about five miles an hour. The log-book of the *Russell* might solve these doubts. On the westerly course thus indicated, the gale may have passed Bermuda about the 15th Sept., where there were full indications of the proximity of a slow moving gale. This would show an average progression of between eight and nine miles an hour. Track xxiii.

2. Mr. Piddington has adduced the case of a cyclone passing out from the coast of Africa, to the northward of the Cape de Verds, on a W.b.N., or W.N.W. course, giving to the ship *Devonshire*, as she first stood to the S.S.W., and then hove to, about 120 miles westward of St. Antonio, a severe gale from N.E. to south.*

I add here notices of three other gales, in this part of the Atlantic.

3. The *Superior*, from Harbor Grace for Barbadoes, reports as follows:—"Oct. 14th, 1850, in lat. 24° 59′, long. 47° 10′, experienced a terrific hurricane, which capsized the vessel at 5h. a.m.; cut away both masts, when she righted, and all hands got safely on board again; water eighteen inches above the cabin floor; succeeded in clearing the wreck, and getting under jurymasts.

4. Ship *Damascus*, from Philadelphia for San Francisco, on the 18th of October, 1850, in lat. 25° 58′ N., long. 41° 19′ W., encountered a severe hurricane, split foresail, main spenser and jib; also blew away main topsail: after the storm sails were blown away the ship became unmanageable. On the night of the 18th the hurricane moderated.—See the positions on the Chart, marked xxv and xxvi.

The next case, in Sept., 1853, I find in Maury's *Sailing Directions*, 6th edition; received from the author.

5. The ship *John Wade*, for San Francisco, Sept. 27th, lat. 17°

* Piddington's *Horn Book for the Law of Storms*; 2nd edition, p. 31.

44′ N., long. 35° 10′ W.; bar. 29·90; wind east, fresh breezes and clear. Sept. 28th, lat. 15°, long. 34° 50′, bar. 29·40; winds east and E.S.E. First part, fresh breezes; middle part, strong gale. At 8h. a.m. hove to under close reefed main topsail. At 8h. bar, 29·60; at 10h., 29·7; at 12h., 29·3. Sept. 29th, lat. 14° 32′, long. 34° 31′, bar 29·60; winds west and S.S.W. Heavy gale, with violent squalls of wind and rain; middle part, sharp lightning; latter part, moderate; made sail. Capt. Little adds, "I think I was near the track of a hurricane."

The position of this gale appears to coincide nearly with the route of our hurricane of Track xxiv, which was four weeks earlier. The reported directions of wind indicate that Capt. Little crossed the centre-path while within the limits of the gale. See xxxi of Chart.

Other notices of gales in this region have met my eye, in former years; and one shipmaster stated to me that he had encountered, off the Cape Verd Islands, a severe gale of three days' duration. This seems to indicate a remarkably slow rate of progression in that gale.

6. Capt. Fitzroy informs us, that on leaving Rio Janeiro for the Cape Verd Islands, early in August 1830, he first steered eastward and crossed the equator far east, which carried him into that tract of ocean between the trades which "in August and September is subject to westerly winds,—sometimes extremely strong,—and encountered *a very heavy gale;* although so near the equator."* This is likely to have been one of the gales of August which afterwards visited the western and northern portions of the Atlantic, with great severity. Indeed, I strongly suspect this to have been the gale which passed St. Thomas on the 12th, and New York on the 17th of the month; as shown in my first paper on the character and progress of these gales.†

Capt. Fitzroy states, also, that at Port Praya, (lat. 14° 53′ N., long. 23° 30′ W.,) no vessel should deem the bay secure during July, August, September, and October,‡ because southerly gales sometimes blow with so much strength, and the rollers sent in by them are so dangerous to ships; and having experienced the force of these gales in the vicinity of the Cape Verd Islands, he confidently warns those who are inclined to be incredulous about a gale of wind being found in 15° of north latitude; beyond the (supposed) limits of the hurricane regions.§

7. If from this inter-tropical field we extend our inquiries northward to the Canary Islands, in lat. 28°, near the African Coast, we may learn of other active cyclones that have crossed these Islands, in pursuing their orbital course to the shores of northern Africa and

* Voyage of the *Adventure* and *Beagle*, (surveying vessels,) vol. i, pp. 1 and 3.

† *American Journal of Science*, First Series, vol. xx, p. 34—38.

‡ These are the months which constitute the "hurricane season" of the Windward Islands of the West Indies, where, as we have formerly shown, the hurricanes arrive from a more eastern portion of the Atlantic. We have now more than presumptive evidence of their African origin.

§ Voyage of *Adventure* and *Beagle*, vol. i, p. 53.

south-western Europe. The route of one of these storms which passed near the Island of Madeira in October 1842, as shown by Col. Sir W. Reid, is seen on the Chart.*

8. I find record of another great storm, which passed over the Island of Tenerife, on the 6th of November, 1826.

Track xviii, seen further westward on the Chart, is the inferred route of a severe hurricane, in 1828, which was reported to me by Capt. Corning: long known as an intelligent merchant and navigator.

These several cases, together with Sir. W. Reid's Bermuda hurricane of Sept. 1839,† the track of which is seen on the Chart, and that of Capt. Maclean of Sept. 1853, of which reports are annexed, are submitted as indicating the general course of progression of inter-tropical cyclones, in the eastern Atlantic; and their occasional identity, as well as systematic conformity, with those which visit the more northern portions of this oceanic basin.

Capt. Maclean's Hurricane of September 27th, 1853.

In passing over the several violent hurricanes of the past autumn, of which I have more copious notices, I select only the present case, because its recurvation was eastward of Bermuda. A good account of this storm is given in the London *Shipping Gazette* of November 8th, by Capt. Maclean, who had studied the cyclones, and was thus well prepared to meet their emergencies.

His ship, the *Gilbert Munro*, left the Island of St. Lucia on the 8th of September, and lost the trade-wind on the 13th, in lat. 24° 33′ N. Light winds followed, with a high barometer, till on the 26th the weather became dark and gloomy, and the wind veered to E.S.E. and S.E. At noon, in lat. 33° 10′, long. 59° 7′, the aneroid barometer had fallen $\frac{2}{10}$ths, and the mercurial barometer began to sink also. In the night following, the wind at S.E., increased to a fresh gale, with squalls: (Being under the right limb of the gale, then near its point of recurvation.) At 4h. a.m. of 27th the wind abated; but as the morning advanced it again freshened, from S.S.E., and the bar. had fallen $\frac{4}{10}$ths; at 10h. a.m. hard gale, and bar. still falling; made the necessary preparations, being certain, from the direction of the wind, that the centre was to the S.W., if a rotary storm, and would soon overtake us, in its progress north-eastward, and that we should then have the gale from an opposite point.

At noon of 27th heavy gale at S.S.E., and heavy sea; lat. 35° 19′, long. 56° 36′; rain fell in torrents till 1·30 p.m., when it ceased; bar. falling rapidly. Soon after there was a lull, and in ten minutes a full calm. Being now certain of an opposite wind, had but just time to prepare for it, when it burst upon us with increased fury from N.W.,

* See Col. Sir Wm. Reid's *Progress of the Development of the Law of Storms*, p. 275—279: Where is found also an account of a gale in the S.E. part of the Mediterranean.

† For a full account of this hurricane, see Sir W. Reid's *Attempt to Develope the Law of Storms:* 2nd edition, p. 444—448.

veering afterwards to N.N.W. and N.N.E. At 2h. p.m. it blew a perfect hurricane, with dangerous cross sea. At 2·30 p.m. the ship was blown on her beam ends; but with great exertions was payed off before the wind, and run admirably. It continued to blow with great violence till near midnight; when the wind backed to N.N.W. the bar. rising; and at daylight of 28th had abated to a common gale. At 8h. a.m. more moderate.

Capt. M. commends a knowledge of the law of storms to every shipmaster and nautical man.

The brig *Samuel and Edward*, reports having experienced the hurricane Sept. 28th, lat 34° 40′, long. 56° 20′, from south to north; lost sails, &c.; and lay ten hours under bare poles.

The schooner *Werada* took the gale in lat. 35°, long. 59°; and while scudding under close reefed sails, was taken aback by the hurricane from N.W.

At Bermuda, lat. 32° 15′, long. 64° 40′, heavy rains at this period, with a very strong N.E. gale (force marked 10), from about noon of 26th to evening of 27th, veering to north; thus showing the left side of the cyclone. Bar. at 4·30 p.m. of 26th, 29·72. At 7·30 a.m. of 27th, 29·84.* See Track xxx of the Chart.

The foregoing notices of storms of inter-tropical origin in the eastern Atlantic, may serve to show their analogies and relations to those previously traced in the western Atlantic, and in the North American States. Let us now pass westward in the same parallels, to the nearer portions of the Pacific Ocean.

(To be continued.)

Determination of the Difference of Longitude between the Observatories of Paris and Greenwich.

It is one of the characteristics of the present age, that commercial associations of private persons, receiving from the state no assistance except a sanction for their union, and employing their funds only in the ordinary modes of commerce, have been able to execute works which scarcely any power of the state could attempt, and incidentally to give to objects not contemplated in their original enterprise an amount of assistance which no direct action of the state could give. The latter advantage has been experienced in numerous instances affecting our social comforts and our constructive arts; it is now felt with equal force in our more abstract science. The history of a late astronomical investigation will illustrate this remark.

The celebrity of the Observatories of Greenwich and Paris, and the

* From Signal Station Reports in *Bermuda Gazette*.

close connection between the subjects of their observations, made it desirable long since to determine their difference of longitude. About the year 1787 the matter was on both sides taken up by the national authorities, and an expensive and accurate survey was undertaken, the English part at the expense of the British government, and the French part at that of the French government, for connecting the two observatories. This geodetic connection of observatories was the first and ostensible object of the survey; though it led ultimately in England to the construction of our Ordnance maps. The difference of longitude ascertained by this expensive process was, no doubt, free from any large error; yet men of science were so little satisfied with it that it was thought desirable to take the earliest opportunity of verifying the result by an operation of a different kind.

In the year 1825 another attempt was made, also at the expense of the state. On the English side it was managed principally by Mr. (now Sir John) Herschel, and Captain (now Colonel) Sabine; on the French side by Colonel Bonne, and some of the most distinguished French engineer officers. The plan adopted on this occasion was to make simultaneous observations on rocket signals at a chain of stations extending from Greenwich to Paris. In spite of all the care which had been taken in preparatory arrangements, this enterprise in a great measure failed. On the English side almost every part was successful, but on the French side nearly the whole labour was lost, and the final result for difference of longitude depended only on the observation of ten rocket signals.

Passing over the attempts made to verify the ancient survey, as well as those made by private persons, to determine the difference of longitude by the transmission of a few chronometers, we now come to the more fortunate enterprise which has suggested the preceding remarks.

No sooner did there appear to be a reasonable prospect of success for the submarine telegraph, than the astronomical authorities (the Astronomer Royal on the British side, and M. Arago and the Bureau des Longitudes on the French side) addressed themselves to the Submarine Telegraph Company, with the view of establishing a connection by galvanic telegraph between the two observatories. By that company their applications were received in the most liberal manner. The company's wires were placed at the service of the observatories at the hours most convenient for them; the connections of wires, when necessary, were made by the company's officers; and no remuneration of any kind was expected. For the actual conduct of the observations it was necessary to employ in each observatory a considerable force of galvanic batteries; and the Electric Telegraph Company, forgetting all commercial rivalry, supplied all that was required at the Greenwich Observatory. The observatories were, in fact, chargeable with no expense except that of laying down their own short junction wires to connect the observatories with the main lines, and that of employing their assistants to make the observations.

The death of M. Arago delayed the French preparations so long

that a series of observations directed to a similar object was first carried on with the Observatory of Brussels. As soon, however, as M. Le Verrier was established in the superintendence of the Paris Observatory, the interchange of signals between the Greenwich and Paris Observatories was organised. It is not necessary here to go into details upon the method employed, or the extent to which it was carried. It will suffice to say that several thousand signals were interchanged; so many, in fact, as to permit of the rejection of the larger portion, retaining only those (to the number of nearly two thousand) which were considered to be made under unexceptionable circumstances. The contrast of this number with that of the signals on which the determination of 1825 depended is striking. But the difference in the quality of the individual signals is not less striking. The result of a single signal given by the galvanic telegraph is perhaps as accurate as the mean of all the results of the former operation. It is unnecessary, therefore, to say that no comparison can be made between the difference of longitude concluded from the former observations and that found from the mass of the late signals. The former determination is now shown to be erroneous by almost a second of time, (a large quantity in astronomy,) and this correction is nearly certain to its hundredth part. For this gain of accuracy, this veritable advance of science, we are indebted in the first instance to the power of commercial association of which we have spoken.

The power, however, would have availed little if the possessors of it had not been willing to allow it to be used for the benefit of society in the precise way which the professional men indicated; and it is most honourable to our great commercial bodies that they have practically shown so much readiness to aid in enterprises of scientific character, that accredited men of science feel no difficulty in asking their assistance.

We may congratulate the world on the growing tendency towards a closer union between science and commerce. The advantages to science in such instances as that which has formed the special subject of our comments, need no further explanation. The advantages to commercial bodies, though less obvious, are equally certain. It is no small matter that these associations are enabled, without any offensive intrusion, to acquire the character of patrons of science; that the world is ready to acknowledge itself their debtor for assistance not promised in their original constitution. The exhibition of beneficial power, without any prospect of immediate pecuniary advantage, removes the mercenary element which might seem to be engrafted in their original formation, and commerce thus acquires dignity from its friendly union with science.

G. B. AIRY.

From the *Daily News*.

The Western Coast of South Africa.

The Western coast of South Africa may be generally described as a barren sandy shore, lined with sand hills, and beaten by a violent surf. Very few indentations exist, and no capes of any importance, from the mouth of the Orange River, in lat. 28° 30′ to Point St. Martin, forming the western horn of St. Helena Bay. From St. Helena Bay to Saldanha Bay the coast is more bold and broken, while from the latter to Table Bay the sand hills again reappear. The whole of the Cape promontory is bold and rocky, as is also the east side of False Bay, and the South coast generally, as far east as Agulhas, in lat. 34° 49′. From Agulhas to Breede River, and indeed as far as Mossel Bay, the shores are low; but very rocky, dangerous reefs lying close inshore. The George Coast is a very bold one, owing to the short distance of the Outenigua range of mountains from the coast; and the same features prevail as far as Cape St. Francis, where the mountain ranges recede from the coast, still, however, forming striking land-marks. From St. Francis Bay to Cape Receif the coast is low, dangerous, and rocky; while along the shores of Algoa Bay ranges of sand hills, beaten by a violent surf, are found as far as the Bushman River. From the latter to the Kowie extend low walls of conglomerate rock, and sharp reefs of sandstone, close along the shore, which indeed is the general character of the coast as far north as Port Natal, with the exception that the hills present a far greener appearance to the eastward than they do to the westward.

The extent of the line of coast we have just given an outline of is about 1500 miles, and it is singularly defective in navigable rivers, sheltered bays, and safe harbours; and we will here proceed to briefly mention the principal ones that do exist, for which purpose we will commence at the mouth of the Orange River, and proceed round the southern promontory of Africa, as far to the N.E. as Delagoa Bay.

This river, which has a course of probably not less than 1000 miles, and drains a basin of 100,000 square miles, is, like nearly every other river on the coast, hopelessly blocked up by a bar of sand, against which the waves of the Atlantic, in west and N.W. gales, break with great violence. Its mouth has been too imperfectly surveyed to decide with any degree of certainty whether it is improvable or not; but the very important results that would be obtained by making the river navigable, even for a short distance, must strike every person who considers the nature of the country drained by it. Already vast mines of copper have been discovered a short distance from its banks, which only require the means of transport to make them the source of incalculable wealth to this colony. The immense region extending from its mouth to its junction with the Vaal, is nearly unknown, as well as the vast tracts lying north of it, extending into Damara land. With the exception of the missionary Campbell, no European traveller has travelled along its banks between its mouth and 24° E. longitude, and his book unfortunately is so devoid of scientific pretensions as to

be of very little use in giving us an idea of the country traversed by him. Mr. Thompson has also gone along it from its junction with the Hartebeest to Pella; but we are not able to glean much information as to its capacities for navigation from his otherwise very interesting *Travels*. One or two very large rapids or cataracts are, however, known to exist in its course.

A few miles south of the Orange River is Cape Voltas, of the Portuguese, south of which anchorage exists in a small bay, but much exposed. Near the mouth of the Zwartingus River is Hondeklip Bay, where a small village has lately been established, and where the cutters, which have lately been employed in carrying copper ore to the Cape, take in their cargoes. Further south, near the mouth of the Spoek River, is Roodenall or Mitchell Bay, a small cove surrounded by cliffs of red sandstone. South of the Oliphant River we find Lambert Bay, where small vessels can anchor, and where many loads of grain are annually embarked for the Cape market. St. Helena Bay is the largest on the west coast, and is well sheltered from S.E. winds, but is open to the N.W. The Berg River enters the sea in this bay. Passing round the west horn of this bay, and proceeding south, we come to Saldanah Bay, which is certainly the best and safest bay on the coast. Its entrance, which is through a ridge of granite hills, is about two miles and a half broad; it is about fifteen miles in length, in the direction of north and south nearly, and affords excellent shelter and anchorage at all seasons. A scarcity of fresh water is almost the only drawback this excellent harbour has. It is about seventy-five miles north of Table Bay. No river enters this bay, although as far back as the time of Barrow a project was entertained of turning the Berg River into it.

We now come to Table Bay, the best known of all our African harbours, and find here the defect of an exposure to prevailing winds at certain seasons of the year, and a difficulty of communicating with the shore at other times, when the S.E. winds blow strong. Much has been proposed for the improvement of Table Bay, and very little done. Two or three inconvenient and insufficient wooden jetties exist, half devoured by the worm. But at different times projects for sea walls, breakwaters, wet docks, &c., have been entertained; but some fatality seems to attend their execution. In the professional papers of the company of Royal Engineers for 1852, is a very interesting paper by Lieut.-Col. Cole, R.E., describing a proposed breakwater to be formed of diagonal piers of masonry, built in floating caissons, and sunk within a certain distance of each other, so that the heavy waves from the N.W. would be reflected from one pier to another, and be finally broken and dispersed, without subjecting the anchorage to the danger of silting up, which it would probably do if a continuous breakwater were built. It would be quite impossible here to enter fully into the subject of the improvement of Table Bay; suffice it to say, that nature has not done much for it and art still less. It is, however, satisfactory to find that the sad wrecks which once gave it such a melancholy notoriety in the winter months, have diminished consiberably in

number, and that now all ships, ordinarily well found, ride out the N.W. gales in perfect safety. By a comparison of the older and more modern charts of Table Bay, we find very little change has taken place in its shores within the last fifty years at least, although a difference in the soundings exist between the Dutch charts, made in 1786, and the more modern ones of the English Admiralty.

Passing from Table Bay towards the end of the promontory, we find Hout Bay, a convenient and well sheltered little harbour, to which attention has been lately directed as a convenient station for coaling the Indian mail steamers.

We now finally round Cape Point, upon which a lighthouse is about to be erected, and find ourselves in False Bay, an immense inlet of nearly a square form, open to the south and S.E. winds. On the N.W. side of this bay, sheltered by high mountains from nearly all winds, is the well known naval station and anchorage of Simon Bay, where vessels of any size can safely lie in all winds. False Bay is of course easily accessible in all winds from the S.E. to west; but is impossible to enter in N.W. gales. Its north shore is sandy, but both east and west sides are rocky. In the N.E. angle is a sheltered anchorage but little used, called Gordon Bay. The extremity of False Bay is called Cape Hanglip.

There are several open and exposed bays between False Bay and Cape Agulhas, which is the most southerly point of the African continent, (lat. 34° 49′,) such as Walker and Madjes Bay, and a small landing place, called Stanford Cove, exists in an angle of the former, near Point Danger, where a village has been lately proposed to be built. This point has obtained a melancholy celebrity from the loss of H.M.St. *Birkenhead*, Feb. 26, 1852.—*Cape Paper.*

New Whaling Grounds.

Woahoo.

Two new whaling grounds have been recently discovered in northern latitudes: the one in the Sea of Ochotsk, from the 50° to the 68°, and the other after passing through Bhering Straits, from the arctic circle to the 70°; and that so abundant are the whales said to be in both those places, especially in the latter, that vessels there easily fill up with oil in from two to three months; the whales resembling more the Greenland or Polar whales than any other description. Two American ships which have thus obtained a full cargo of oil in the Sea of Ochotsk, have, during the last month, touched at Woahoo on their way to the United States; the Masters giving animated descriptions of their unusual success, and expressing much eagerness to return to this new field of enterprise.

The American whaling barque *Superior*, of Sag Harbour, with a

full cargo of oil, procured in thirty-five days after passing through, and to the north, Bhering Straits, arrived here on the 4th instant, homeward bound. Her enterprising and intelligent Master, Mr. Thomas W. Roys, informed me that, besides the Greenland or crooked head whale, he found in the Arctic Sea two other distinct sorts: first, a whale having a straight head, with large bunches on the back, just forward of the fleekes; and, secondly, a whale of a smaller size yielding only about fifty barrels of oil, of rather an inferior quality, with a bunch running along the back. He also states that he saw in that region numerous hair and fur seals, sea-otters, sea-horses, and other animals which he could not well make out.

Captain Roys furthermore informs me that after running down the Asiatic Coast, on which there are several large Indian villages, he sighted Cape North on the west, and Cape Lisburn on the east; that he saw no icebergs or packed ice, and only occasionally floating pieces, although from the peculiar chill of the atmosphere and from the current, which had previously set strong to the northward, being on the turn, he came to the conclusion that masses of ice, not far off, were coming towards him; and, therefore, on the 22nd of August, when in lat about 70° (his last observation having been in 69° 30′), he made sail back to the southward.

Captain Roys is inclined to believe that during one of the mild seasons, which may occur during every three or four years, a northward passage for a vessel might possibly be found.

He did not think it prudent to have any communication with the Indians whom he saw in and beyond Bhering Straits, in consequence of their being not only very numerous, but armed with bows and arrows as well as spears, some of their canoes having in them as many as forty men. He, therefore, had no opportunity of obtaining tidings of Sir John Franklin or any of his party, although he supposes that if Sir J. Franklin or any of his party had been near any part of the coast that he approached, they might have found means to communicate with him, especially as he was off, and close in with on two occasions, Cape Prince of Wales.

It appears that Captain Roys, when at Kamschatka a few years ago, succeeded in procuring from a Russian officer a chart published from the surveys of two Russian corvettes and their two tenders in 1827–29. He considers this chart, as far as he can judge, exceedingly correct, especially with regard to the position of the Aleutian chain of Islands, which, he says, are very inaccurately laid down in all the charts he has seen excepting the Russian chart alluded to. The Russian surveying vessels, however, did not fairly enter into the Arctic Sea.

Captain Roys also states that the Asiatic Coast beyond Bhering Straits is wrongly delineated on every chart he has examined; indeed he thinks that the range of coast has never been surveyed, although it has several bays and harbours and a considerable aboriginal population, offering to enterprising merchants and other individuals pretty much the same field of adventure as the north-west coast did fifty years ago.

SIEGE AMD SURRENDER OF BOMARSUND.

The following graphic description of the operations connected with "Fort Blenheim" will be read with interest. It is from the pen of an eye witness:—

The principal wonder of the siege was the fact of a ten-inch gun, weighing 84cwt., having been landed from the *Blenheim* and placed by her seamen in a turf battery, 1,800 yards from the large eighty gun fort. The enormous size and weight of this piece of ordnance used in a breaching battery is quite unparalleled in history.

On Sunday, August 13th, the first attempt was made to land the gun at a point which somewhat concealed the party from the enemy; but the Russians soon found out what was going on by observing the sheer heads showing above it. The place became, consequently, so exposed to a sharp fire of shot and shell, that it was found necessary to desist. As soon as darkness covered the operations, however, a fresh attempt was made with more success; but the enemy, being still suspicious, although not certain of the position, fired during the space of an hour, first to the right and then to the left. During the rest of the night nothing was heard but the stroke of the axe and delve of the spade, with the low muttered orders of the officers marking the ground and directing the men. Rapidly did the mound increase; each man in this silent work vieing with his neighbour till daylight rendered it expedient for the party to mask the battery with trees and retire. In this short time, however, they had raised a wall of turf and sand sixteen feet thick, nine feet high, and thirty-five feet in length.

Monday night again found this adventurous band dragging their ponderous gun into position. The utmost ingenuity was necessary in order to move four tons of dead weight, assisted by ropes and spars from the ship. It may be said that the work would have been impracticable to any but British Sailors. By daylight on Tuesday morning the gun was mounted on its carriage; and the gallant crew stood round it, regardless of the fatigue they had undergone, and eagerly waiting for the signal from Sir C. Napier to open fire. They were not long kept in suspense. The fire from the grassy wall was like an electric shock. The besieged garrison looked round for some time before they could discover from whence such tremendous missiles came; but as soon as they did discover them, right well did the enemy return it with shrapnell-shells, shells, and shot. But the sand and turf walls were firm, and so admirable was the shelter, that the enemy's furious wrath was poured out in vain. The little crew of British Sailors remained unharmed, and kept up a destructive fire in return.

Considerable apprehension was, however, manifested in the fleet for their safety—most thought they must be cut to pieces. The trees in the vicinity of the fort were mown down like grass, granite rocks flew into a thousand shivers, and the grounds and dust were torn up, as if in a Royal rage, by the Russian shot and shell, yet, wonderful to add,

all escaped. At 6h. p.m. the cannonade ceased on all sides, as if by general consent.

On Wednesday, the 16th, at daylight, the ten-inch gun recommenced the action; this day was to have been the grand attack and bombardment by sea and land, but the French General's breaching battery not being ready, he requested the day to be postponed; in consequence of which the ships, which were moving in for line of battle, reanchored again, leaving the ten-inch gun exposed to the fire of fourteen. For several hours the Russians rained a perfect torrent of shot and shell upon the battery, which seemed, with its defenders, to bear a charmed life. The crew could only occasionally get near enough to their gun to load it. As seen from the fleet it was a splendid yet awful sight. Every one thought the destruction of the crew was inevitable, and Sir Charles Napier, in the faint hope of averting such a calamity, ordered in six steamers, to draw off a fire apparently so murderous. The enemy during the night had got two more guns into position, out of windows, to bear on the one gun battery; but their efforts were in vain. The precision of aim and the constant explosion of the 84lb. shells elicited the admiration of the whole fleet; they were frequently seen to burst within the embrasures, blowing the masonry into dust. Occasionally, also, they were thrown into the interior, to deter the enemy from working their mortars. Soon after noon the flag of truce was shown by the Russians out of the only sound embrasure left to oppose the little battery, clearly showing that they surrendered to the sea front—*i.e.*, the steamers and battery. In fact, beyond a few French field-pieces, nothing was playing on Fort Bomarsund from the land side but the *Blenheim's* ten-inch gun.

[Too much credit cannot be given to the noble party of *Blenheims* who distinguished themselves on this occasion. Captain Pelham, who commanded the battery, assisted by Lieutenant F. A. Close and Mr. Wildman, Mate, together with their devoted followers, are honorably mentioned in the official despatches; but they have a still more gratifying reward in the admiration of their shipmates, and of the whole of the combined fleet.—Ed. *U.S.G.*]

The following details are from correspondents of contemporaries:—

The capture of Bomarsund has proved that ships at a range of 2,500 yards, can successfully attack and destroy a battery, without incurring much loss. At a nearer range, where the distance was not more than 700 yards, the fire of the seamens' and marines' battery levelled the wall as effectually as if it had been blown up with powder; and yet there were only three ships 32-pounders in this battery, and the time they were firing was only nine hours. It was a matter of great astonishment to all, and to the French in particular, to see the quick and efficient way in which the blue jackets transported their guns and erected their battery, though for the latter service, and the site chosen, they were indebted to Brigadier-General Jones.

It is a question frequently discussed, whether the walls of Cronstadt

and Helsingfors are constructed of the same material as the forts of Bomarsund, and whether their guns are of the same calibre. At Bomarsund the walls are about eight feet thick, of which the outer coating (about 2ft. 5in.) is of granite, mixed with much felspar; the rest is made up of brick and mortar. The embrasures are 2ft. 4in. by 2ft. 8in., consequently preventing any extreme range or elevation. The The guns are nearly all 32-pounders; some, however, are only 24 and 28-pounders, but all of 10ft. 5in. in length, and mounted on strong large carriages, with large wheels running on the slides. They had iron elevating screws, but no dispart. The tangent sights were made of wood, and of very old construction. It will be evident from these few remarks that the Russian gunnery and gun-gear is much behind either the French or the English. The Russian officers expressed great admiration at our gunnery, and one of them asked to be allowed to see the battery that did such great execution on the north tower.

After the capture it was a scene of singular interest to behold the conquerors animated with victory, and contrast the dejected air of the Russian soldiers. Under the walls of this huge fortification the ground was strewed with shot, broken shell, grape and canister intermixed with enormous sheets of iron dislodged from the roof. In the interior, which was a square and parade ground, the fatal missiles, and heaps of broken granite and brickwork, bespoke the terrible vigour of of the siege. The victors demanded the arms, which the prisoners brought and piled up in the square, near to the furnace where their red-hot shot had been heated. The Commanders-in-Chief, Sir Charles Napier and General Baraguay d'Hilliers, with Rear-Admiral Chads, Captains Ramsay, Pelham, and Yelverton, General Jones, the Colonels of the French regiments, the Hon. Capt. Cochrane (Aide-de-Camp to the French Commander), Lieutenants Agnew and Chads, R.N., with a brilliant staff of French Officers on horseback, were drawn up in a space of grouud on the outside. The whole army lined the way for 800 yards, extending from the gateway to the mole. Between this file of men, the prisoners came forth two by two, the drums and fifes of the Marines striking up national tunes, which were taken up by each regiment in the rear. In the afternoon General Bodisco, the Governor, with two Colonels and the priest, was taken on board, in company with some few French Officers.

The Governor stated that their chance of holding out longer had become quite hopeless, a 10-inch gun, turned from their own mud battery against them, being well handled; he observed also that the battery from the heights was brought to play upon him, and that the French were gradually advancing and securing their position. The last two shells that were fired were from Capt. Pelham's gun on the mud battery; they entered the same embrasure, and set fire to the Officers' quarters.

I have inspected and walked round this fort, and found that the rear was as well defended as the front, having a moat surrounding it and some outworks, possessing in all 180 embrasures, 104 of which faced the bay. About 40 guns lay in the centre square, not having been

mounted. From this I ascended to what is termed the Second Round Tower, and passed the burnt and smouldering remains of numerous fine and well-built mansions. The second tower was approached only by climbing over the rocks. It mounted 26 guns. The breach made in it by Capt. Ramsay's battery at 800 yards across an inlet was something terrific. The whole west side had literally fallen away, and eight men abreast could have entered thereby. This breach was effected in nine hours. The Marines in the dead of night, after the truce, marched through a ravine and brought away 118 prisoners, under a heavy fire of canister and rockets.

I walked to the third tower, which had given in to the Marines. The shells of the *Hecla* and *Leopard* had torn it about, but the injury was not great, and they could have sustained a much longer siege. Lieut. Searle, R.M., was in charge of it.

United Service Gazette, 2nd Sept., 1854.

On the morning of August 16th, the *Ajax*, *Edinburgh*, *Blenheim*, *Amphion*, *Phlegethon*, *Duperré*, and two other French vessels, commenced, at long range, a decided attack on the fort. The French troops had also erected a field-battery, which would soon have made a deep impression on the walls. Under these circumstances, the Governor, seeing that he was fairly surrounded, that there was no hope of obtaining relief, ordered a white flag to be thrust out from one of the embrasures. The *Edinburgh*, *Bulldog*, and *Driver* immediately hoisted a similar flag to the fleet to suspend firing, while Sir Charles Napier and Admiral Chads proceeded in a small unarmed boat to the shore. It was a period of breathless anxiety, for the advanced Chasseurs and some few English sailors were seen mounting the rocks, and eagerly pressing on to the very gates of the fortress. General Baraguay d'Hilliers and his staff at the same time wound round the roadway and galloped up to the fort. The General motioned the soldiers to remain off a few yards, for fear of treachery; and at length the Governor, General Bodisco, came forth to parley; but, finding that an unconditional surrender was demanded, he delivered up his sword to the English Admiral and French General. A French aide-de-camp was then dispatched to order a general advance of the army, and at the same moment the Royal Marines and Artillery, and the remainder of the Chasseurs, came scrambling down the ridges. They at once entered the fortress, surrounded and took charge of the magazine, and the troops pouring down either entered or drew up in line outside.

It was a scene of singular interest to behold the conquerors animated with victory, and contrast the dejected air of the Russian soldiers as they bent forth from the embrasures looking sullenly upon them. Under the walls of the huge fortification the ground was completely bestrewed with 84lb. shot, broken shells, grape, and canister, intermixed with enormous sheets of iron that had been dislodged from the roof, and fragments of the granite walls which have been broken away

in thousands of places. In the interior, which was a large square and parade-ground, the fatal missiles, and heaps of broken granite and brickwork, bespoke the terrible vigour of the siege. The commanders then demanded the arms, which the prisoners brought and piled up in the square, near to the furnace where their red-hot shot had been heated. The prisoners having collected their personal baggage, were ordered to be immediately removed on board the men-of-war. The Commanders-in-Chief, Sir Charles Napier and General Baraguay d'Hilliers, with Admiral Chads, Capt. Ramsey, Capt. Pelham, Capt. Yelverton, General Jones, the Colonels of the French regiment, the Hon. Capt. Cochrane (aide-de-camp to the French Commander), Lieut. Agnew and Lieut. Chads (Flag Lieutenants), with a brilliant staff of French officers on horseback, were drawn up in a space of ground on the outside. The whole army lined the way for 800 yards, extending from the gateway to the mole, or landing place, and they stood with loaded guns and fixed bayonets, the Royal Marines and Marine Artillery being ranged on one side of the entrance, and the Chasseurs on the opposite. Between this file of men the prisoners came forth two by two, the drums and fifes of the Marines striking up national tunes, which were taken up by each regiment in the rear. The Russians looked dispirited and careworn, the only repose they could obtain for five days having been by the side of their guns. At intervals, a few drunken shouts escaped from the fort. A partial revolt had arisen previous to their surrender; and, on seeing the army enter, many had rushed to the spirit casks. These men were the last that could be got out; and, on hearing the music, they commenced their national pastime, and ludicrously danced a polka through the whole line. One man was brought out between two French soldiers: he had been discovered attempting to fire the powder magazine when in a drunken fit, and was shot on the following day. The large pinnaces and cutters from the squadron rapidly embarked the men; and, in three hours after the surrender, they were placed on board the men-of-war.

The character of these operations may not be termed of very vast importance, but they will deserve to be ranked as a most scientific organisation of attacking forces—2,300 of the enemy secured, in what they deemed to be unapproachable fortresses, having been made to surrender with the loss of only four English and about eighteen French. The tremendous power of our 10-inch guns have been the chief cause of this small loss; for at the time the *Edinburgh* and *Ajax* were at 3,300 yards, throwing 84lb. shot, the enemy's shot were falling inert between them and the fort. Moreover, the force actually employed was not great, as will be seen from the following analysis:—100 Chasseurs (artillery) and 600 Riflemen, with three mortars and three field-pieces; Capt. Ramsay's battery of 100 blue jackets, with three 32-pounders; 60 Marine Artillerymen, with four 12lb. howitzers; 200 Marines employed in skirmishing; and Capt. Pelham's 10-inch gun on the mud battery, with 20 men. These were the land forces at work. The rest of the army were kept in reserve. It must also be remem-

bered that the steam-ships, with the exception of the *Edinburgh* and *Ajax*, fired only their two large guns, and the two latter, although mounting 60 and 58 guns, never brought more than 4 upper-deck guns to bear. By this admirable and well devised scheme of Sir Charles Napier, an immense amount of life has been saved by prolonging the siege a few days, and thus harassing the enemy. The French men-of-war have no metal equal in power to the English; they did no execution, and drew off very early. On the contrary, the Chasseurs fought throughout with coolness and business determination; from the cover of the rocks they would throw into an embrasure such a shower of bullets that the enemy could not stand to load their guns, ten and fifteen minutes frequently elapsing after a discharge before they could fire again. The Russians are scientific gunners, and fire with much precision; but the Allied batteries being so strongly formed comparatively little loss took place. The amount of property lost by the destruction of 300 or 400 houses has been estimated at £100,000. Why the Russians wantonly caused this conflagration is a mystery, and if it was for the purpose of preventing an ambuscade it was essentially fruitless, for the rocks around answered all the purpose of protection for the besiegers.

According to the *Moniteur*, the Government of the Emperor and that of her Britannic Majesty, have resolved that the fortifications of the archipelago of Aland shall be destroyed, and Bomarsund evacuated.

Destruction of the Fortifications at Aland.

Ledsund, Sept. 5th.

The fortresses that stood upon the Aland Islands are amongst the things that were. Mines were sprung beneath them on the 30th and 31st August, and 2nd September. The fort of Izee, after it had fallen into the hands of the French, as I have already informed you, was shelled from the Russian main-work. It took fire, and blew up on the morning of the 15th ult. Præsto was fired on the 30th: its destruction was complete. Three explosions took place in quick succession; on the third the entire fort seemed to open out and then went upwards amidst a thick volume of smoke. All the hewn granite which formed the outer casing of its walls slipped over the tongue of land upon which it was built into the sea, leaving a heap of bricks and rubble on its site. Nottick was destroyed on the following day. The first explosion was like a clap of the loudest thunder, followed by four or five successive discharges not unlike a salute from heavy guns. Its walls visibly started on the first report, and these shot upwards, enveloped in a cloud of the heaviest and densest smoke, which floated heavily away over the ruins of Præsto. Stones and splinters came down in a shower upon the surrounding rocks, and when the curtain of smoke had withdrawn itself from over the debris, two shaken portions of the circular tower were still standing, like solitary sentinels, over the fallen fort, and served only to render the picture of ruin more striking and impressive. The main work, or semicircular fort, was destroyed on Saturday

evening. It was riven asunder by several grand explosions. The whole appearance of the place from the ships now presents a melancholy picture of desolation, and has lost all its distinguishing marks. The forts, so lately models of strength and beauty, are effaced from the landscape. The village, which formed so conspicuous an object in my sketch, has disappeared by fire, and the beautiful trees, so lately umbrageous, but now scorched and shorn, stand like dismal spectres casting off flashes of soot before every breeze.

With the view of examining the interior for myself, I travelled through the island and was kindly received everywhere with marked respect by the kind and simple peasantry, whose houses of wood, generally one story high, are emblems of purity and cleanliness. The thick woods afford them lots of timber to supply all their wants, and every farmer appears to be by nature a carpenter and cooper. Every farmyard shows its heap of white chips and carpentry workshop. All their arrangements, though rudely, are ingeniously fashioned, and wood is made to serve many of their wants for which iron would be more suitable. The interstices, between the solid beams of which their houses are built, are filled with moss, and the windows are generally double (an inside and an outside one) to defend them against the severity of the winter. Every room has its separate stove, and the beds are generally grouped together in one room, where they are built in tiers close to the large fire-place. The cultivation of the land is most creditable to them, and seems to have arrived at great perfection. Corn, rye, hemp, and potatoes, were the principal crops we passed. Their domestic animals are of a small breed; the horses are remarkable for their beauty as well as their speed. The face of the country is beautifully diversified with wooded mountain ridges. The sea, studded with innumerable islands, exuberantly covered with pines and silver birch, appears from the main road like a chain of lakes. The fields, covered with fine pasturage, are enclosed by railed fences, and quiet little Lutheran churches show their spires now and then in sylvan scenes. The main road more resembles a private avenue through park lands, than a common thoroughfare. The villages are merely a few farm-houses squatted together.

The *Moniteur* contains a full account of the destruction of Bomarsund, in a letter dated Ledsund, 5th Sept.:—The governments of Engiand and France, judging from the nature of the reports addressed to them that the presence of the army in this quarter was no longer necessary, came to the resolution of blowing up the fortifications and of evacuating the country. Despatches to that effect arrived at Bomarsund on the 28th August, and measures were instantly taken to carry out the orders received from Paris and London. General Niel, of the Engineers, who so ably directed the siege operations, in concert with Lieut-Col. Jourjon, of the same corps, gave the necessary directions to destroy the fortifications. On 31st August the great tower of Præsto was blown up, and its destruction was complete and instantaneous. On the spot where the menacing lines of this huge construction seemed a few days before to defy our armies, nothing is visible to day but a shapeless heap of ruins. The other towers were likewise destroyed; but the blowing up the great fortress required more time and labour. During three days no one was allowed to enter it, in order not to interfere with the works of the engineers. On the 2nd of Sept., a short time before the explosion, I inspected it a second time, in company with Lieut.-Col. Rochebouet, of the Artillery, and some engineer officers. It was a curious and terrible sight. The great court-yard was silent and deserted. A few soldiers were on duty, keeping watch on the powder. Twenty mine chambers were placed in the casemates, divided into equal zones, and a match, 2,000 yards in length, circulated in every direction, extending to the different cavities where powder had been lodged. In passing through the courts and

mined casemates, every one took care not to touch the match with their feet, as the slightest shock might have set fire to it. After a minute inspection we retired. The drums beat to arms to warn every one off. At 7 o'clock the engineers lighted the match, and then ran off to a place of safety. The smoke was seen to advance by degrees, and shortly after was heard a terrible explosion, followed by others equally terrific. A black and dense smoke, from the midst of which were showered heaps of stones, darkened the atmosphere, and spread itself over the port and the surrounding woods. A vast crowd witnessed this gloomy and magnificent spectacle. The inhabitants from every part of the island and all the soldiers of the expeditionary corps, covered the heights around the fortress. Towards night the explosion was followed by a conflagration which illuminated the entire bay of Lumpar. For several successive days the smoke was seen to issue from the ruins. All those operations have been completely successful without the loss of a single man, or without causing any injury to the dwellings or property of the inhabitants. Immediately after the troops were embarked in the greatest order. On the 2nd of September the steamers *Darien* and *Laplace* towed into Ledsund the transports with the last companies on board. When all the soldiers had embarked, the generals and their staff went on board the *Fulton*, which is to bring them back to France. The following day the *Inflexible*, towed by the *Phlegethon*, was the last to quit the Bay of Lumpar. We are informed that the greater part of the squadron at present stationed at Ledsund is on the point of sailing for Nargen.

Daily News, 16th Sept.

THE ARCTIC EXPEDITION.

A despatch has been received at the Admiralty, from Captain Inglefield, of the *Phœnix*. It is interesting for the account which it gives of the discovery of serviceable coal. Capt. Inglefield dates from Four Island Point, July 9th. It appears that he reached the harbour of Jacob's Haven on the 6th, but found it so thickly beset with heavy ice from the neighbouring glacier, that he proceeded immediately to Skandsen, on the island of Disco, as shown in Rink's chart. Skandsen was reached on the 6th, and, landing, they soon found the spot that had been previously worked by the Danes. A specimen of the coal found there, which is in a strata cropping out of the bank of the beach, covered only by light clayey sand, has been forwarded. The vein varied from one foot to four feet six inches in depth; but a far superior specimen of coal for steaming purposes has since been met with. Good holding ground in from eight to ten fathoms was found off this coal strata, though exposed to the southerly winds, at which times a heavy sea sets right upon the shore. A wooden house was erected some years ago, but is now uninhabited. It would form, however, good shelter for a party collecting coal, which could be shipped in fine weather, or during northerly winds, when the sea is perfectly smooth.

Leaving Skandsen at 5.30 p.m., the *Phœnix* then proceeded towards Ritenbenk, passed inside the small islands, and observed an extensive loom and Kittiwake rookery, where thousands of birds and eggs might readily be obtained. A still larger rookery is situated at Niakornak Næs, an island a little to the northward.

A strong breeze from the northward prevented their reaching Atanckerdluk before 5h. p.m. "Here," says Captain I., "we found excellent sheltered harbours, the northmost one for vessels during southerly winds, and the other affording capital shelter with north winds, and with very good stiff clay holding ground. We came to in 23 fathoms, and rode out the gale; then landed with a party of Officers for the purpose of visiting a petrified forest, which had never

been previously visited by any Europeans, excepting Mr. Rink. Here, at a measured elevation of 1,084 feet above the level of the sea, we found extensive remains of petrified trees, though nearly entirely embedded in sandstone clay. The specimens collected were in all stages of petrifaction, some charred into coal. That this has been a forest of considerable extent, and that the species of tree was, doubtless, what now only exists in a far more temperate climate, is beautifully illustrated by the widely-scattered specimens found of petrified leaves, identifying the lime, beech, fir, and some sorts of ferns. To the geologist this cannot fail to be a source of the greatest interest, and must be viewed by all as matter for great speculation.

A small piece of amber was found, and I succeeded in reaching a spot at the edge of the cliff, where a portion of a semi-petrified tree still stood at an angle of about 45°, and sloping towards the north; the hill upon which the forest is situated facing the south.

This tree was about the size of a man's body in girth, and four feet of it stood exposed. The commencement of what is known as greenstone, sandstone, clay slate, and trap formation, was clearly defined at a spot a short distance from our anchorage, and where it was met by the gneiss and granite of other periods. At 7 o'clock on the following morning our anchor was tripped, and we steamed across the Waigattet towards Ritenbenk Rullrud. On landing I soon found an extensive stratum extending, as far as my own observation went, for more than a mile along the coast. This vein is from three to six feet in depth, and of a species known in England as anthracite. Considering there could be no better proof of its available position and means of obtaining it, I ordered all the quarter-boats of the two vessels on shore for the purpose of taking a load, and, though it had to be broken out from the bank and put into the boats, which had then to pull off to the ship, which was lying to under steam, at a distance from the shore varying from three quarters to a mile, we nevertheless got off upwards of 12 tons in four hours, and this by working only the boats' crews at the strata in different spots, and themselves loading and carrying off their own boats alongside, each making three or four trips in that period. The coal has been used since, and is found of good quality; it is spoken of by some of our men, who are accustomed to the coal trade, as being worth 35s. a ton. There seems no limit to the quantity that might be obtained, and at high water it may positively be thrown into the boat, a distance of four feet, from the bed in which it is deposited. The superincumbent stratum is composed of a sort of black land, similar to that we have in Scotland, immediately upon the coal stratum, and a clayey sand above that; this is perfectly loose, and can be cleared away with the greatest facility, leaving a table of coal running level with the shore, and perhaps five feet above high water mark. Large blocks were broken out, more than three men could lift. The coal stratum inclines to the north-east, at a very small angle.

It is not to be supposed we had hit at first upon the best kind to be found for steaming purposes, but it has been proved to be very useful mixed with our quick burning patent fuel, and, when a jet of steam is applied, as now used for many of the Mediterranean steamers, which burn anthracite coal, and which this most resembles, a great heat and more rapid combustion are obtained."

United Service Gazette, Sept. 16th.

Visit of the Queen to the Egyptian Yacht, Feid Gehaad.

The Queen paid, on the 8th September, a visit to the Egyptian yacht, Feid Gehaad, in Southampton Docks. Her Majesty arrived in the docks in the *Fairy* yacht at 5h. p.m., and was received by Captain Ford, the Ottoman Consul, P. Hedger, Esq., the Southampton Dock Master; John Levy, Esq., and

other dock authorities; and Capt. Austin, the Admiralty Superintendant. Her Majesty was accompanied by the Duchess of Kent, the Prince of Wales, the Princess Royal, and two other of the royal children, and the Earl of Aberdeen. A floating platform was formed alongside the yacht, which was covered with crimson cloth. The gangway was also covered with the same material. At the top of the gangway her Majesty and the other royal personages and suites, who attended her, were received by Mustapha Redish, the commander of the yacht. Her Majesty remained on board the yacht some considerable time, and admired its immense extent, and its gorgeous fitting up, which is in a style of oriental splendour. The yards were manned, and an Egyptian guard of honour received her Majesty, family, and suite, on deck. The Mayor of Southampton, as admiral of the port, and the town clerk, received the Queen previous to her going on board the yacht. Her Majesty went all over the yacht, and examined very attentively every part of it. After this was done the whole of the royal party sat down in the state saloon, and coffee and a magnificent eastern pipe were placed before them. The pipe was smoked manfully by the Prince of Wales. Her Majesty accepted of coffee, and she had it presented to her by the Egyption officers, who did their homage, while doing so, according to the Eastern practice. The Captain of the Feid Gehaad, dressed in magnificent costume, took off his shoes on entering the saloon where her Majesty was seated, which is the greatest mark of honour that he could pay the Queen. The mixture of Nubians, Cofts, Arabs, Turks, and Circassians, which formed the crew and officers of the yacht, with their varied uniforms, formed a singular sight. The guard of honour was formed of Egyptian naval cadets. The flashing of the scymetars of the officers, the sound of the fife and drum, with which the guard beat to arms as her Majesty was about to pass along the deck, with the wild cry of joy and welcome which she received from the crew who manned the yards, formed altogether a most curious spectacle. Thousands of people were in the docks; every steamer was crammed with spectators; considerable sums of money were offered by ladies and gentlemen to go on board the *Feid Gehaad* to witness her Majesty's inspection of it, but no one but officials were permitted on board. Her Majesty expressed to the Mayor of Southampton her admiration of the beauty of the yacht. Many of the painted panels on board the yacht reminded one of scenes and descriptions in the Arabian Nights Entertainments. The Queen was greatly cheered by the English spectators, both on entering and leaving Southampton. Almost as soon as her Majesty went on board the *Feid Gehaad*, the whole of the Egyptian officers belonging to her, together with the Mahommedan priest, were introduced. The name of the yacht, the *Feid Gehaad*, means the Fortune of War. She brought over to England El Hami Pacha, the son of the late Pacha of Egypt.—*Daily News*, Sept. 9th.

The Royal Visitors at Boulogne.

Boulogne, September 8th.

Yesterday was a sort of resting day for the Emperor and his illustrious guest, to prepare them for the great review and sham fight which takes place this day at Marquise, a place about twelve miles from Boulogne. They were not idle, however, as immediately after luncheon they proceeded in semi-state to visit the royal yacht, Prince Albert in person taking the Emperor through the vessel. The officers were all presented in the saloon, after which the Emperor and Prince Albert ascended one of the paddle-boxes, where they were soon perceived and loudly cheered by the crowd on the Quai. The inspection did not last many minutes, but was long enough to induce his Imperial Ma-

jesty to express warmly his entire satisfaction at all the arrangements. On the departure of the visitors the crew ranged themselves along the decks, and gave the French such a lesson in cheering as will probably not soon be forgotten in Boulogne. They were apt pupils, and cheered lustily themselves until the carriages were out of sight. In the afternoon the Imperial party visited the camp at Houvault, where an inspection took place, and in the evening there was a grand dinner party at the Hotel Brighton.—*Daily News.*

THE FAREWELL BANQUET.—The Imperial party having returned to the Hotel Brighton, preparations were made for a farewell banquet. The *salle à mander* of the Hotel Brighton is capable of accommodating fifty persons comfortably, and, on this occasion, covers were laid for forty-five. The room was hung with draperies of green tabaret, the Imperial colour, fringed with gold, and the table was laden with costly plate. The most conspicuous ornament, however, was an immense pyramid of fruit of the most tasteful construction, and surmounted by two immense pines, which had been brought specially for this occasion from the Duchess of Sutherland's gardens at Taunton, by M. Soyer, the eminent gastronome. These splendid productions of an English pinery weighed severally nine and eight pounds, and were the object of general admiration. The dinner consisted of fifteen *entrées*, amongst which it will naturally be concluded that very few of "the delicacies of the season" were absent. But that for which the dinner was most remarkable was not the splendour of the arrangements nor the goodness of the fare, but for the marked way in which it is understood that the Emperor and his illustrious guest both recognised the necessity of an intimate alliance between England and France; and the spirit of cordiality and friendship exhibited by them in their allusions to each other. The Emperor, in proposing the health of the Queen of England, made use of something like the following words:—"I have the honour to propose a toast, 'Our most intimate ally, Her Gracious Majesty the Queen of England.' Under the two flags of France and England, which are as the bow of promise to liberty, the yoke of the despot will presently be broken." The enthusiasm with which this toast was received could hardly be surpassed, and when Prince Albert rose to return thanks for Her Majesty's health, he made a most telling, although brief, speech, of which the following passage is the most remarkable:—"The kind reception which I have found in your empire will never fade from my memory. I reckoned confidently on your Imperial Majesty; but the enthusiasm of the French people on my behalf has very much surpassed my expectations. Let us hope that your august Majesty will soon gratify us by visiting the shores of Albion, where the English people, I am sure, will be delighted to receive the visit of your Imperial Majesty."

THE EMBARCATION.—From the hour of 9 p.m. the Garde Imperiale kept clear a large quadrangular space in front of that part of the Quai to which the *Victoria and Albert* was moored. It was nearly 11h., however, before she floated, and it had passed that hour before the Prince arrived. In the mean time the Custom-house, and nearly all the houses on the Quai, were brilliantly illuminated, and garlands formed of many coloured lampions were festooned across the roadway. The letters V. N. A. formed a large design in variegated lamps, and on a smaller and more unpretending one the initial of the Empress was also introduced. The effect of the whole was exceedingly fine, the warm tone of the lampions contrasting artistically with the silver moonlight. The whole town was out upon the quai and jetty, and the Imperial cortege was impatiently waited for. The carriages were soon seen rattling across the new bridge, preceded by Piquers carrying flambeaux, and the cheering gradually becoming louder, informed us that the Emperor and Prince were at hand. On their reaching the quay fireworks were let off from various quarters. The cheering now became tremendous, for just as the Em-

peror and Prince stepped on board a tremendous blue light was ignited close to where they stood, so that their persons and features became distinctly visible from the remotest corners of the quay. Many bows were exchanged between host and guest, the Emperor landed, and the moorings having been cast off, the Royal yacht edged slowly away from her moorings. When she reached the middle of the stream our Gallic friends were afforded a new sensation. The port-holes were opened from stem to stern, and the whole of the interior might be seen brilliantly illuminated with wax lights. Prince Albert remained on deck bowing in response to the cheers from the shore, and just as she passed the jetty the first shot of a salute of twenty-one guns reverberated from the cliffs. The steamer, once clear of the jetty, steamed rapidly away, and took farewell of her French friends in a brilliant display of blue lights, which formed the last public act of the Royal visit to France.

At eight o'clock on Saturday morning (Sept. 9th) the Royal yacht *Victoria and Albert*, bearing the standard of Prince Albert, with the *Vivid* and *Black Eagle* yachts in close attendance, and followed by the armed ships *Malacca*, 17, *Hornet*, 16, and *Salamander*, 6, arrived at Osborne from Boulogne. It was her Majesty's intention to have gone some way out into the Channel in the *Fairy* to meet his Royal Highness, but his return was earlier than was expected. Having disembarked the Prince, the three yachts came into harbour and the armed ships up to Spithead, where they anchored. The King of Portugal, his brother, and suite, who arrived at Osborne, on a visit to her Majesty, on Thursday, embarked on board the Portuguese war steamer *Mindello* on Friday night, and sailed on Saturday for the westward.

United Service Gazette.

NAUTICAL NOTICES.

BALLINSKELLIGS BAY, *S.W. Coast of Ireland.—Extract of a Letter.*

The shores and land around this Bay of Ballinskelligs present a far less rugged and rocky aspect than any part of the sea-board at this side of the Galley Head, the coast line being low and sandy, and from thence inland are gently rising undulations towards the mountains, presenting much fertile and well enclosed arable lands.

Although Ballinskelligs Bay has acquired an unfavourable reputation, on account of many wrecks with loss of life having occurred in it, I consider that refuge, under suitable circumstances, might be sought in it, under guidance of a correct chart and good directions; but the space where security lies is very limited in extent, consequently but few vessels at one time could find accommodation there.

The proper position for a vessel to anchor in is close to the East side of Horse Island, which is just detached from the North shore by a very narrow passage, wherein is a depth of about 1¼ fathoms at low water.

Although upon a rough inspection personally, or on viewing the chart, it might be supposed that a vessel anchored there would be much at the mercy of the Atlantic roll coming round the point of Horse Island, as well as through the narrow sound which separates it from the land, nevertheless the opinions given to me by the coast-guard people and the officers of revenue cruizers who have used the place, are, I consider, well founded, viz.:—That the anchorage is safe, provided the vessel be put in the proper position, and that a sufficiency of good ground tackle be used. They assure me that it is better sheltered than might be supposed, and upon a scrutiny of the eastern, or rather north-eastern shore of Horse Island and of the adjacent mainland, I think that the assertion

is borne out; for three small cottages, or cabins, stand on the East shore of Horse Island, five or six feet above high water mark; and the extensive ruins of the ancient Abbey of Ballinskelligs have foundations scarcely above the high water level of spring tides, on the mainland abreast of the anchorage, and have been but little disturbed by the action of the sea through the lapse of several centuries. Moreover, the herbage grows down close to the high water mark, both on island and mainland, which, together with the absence of large water washed round stones on the beach, indicate the prevalence of a generally smooth sea.

The holding ground, although but sand, with scarcely any mixture of mud, is said to be sufficiently tenacious to hold the anchors, not being of a hard and brittle nature; and by anchoring in the proper spot, with the peak on Hogs' Heads (which forms the South head of the bay) in line with the South-eastern point of Horse Island, and the rocks of the narrow Sound which separate the island from the main, looking, or just looking out to the ocean horizon, a vessel would be in 23 feet water at low water, and with good ground tackle, I think safe.

Eastward of this position at some distance the bottom has extensive tracts of rocky ground, on which anchors have been broken, and the hempen cables of former days cut. Moreover, I have heard that in byegone times some instances were supposed to have occurred in which the said cables were cut by people of the place, by which the vessels were stranded and lost; all of which have served to condemn Ballinskelligs Bay as an anchorage.

I have been informed that several merchant vessels from foreign voyages have taken refuge at the anchorage mentioned, and having been placed by the coast guard people in the best position, they rode out severe winter gales in safety. The N.W. winds are the most likely to distress the ship, as when blowing heavily they are apt to come down in violent squalls from the highland of Bolus Head, and in this direction the vessel should be fortified, more especially on account of the downhill drag to the S.E.

The bottom about the South and South-eastern parts of the bay abounds with rocky patches, but in the North-eastern part is an extensive clear tract of sandy bottom, abounding in ground fish, soles, plaice, turbot, &c., affording a good harvest to those who take the trouble to trawl there.

Salmon plentifully resort to the narrow rapid over the beach at Waterville, in their ascent to the extensive lake of Curraun, in the spawning season. They are captured there in great numbers in hutches by the proprietor, Mr. Butler. Along the shore of the bay they are also taken in seins by fishermen, whilst coasting inwards in search of the fresh water.

A vessel anchoring inside Horse Island may procure supplies by an excellent road from Cahirciveen, and vegetables and fresh water may be obtained in the neighbourhood.

Atlantic Dangers.

In our last number we inserted an interesting account of a shoal east of St. Paul rocks, not far from the Equator. We have now to record something similar further north, but not of so decided a character, and we have taken the opportunity of adding to it certain Vigias which it will not do to lose sight of in any future investigation of this matter.

"While on our passage out we experienced some strong westerly gales, which drove us a long way south, and on the 22nd day of April, at noon, being in lat. 43° 41′ N., and long. 28° 51′ W., we found ourselves nearly on the top of a rock, a few feet above the water. It was nearly calm, and the sea was

running very hollow. It was with much trouble that the *Edward Kenny* was wore round clear of it; the newest chart has no such rock laid down. Do report this rock as soon as possible, to serve as a warning to all mariners who may get in its neighbourhood, for it is very dangerous. Every dependence may be placed on the position of the ship, for we had recourse to every means to prove it. Several rocks are marked 'doubtful,' but of this there is no doubt.

"ROBERT MOSSMAN."

The rock reported by the Harbour Master of Hartlepool, (Mr. W. Mossman,) whose brother commands the *Edward Kenny*, has led to the examination of the chart in its locality, from which there appears to be,

		° ′	° ′
a.	The Verte rock, in about	44 52 N.	.... 26 25 W.
b.	Greeves Ledge	44 15	.... 25 5
c.	Woodall Rock	43 20	.... 25 10
d.	Amplimont	42 51	.... 24 15
e.	Three Chimnies.....	47 54	.... 29 40
f.	Gough Rock	40 28	.... 30 0
g.	Read Rocks	46 49	.... 28 48
h.	Chaucer, or Henderson Bank...	42 45	.... 29 0
i.	Edward Kenny	43 41	.... 26 25

The accounts of the above mostly describe them as occasionally above the surface of the sea, and contain the following statements:—

Thus the first *(a)* is visited in a boat from a passing ship, the water smooth, some "moss" (probably weed) is pulled off it:—another *(b)* is said to have weed growing on it, and surrounded by a large patch of discoloured water, rippling very much:—another *(c)* is covered by the swell of the sea, but at intervals it shows several feet above it, and is nearly perpendicular; from the mast-head it is seen to a great depth below the surface, and appears in the shape of a cone:—another *(d)* has two points of rocks separated, and 30 feet above water:—another *(e)* with the sea breaking over it violently:—another *(f)* presents two rocks, seen even with the surface, and in the hollow of the sea six or eight are seen, down in the water:—another *(g)* is seen awash on the surface, a quantity of kelp floating about it:—another *(h)* is a bank on which several casts of the lead were obtained, from 48 to 70 fathoms:—and another *(i)*, the last reported, is seen a few feet above water, and the vessel *(Edward Kenny)* so nearly on it that she has difficulty in clearing it.

All these accounts, given at different periods, and entirely independent of each other, present sufficient evidence to justify the suspicion that there may be an extensive bank at some depth below the surface, from which rocks reach the level of the sea, and become occasionally exposed; the volcanic nature of the Azores, the well known Sabrina, and the presence of other indications similar to the above, lying N.E. and East of them, would further tend to justify the suspicion.

NOTICE TO MARINERS.

FIXED LIGHT ON PLUM POINT, ENTRANCE OF PORT ROYAL, JAMAICA.—[No. 179.]—Notice has been given by Commodore Henderson, at Port Royal, Jamaica, that on the 20th of July last a Fixed Light was established on Plum Point, near the entrance of that harbour.

The Tower, which is painted White, stands in 17° 55′ 45″ N., and 76° 47′ W. from Greenwich, and 66 yards North from the southern extreme of the Point. The light is 68 feet above the level of the sea, and visible at the distance of 12 miles.

When the light is seen between the bearings of N.W.b.W. ½ W. and N. ½ E. it will appear as a Red Light, but between those of N. ½ E. to S.E., Bright.

Directions.—The Red Light brought anything to the northward of N.W.b.W. ½ W. will clear, to the southward, the low shelving ground of Cow Bay Point, and Lamotte Bank, and the same light, brought to the westward of N. ½ E. will clear, to the eastward, all the shoal ground lying to the eastward of Maiden and South East Cays.

Vessels working up from the southward for the anchorage off Plum Point, or intending to proceed into harbour, must tack immediately on losing the Red Light until within half a mile S. ½ W. of the Point, when the White Light will open, bearing N. ½ E., then steer W.b.N. ½ N., until it bears E. ½ S., passing close to the northward of the White Beacon Buoy off the North Spit of Gun Cay; then alter course to S.W.b.W., and as soon as the light opens of the south extreme of Gun Cay, E. ½ S., steer W.b N., which will lead in between the Beacon and West Middle Shoals, (or take the channel to the Northward of the New Shoal, passing close round Port Royal Point,) and as soon as the Bright Light on Fort Augusta bears N.b.E. haul up for it, which will lead clear to the westward of the harbour knoll, and the South and North Pelican Spits, and as soon as Plum Point Light bears S.E.b.E. southerly, haul up E. ½ S. for the anchorage of Kingston, when a Red Light will be seen on Fort Augusta astern, bearing W. ½ N. from the anchorage off Kingston.

The White Light will show the vicinage of all the Cays and Shoals lying to the southward and westward of Plum Point, as well as the north eastern limits of the Shoal extending to the eastward of the North Pelican Spit, westward of Kingston Harbour.

Ships coming from the westward, and having brought Portland Point to bear about North, should steer E.N.E., so as to make the White Light upon N.E.b.N. bearing; continue the same course until the Red Light opens, bearing N. ½ E., then haul up for it and proceed as before directed.

The Bright Light will be exhibited from a single Lamp, suspended to the Beacon on Fort Augusta, 40 feet high, and will only be seen when to the southward and westward of it. It may be used as a guide through the South Channel, by keeping it upon a N.b.E. bearing, which will lead clear to the westward of the Portuguese Buoy and to the eastward of the Three Fathoms Bank; but the use of this channel is not advisable at night except by drogers and other small vessels.

The following are the bearings and distances from Plum Point Lighthouse:—Cow Bay Point, E.S E., 8 miles; Lamotte Bank, E.S.E., 13¼ miles; Morant Cay, S.E.b.E., 56 miles; East Middle Buoy, S.S.W. ¼ W., 1¼ miles; South East Cay, S.W. ½ S., 2¼ miles; Portuguese Buoy, W.S.W., 5¼ miles; Portland Rock, S.W., 61 miles.

N.B.—The whole of the bearings are magnetic, and it is recommended that they be strictly attended to.

Coast of Friesland.—Fixed Lights on Schiermonnik-oog Island.—[No. 181.]—Her Majesty's Government has been officially informed that on the 1st September two Fixed Lights would be established on the island named Schiermonnik-oog, to serve as a guide for the adjacent coast, and the entrance of the Friesland Sea Gat. Further information respecting these lights has been promised by the Netherland Minister of Marine.

The position of the Lights appears to be in lat. 53° 28′ 48″ N., long. 6° 9′ 55″ E.

Coast of Sweden.—Additional Light on Vinga Island, Kattegat.—[No. 182.]—The Swedish Government has given notice that, on the 1st September an additional Fixed Light, varied by Flashes at short intervals, was exhibited on Vinga Island, in the Kattegat, coast of Sweden.

The new Light-tower is placed in a N.E. ¼ N. direction, by compass, distant 400 feet from the old Vinga Lighthouse.

The Light is of the 4th order. It stands at a height of 87 feet above the sea, or at the same level as the present Fixed Light, and is visible all round the compass.

In connection with the above, the Light on Buskar Island, which lies 2½ miles to the eastward of Vinga, has been altered, so as to appear Red to seaward, but continues bright towards Vinga Sound.

LYSE GROUND, KATTEGAT.—[No. 183.]—The Danish Marine Board has given notice that, on the 8th August last, the Beacon-buoy carrying two brooms, at the N.E. angle of the Lyse Ground, in the Kattegat, (mentioned in Art. 303 of the Danish Pilot,) was changed to a Red, iron, pointed Beacon-buoy, having a Red Pole with a Red Ball on the top.

BALTIC, GULF OF BOTHNIA.—IMPROVEMENT OF HOLMO GADD LIGHT.—[No. 184.]—The Swedish Government has given notice that, on the 9th August last, the Fixed Light on Holmo Gadd, in the Gulf of Bothnia, was changed from a Coal Light to an Oil Light, with reflectors.

The Light, which, as before, stands at a height of 72 feet above the level of the sea, is visible in all directions except between the bearings of S.S.W. ¼ W. westerly to S.W.b.W.

A stronger glare of light is thrown in the direction of the Outer or South Gaddsnytan Rock, (only 5 feet,) from which the light bears N.N.E. ½ E., distant one mile and a quarter.

The Lighthouse stands in lat. 63° 35′ 50″ N., long. 20° 46′ East from Greenwich.

BALTIC LIGHTS.—KATTEGAT AND LITTLE BELT.—*Renewal of the Kobber Ground Light, and Removal of Assens Harbour Light to the Pier Head.*—[No. 185]—The Danish Royal Naval department has given notice that a Light Ship with three masts, each carrying a light, will be moored off the Kobber Ground, in the Kattegat, South of Læso, about the end of October, in lieu of the temporary Light Ship placed there in the month of October last. The Lights on the foremast and mizenmast will be 28 feet high, and that on the mainmast will be 40 feet above the sea.

Assens Harbour Light.—About the close of last month the Harbour Light of Assens, now over the Town Gate, was to be removed to the Pier Head, and established at an elevation which will render it visible at the distance of eight miles.

Further particulars of these alterations will be given, with the date of their taking place.

SHETLAND ISLANDS.—FIXED LIGHT ON NORTH UNST *(Temporary)*.—No. 186.]—Notice has been given by the Commissioners of Northern Lighthouses, that a temporary Lighthouse tower has been erected off the North end of the Island of Unst, in Shetland, with the view to a permanent light being ultimately established in the same locality, and that a Fixed Light will appear therein on the 11th October inst.

The temporary Lighthouse stands on Muckle Flugga Rock, one of the group called the Burra Fiord Holms, Hermaness, the northern extremity of the Island of Unst, and is in lat. 60° 51′ 20″ N., and long. 0° 53′ 3″ W.

The small rock called the "Out Stack," which is the most northern rock of the Shetland Isles, bears from the Lighthouse about E.b.N. ½ N. by compass, distant about half a nautic mile.

The Light is elevated about 165 feet above the level of high water of ordinary spring tides, and may be seen at the distance of about 19 nautic miles.

South African Directions.

The Port of Natal is the most completely sheltered and land-locked harbour in the South African coast between Table Bay and Delagoa Bay. It is about 3¼ miles long, and 2¼ miles wide inside, and about 600 yards wide at its entrance, where it was formerly much obstructed by a bar, on which, owing to late improvements, there is now 20 feet of water. On the northern side of the entrance a pier has been carried out to some distance, which has much facilitated the scour of the entrance, and increased its depth several feet. Within the harbour are several small islands, which it is considered may be made available to increase still more the action on the bar. On the whole the result of the improvements in Natal harbour are very encouraging, and if persevered in we have no doubt will make it the best in Southern Africa. Of the coast between Port Natal and Delagoa Bay we know very little. Report speaks highly of St. Lucia Bay, and one or two more; but Captain Owen, who surveyed that coast, did not examine the mouths of the rivers very carefully. Of Delagoa Bay it is sufficient to say that, although unhealthy, it is a large and excellent one, and we possess very correct charts of it. The Portuguese still nominally hold it, although we would not be at all surprised to see it fall into the hands of the Transvaal republicans, who are sadly in want of an ocean outlet. It would not require much audacity on their part to frighten away its present occupants, who consist of a couple of hundred ill-fed and clothed mulattoes, who occupy a dilapidated fort, mounted with a few score of honeycombed guns and useless small pieces. Already considerable communication and trade takes place between the Dutch farmers living about Origstadt and this bay, some commercial tribes of Kaffirs, living to the north of it, acting as carriers.

We here end our very rough and hurried sketch of our African rivers and harbours, which may be finally summed up in a few words. Of safe and accessible harbours at all times, we have but Saldanha Bay and Natal; Simon Bay comes next, while Table, Algoa, Mossel, Plettenburg, St. Francis, and St. Helena Bays stand for security and convenience in about the order we place them. Of navigable rivers only one, and that in a very limited sense, can be named, that is the Breede; for the Kowie, even if opened, can hardly be dignified with the name of a river. All others on our coast are, we fear, hopelessly and eternally barred, excepting some of those between Natal and Delagoa Bay, on which a final judgment cannot yet be passed.

An accurate survey of the coast between Table Bay and East London is now in progress, under the charge of Lieut. Dayman, R.N. It is completed, we believe, as far east as Cape Agulhas, the points fixed by T. Maclear, Esq., A.R., being taken as a basis. Eastward of the Plattenberg, where these points terminate, we do not know what mode Lieut. Dayman will adopt for carrying on his survey, but we imagine that a series of triangles will be laid down between Mr. Maclear's most easterly point and Cape Recife, which will be of very great importance in a geographical point of view, as Captain Owen's survey of the coast was a mere running one, not admitting of very great exactness, an example of which is given in the fact that an error of four miles existed in the longitude both of Agulhas and Recife on his charts.

On Agulhas Point is a lighthouse, and east of it is Struys Bay, where vessels can get shelter in N.W. gales, but should give a wide berth to it in south-eastern. A sandy coast extends thence to St. Sebastian Bay, a shallow indentation, open to all winds from E. to S.W., and where the Breede river disembogues itself into the ocean. This river, although quite unimproved, is open to small vessels drawing not more than eight or ten feet of water, which can ascend it thirty or forty miles. As this river generally has some water in it,

and some perceptible current, perhaps it affords as good a chance of being opened as any other on the coast. Nothing in the way of an accurate survey of its mouth has, we believe, been yet made, but an Admiralty one of the whole of the south coast is now in progress. Between Breede River and Mossel Bay the coast is rocky and exposed. In Flesh and Fish Bays shelter may be had against nor'-westers, but nothing more.

Mossel Bay is, after Simon and Saldanha Bays, the safest bay on the coast. Boats can always land with safety. It, however, is very open to S.E. gales, and many wrecks have taken place near it. It is a very important port, however, as being about half way between Table Bay and Algoa Bay, and the port evidently designed by nature for the produce of the central portions of the Cape colony. It is no doubt capable of much improvement, although hitherto quite neglected. About eighteen miles east of Mossel Bay is a little cove called Dutton Cove, by all accounts a very dangerous and impracticable spot. The Knysna, E. long. 23°, is a land-locked estuary, where an inconsiderable river runs into the ocean. Instead of a sand-bar we find here one of rock, and in many other particulars this little harbour is worthy of much consideration, for here nature has formed, in the rocky entrance, those piers we desire so much to form by art in the Kowie and other places. The tide entering through a narrow passage, about 160 yards wide, spreads out within the rocky enclosure over a large expanse of flats, preserving, however, a channel deep enough for vessels not drawing more than twelve feet of water. This tidal water rushing out through the narrow entrance, creates scour enough to keep the bar clear down to its rocky bottom. Engineering art may here well take a hint from nature. If they cut off the back tidal water from the Knysna flats, inside the bar, what would the Knysna be? And yet such is the theory of the Kowie improvers. We shall see what Mr. Rendell will say.

Plettenberg Bay presents the usual form of bays on the south coast, namely, a shallow indentation, quite open to the S.E. Owing to the extensive forests in this neighbourhood, Plettenberg Bay is of some importance for small vessels in the coasting trade. Landing is easy, and vessels can easily get out if any danger is apprehended from the S.E. Between Plettenberg Bay and St. Francis Bay is a very dangerous and inhospitable coast, the scene of many fatal wrecks. The proximity of the mountain chain to the coast, and the extensive winds, give rise to dense fogs and mists, and the current also is supposed about here to set in perpendicularly to the shore. At Cape St. Francis the mountain range nearest the coast dies away gradually to the shore, and in St. Francis Bay we find tolerable safe anchorage, although exposed to the S.E. swell about the mouth of the Kromme River. From thence to Cape Receife, which forms the west point of Algoa Bay, is a very rocky and dangerous coast. Receife (lat. 34° 0′, long. 25° 36′) is a low rocky point, the reefs of which run two or three miles out to sea. Before the erection of the present light it was much dreaded by mariners, and was the scene of many fatal wrecks.

Some seven or eight miles north of Receife, in the N.W. angle of Algoa Bay, stands Port Elizabeth, the second port of the Cape colony, and which, in spite of many disadvantages, by the Anglo-Saxon energy of its inhabitants, has obtained in a very few years a commercial position which bids fair to rival her more lethargic sister of the Tafel Baai, who, after more than two centuries of comparative ease and affluence, and standing as she does a sort of half-way house on the great highway of nations, has not much to boast of when compared with her more active and business-like little sister of a quarter of a century's growth, during which time she has passed through the ordeal of half-a-dozen wars and a couple of commercial panics. Algoa Bay is just one of the small bays along the coast on a larger scale, open to S.E. gales, and sheltered from those of the N.W. Landing is difficult owing to the heavy surf rolling in, and art has as yet done little to remedy the defects of nature. A movement, however, appears

now about to be made, which, without madly embarking in visionary improvements, will at least cause those feasible to be calmly discussed. Certainly we should say that if any means could be devised to facilitate landing goods, and communicate with the shipping, that the anchorage of Algoa Bay would be quite as good, if not better than that of Table Bay. As to the project of opening Baakens River, we fear, owing to the want of any land current, that nothing likely to be at all useful would result from any money expended in that direction. However, so very much oftentimes depends on local circumstances, that there is no doubt the expenditure of a moderate sum in a cautious, prudent, and scientific manner, will very much add to the landing facilities of this port. Anchorage can be found off the Zwartkops River, and in many other places in this bay. A lighthouse has been lately erected on one of the Bird Islands, of the utility of which very contradictory opinions are entertained.

From Point Padrone, the eastern extremity of Algoa Bay, we pass the Bushman, Kasuga, and Kariega Rivers, all hopelessly barred by sand, although forming pretty little basins within, and finally reach the Kowie, the so-much-desired port of Albany, which here forms a little estuary, where the tidal waters, entering by a narrow channel, spread over a flat of some acres in extent; above this the river forms many very beautiful reaches, with, however, very little current, and the tide, which here rises about five feet and a half, ascends to a distance of eight or ten miles. We will not here stop to discuss either the capabilities or the feasibilities of the projected port at this place; suffice it to say the question is in very good hands, and Mr. Rendell, we make no doubt, will very soon put the matter at rest, either one way or another. In the meantime it will be sufficient to say, that the position of the Kowie for a port is an admirable one, and for a certain class of small vessels we have no doubt a moderate outlay will furnish some safe accommodation.

East of the Kowie we find, between it and the Great Fish River, two or three small and unsafe bays, called Cawood Bay, Jessie Bay, &c. The mouth of the Great Fish River has often attracted attention as a desirable place for a port; but nature has, we fear, hopelessly barred all practicable entrance. A mile or two east of it is Waterloo Bay, which was used rather extensively for landing goods and government stores in the war of 1846–7. It is, however, a very bad anchorage, and quite exposed to the S.E., and is now abandoned.

Cape Papers.

(To be continued.)

A NEW PROJECTILE.—The inventive faculty of the age promises to familiarise us with another projectile of terrific power, which will cast into the shade all the shells now in use. We hear that there is before the Ordnance Committee a shell charged with a liquid which, after its release by the concussion of the ball, will instantaneously become a sheet of fire burning to a cinder anything it may touch, and suffocating by its smoke any one brought within its radius. We are not aware of the nature of the inflamable ingredients, but we can bear personal testimony to the efficiency of the liquid, for we have seen a very small quantity of it burn to ashes with incredible rapidity thick carpets, wood, coals, &c. A column of infantry, a row of tents, a ship, storehouses, and barracks, a forest, anything which acknowledges the terrible influence of fire, could be consumed in a few minutes by the visitation of a shell charged with this noxious fluid. It will, we dare say, require very careful handling by the artillery, for it is of so subtle a nature, that the escape of any, slight quantity would carry with it direful consequences. Like the *boulet asphyxia* it is calculated to be formidable alike to friends and foes if it be not watched with vigilance. But we dare say some plan will be devised for preventing the escape of any particles. We shall be anxious to know what the Committee of Ordnance Officers think of the project.—*U. S. Gazette.*

Destruction of the Hango Forts.

The following letter, giving an account of a cruise in the Gulf of Finland, and the destruction of the Hango Forts, is from the *Moniteur:*

Bomarsund Roads, August 29th.

On the 23rd August the steam-corvette *Phlégéton*, Commander Coupvent Desbois, which had arrived the evening before from Bomarsund, left the Bay of Ledsund—where a strong division of the allied fleet was at anchor—for the purpose of making a reconnaissance in the Gulf of Finland. The General of Division Baraguay d'Hilliers, commander of the expeditionary force to the Baltic; Admiral Parseval-Deschenes, Captain Melin, General Niel, of the Engineers, accompanied by Captain Petit, of the Engineers, his aide-de-camp, and Colonel Rochebouet, of the Artillery, were on board. The *Phlégéton* was accompanied by the *Lightning*, a hydrographic vessel of the English squadron, commanded by Captain Sullivan, on board of which was General Jones, of the Engineers of the British Army.

At about three o'clock in the morning we saw land through a slight fog, the speed was slackened, and we steered between the Island of Nargen and the town of Revel, and soon arrived at the anchorage of the English division under Vice-Admiral Plumridge. As soon as the *Phlégéton* arrived at the anchorage, Admiral Plumridge saluted the French flag with fifteen guns. This was returned by the corvette, and the Vice-Admiral came on board. At the same moment the bands of the English vessels played the favourite air of "Queen Hortense," and enthusiastic hurrahs resounded on all sides, showing the sympathy and the good understanding which reign amongst the sailors of the two squadrons. At eight o'clock the corvette cast anchor before Revel, about three miles distant. A good breeze was blowing from the south-west, the mist had disappeared, the sun illuminated the plains of Esthonia in the distance; and the clock towers, the houses, and the fortifications of the Russian town were distinctly seen.

The military port of Revel has been for many years past the object of important works of restoration. It is open to the east, and protected by two great forts, to which are attached batteries, recently constructed, and other works of defence, which all front the sea. The land side has not been neglected. The artillery of the forts and the works is important. It contains a total of three hundred and twenty guns. In addition to this there are in Revel two camps of troops. The tents of the soldiers were seen distinctly disposed in two long lines. The arrival of the corvette, and the salutes of the vessels, had aroused the attention of the Governor, and all the troops were called out.

On the strategetic road, constructed since the beginning of the war, parallel with the sea, cavalry and artillery were seen manœuvring, and following the vessels along the coast. We counted thirty pieces of light artillery, harnessed, and followed by their powder waggons.

It was Peter the Great who conceived the idea of founding a maritime establishment at Revel, for the protection of its commerce, which had been for many years very flourishing. But the capital of Russia absorbs at the present day all trade and commerce. From day to day the prosperity of Revel declines, and its mercantile port is falling to ruin, abandoned by the indifference of the Imperial government.

The successors of Peter the Great, while they adopted his idea, followed it out very imperfectly. The military port has great faults, and does not sufficiently protect the men-of-war, which might be destroyed by a sudden attack, in spite of the fire of the forts. The Emperor, to provide against such a contingency, last year ordered the Russian vessels to evacuate the port of Revel.

About twenty miles to the west of the town is Port Baltic, in the centre of a bay, the waters of which have the valuable property of freezing only very late in the season, and which often do not freeze at all.

About one o'clock the French Admiral and General went on board the ship of the English Admiral, when salutes were fired, and the most energetic of huzzas were shouted from the whole squadron. Before Revel lie a number of islets, inhabited by fishermeh, and covered with firs. Of these, the largest is Nargen, or Nargo, which is four and a half miles long, and one and three-quarters wide. We went ashore to visit Nargen. I accompanied the detachment, as also did M. Marel Fatio, the marine painter. We struck into the interior of the Island by a picturesque road, which led through groves of fine trees. No vestige of native humanity was discoverable; no sound was to be heard in the distance but the sighing of the wind through the trees. Still we advanced until we found ourselves at the other side of the Island, where we found some poorly built wooden houses, covered with moss. This was a village. We entered, and on the threshold of the principal house saw a young man, who was relating to the family something which they appeared to receive with profound depression. We approached, and having explained to these poor people who we were, we questioned them respecting their situation and that of their country. They told us that they lived solely by fishing, and the sale of eggs, butter and milk; that the fresh water of the Gulf of Finland did not yield salt to cure their fish, and that they were obliged to obtain it abroad; but that since the commencement of the war that trade having been annihilated, they had no means of salting their fish. They said, moreover, that they had come from Revel, where they had been in the habit of selling their butter and milk, but that the Russian authorities there had forbidden them, under the severest penalties, to come there any more, pretending that they had been in communication with the enemies of Russia, and they were thus reduced to the most frightful destitution. We told them that the allied fleets proposed to buy of them all which they had to sell, and pay them the full price, and that in their undeserved distress they should find the forces of the two great powers their friends. We came away, thinking how much the Czar would have to answer for. During the whole of the 25th the ship was at anchor, the weather being bad.

The next day, the weather having somewhat cleared up, our corvette, accompanied by the faithful *Lightning*, and escorted by the British cruisers, made for Sweaborg. Towards one o'clock the curious phenomenon of mirage gave us a premature view of the green coasts of Finland. Soon afterwards Sweaborg was seen from the mast. About half past three we anchored two miles and a half from the fortress. Our arrival caused no little excitement in the town of Helsingfors, behind. In an instant all the garrison was on foot, the artillerymen were at their guns, and on the fires the shot soon began to glow. We looked on and saw all these preparations. Presently a shot was fired from Treksholm; it was followed by three others, none of which reached us. The day was very fine. Towards five o'clock in the afternoon the *Phlégéton* and *Lightning* anchored in line with the division of frigates. From this moment the Russians kept up an incessant fire, and we stood watching their balls as one after another they went plunging harmlessly into the sea.

The next day, the 27th, the English frigate *Magicienne* hoisted a flag of truce, and stood in to communicate with the Governor of the fortress about an exchange of prisoners. About ten o'clock the French corvette made sail for the Bay of Hango. She was going along well about two o'clock, and we were just trying to make out the extremity of Finland with the telescope, when suddenly a dull, heavy, and distinct detonation was heard, and excited the curiosity of all. It was followed by several others. Presently we saw clouds of smoke in the horizon; the number and force of the detonations was augmented, and

on approaching we found that the Russians, faithful to their system of defence, were blowing up the forts and works in the Bay of Hango, fearing to see them attacked.

These works, situate at the extremity of the peninsula of Hango, are composed, first, of the fort of Gustavsvard, built on an island, defended by twenty-five guns and two mortars, and containing, besides the powder-magazine, the house of the Commander, and three barracks; second, the fort of Gustavus Adolphus, likewise built on an isle, and defended by twelve guns and two mortars; third, the battery of Meyerfeld, of seven guns, also on an island; and, finally, the battery of Rescen, not far from Gustavsvard; two other batteries on the mainland, one near the village of Drohamberg, and the other at Sall, have not yet been destroyed.

Thus the Russians, under the impression of the blow at Bomarsund, abandon without defence a considerable part of the Coast of Finland, and their gun-boats, which have hitherto found shelter at Hango, are constrained to give up the Gulf of Bothnia, which ceases to be a Russian lake. Hitherto the conviction cherished at St. Petersburg was, that both Hango and Bomarsund were sufficiently protected by the innumerable difficulties of the navigation, but the French and English squadrons have shown them that the most inhospitable sea cannot present difficulties too great for them to surmount, and that henceforth Russia will not be allowed to screen herself from well-deserved chastisement behind inaccessible rocks and fatal shoals. After a prosperous voyage the *Phlégéton* returned to Bomarsund.

The New Canada Treaty.

The colonies will have a great deal to gain by means of the treaty, even if Jonathan is going to share with us in our fisheries. Now that it is certain, we may say, of going into effect before the month of December next, we may here offer a few remarks without prejudice one way or the other. Nearly all the articles to pass free are such as we do not require, or import very sparingly. Certainly there will be very little revenue affected. Even the staples of life, such as grain and flour, have for the last few years paid little or nothing into the treasury, notwithstanding the duty of 3s. a barrel on the last named article, inasmuch as we get all or nearly all our flour from Canada via the United Stales (out of bond) duty free; whereas the Canadians take nothing from us in return, because we have nothing to give them that they want, unless it be hard cash. Our people have for many years been trying to get this duty taken off American flour. The treaty settles the question now and for ever. We have had sour, heavy flour long enough with which to tickle our palates, for the sake of what is called colonial reciprocity, a thing thought by some of our "protection" folks (for they are not all dead yet) to be paramount to everything else. Now we know of nothing that we shall require in any considerable quantities from the United States, under the free trade treaty, except breadstuffs. Hitherto, we have been confined to one market with our staple articles, our timber and our deals. We shall now have a new world thrown open to our commerce, a market of 25,000,000 of people, along one unbroken seaboard, from the harbour of St. John to Cape Florida. This is our natural market, according to the geography. So that if the trade of England after this suffers reverses, this province will not be dragged down into one common vortex. We have other customers to deal with. In a word, we have now a field twice as large as the old one to work in, and therefore twice as much business will be done in the lumber way in this province, and twice as many mills will be erected in the vicinity of this city, in order to supply the demand; for after

all, New Brunswick must furnish the chief supplies. The forests of Maine will not make a decent patch upon the wilderness of the Madawaska and the regions of Kamouraska, and the Temiscouatee.

Again, although Jonathan is to be allowed to catch the fish along the indentations of our coasts, follow them wherever they swim, (so long as they do not give chase to the salmon and shad,) we, on our part, are to be encouraged in the prosecution of the fisheries, by means of a new market being thrown open to us. It is a hard matter if Bluenose cannot catch fish and compete with Jonathan after this. Our Halifax neighbours need not send all their cargoes to the West Indies in future, they will have nearer customers.

Again, the article of cordwood, which is produced in considerable quantities, across the bay will be carried into Boston duty free, and the 80 per cent. will go into the pockets of the consumer and seller, and not into Uncle Sam's till, as heretofore. Thousands of cords will be brought along our railroads in winter time, and shipped to the States. Again, our potatoes will find lots of customers. In fact, there are many articles of agriculture, such as butter, cheese, beef, mutton, eggs, &c., which may be produced in this province in any quantities, and sent to the United States as freely as they may be sent to the country in St. John. Instead of our farmers being confined to thirty thousand customers, they will have 25,000,000. They have only got to produce and make money. We believe that this is as good an agricultural country as there is in the world, and as soon as this fact becomes known to our neighbours, there will be hundreds of persons from the United States who will come and settle the wilderness lands. Why? Because they know that they will have their own country for a market, and because all the best lands in the New England States (near the sea coast) are already monopolised and mostly cultivated. Nova Scotia will have lots of customers for all the coal she can produce. Aye, and the coal fields of New Brunswick will be opened up; to say nothing of our excellent stone quarries, which are even now attracting so much attention in New York. All these will be so many mines of wealth to assist in swelling the golden current.

On the whole, we look on this treaty as the commencement of a new era in the history of this province. A country so rich in natural resources as this is allowed to be, only requires an unrestricted intercourse with other countries to make her prosperous and contented.

The fisheries have never been of any value whatever to this province. Our natural trade is in the wood productions of the land. Hence we do not think it a wise policy to stick up for a principle that avails us nothing, especially since it is a "foregone conclusion" with John Bull that the fishery question must now be settled and for ever, or we must take the consequences upon our own shoulders, and defend as best we can what we conceive to be our colonial inheritance.—*St. John's News*, Aug. 14th.

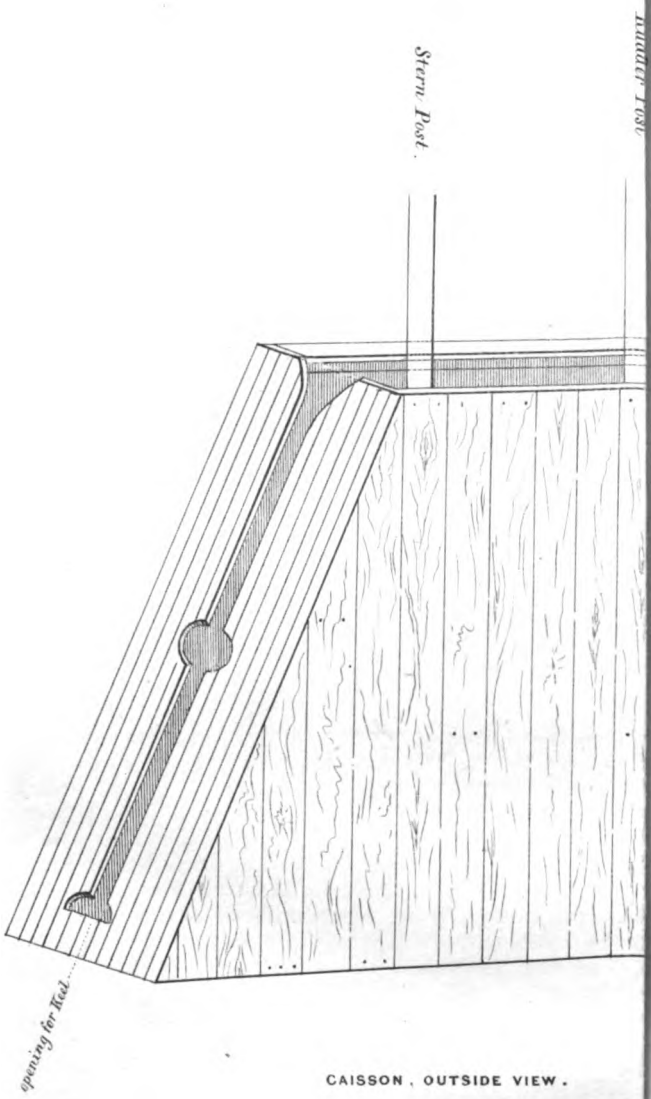
THE DECLARATION OF WAR.—Another of Brierly's spirited pictures has been issued in tinted lithograph by Messrs. Ackermann, forming an interesting addition to the folio of the produce of the war. The subject affords ornamental detail in signal flags, which gives life and animation to the scene; the moment chosen being that when the Declaration of War was communicated to the Fleet by Admiral Sir Charles Napier. It is altogether one of the best productions, both of artist and lithographer, that we have seen, and will assuredly win its place by its merits in the collections of our readers.

TO CORRESPONDENTS.

We have received the paper from our friend "NORTH," which he will find in our next.

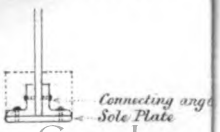
The continuation of the "RECOLLECTIONS OF NATAL" will also appear.

Voyage of the HARRIET HUMBLE shall be recorded.



CAISSON, OUTSIDE VIEW.

Section of Keel at Stern Post.



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THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

NOVEMBER, 1854.

Observations on Passenger Steam Ships to India by the Cape of Good Hope, *by a Passenger in one of the G.S.S.S. Company's vessels.*

June 1st, 1854.

Sir,—The following observations on Passenger-Steamers to and from India by the Cape of Good Hope, were drawn up with the intention of being submitted to the G.S.S.S. Co., but as their vessels have been withdrawn for the present from that line it is unnecessary to do so; believing, however, that they contain hints and suggestions that may be of use to any company intending to place vessels on that line in future, they are therefore offered for publication in the *Nautical Magazine*, where they are likely to meet the eye of those interested in nautical affairs. Taking the ships of the G.S.S.S. Co. as a standard, there is much room for improvement in their equipment and economy in their management, and consequent comfort to passengers, which if it can be effected consistent with a moderate, but remunerative charge for passage, is well deserving of consideration. The steam fleet of the G.S.S.S. Co. are noble vessels, and well commanded, and no expense seems to have been spared for rendering them in all respects first-rate passenger ships; but they were not so, on the contrary, they were most uncomfortable in almost everything excepting the feeling of safety at being at sea in such noble vessels, which, if kept clear of rocks and sandbanks, are, I believe, safe from all other accidents of the sea.

I have no personal interest in recommending the line of passage to India by the Cape. I am not connected with any steam navigation company, and never intend being so, having sufficient employment for all the money and brains that I possess in another avocation; my sole object being to aid an undertaking of great general benefit to India, and the colonies lying on the route to India, *via* the Cape.

I remain, your's faithfully,

To the Editor of the Nautical Magazine. NORTH.

Preliminary remarks.—In fitting out vessels for passengers to and from India by the Cape route, it should be borne in mind that the voyage is much longer than that across the Atlantic, or from Calcutta to Suez, and that consequently inconveniences that would be but slightly felt and overlooked on a short voyage, become irksome and felt as real evils on a long voyage; through varying climates, such as that between England and India by the Cape. Also that passengers going to and from India are mostly of the better classes of society, paying a high rate of fare, warranting the expectation of a proportionate degree of comfort during the voyage; and if this can be obtained at a reasonable expense, and the voyage reduced to about fifty days, both of which conditions may be reasonably looked for, the Cape route would unquestionably be preferred by all those who could spare the time to that by Egypt. The sea voyage is much desired for itself by those who have undergone a lengthened residence in India. The fresh breezes of the trade winds act like enchantment, and make the sunburnt Indian feel himself a man again; and by the time the Cape is reached, the individual who tottered or was carried on board at Calcutta or Madras leaps ashore at the Cape, happy in the recovery of health and strength. This is no fanciful picture, Mr. Editor, but a reality that has been seen and experienced by thousands. The regular passenger sailing ships to India combine in their equipment everything that can be desired by any reasonable being on a sea voyage. They are well commanded, well equipped, and liberally supplied with everything necessary for comfort, and many luxuries besides that might be dispensed with; but the time occupied on the voyage by a sailing ship will always give the preference to a steamer if they can be made equal in other respects, which there seems no good reason to doubt of, from what came under my observation on board of the ——. Neither the means nor the desire on the part of the G.S.S.S. Co. to provide every comfort for passengers, but a great want of judgment was very evident. In fitting up ships for this trade I would strongly recommend those interested to avail themselves of the services of those commanders who have acquired experience in India passenger ships, and be guided by their advice in all matters, from the launching of the ship to sending her to sea. There could be no difficulty in securing the services of a committee of retired commanders for the purpose; three would be sufficient, and although my acquaintance is not extensive, I could name a dozen that would be found well competent to the work.

Size of the Ships.—The G.S.S.S. Co.'s ships are not large enough. They are too low in the water to carry their ports open except in very smooth water, say one day in ten. This is a very serious drawback, and gives rise to many minor causes of discomfort that would not exist, or be avoided in larger vessels. The temperature on the ——'s lower deck seldom rose above 85°, even in the tropics. This temperature is by no means disagreeable, but the want of circulation rendered the air so foul and suffocating that it was almost beyond bearing; the passengers were, therefore, compelled to keep on deck nearly in all weathers. The saloon is intolerable from the constant clatter of plates and dishes, which begins with the children's breakfast at seven in the morning, and continues, with little interval, till eight at night. There is no quiet but on the poop, and that only such as can be obtained among a hundred people, constantly getting in each other's way, and in the way of the crew. In a ship that could carry her ports out in ordinary weather, passengers could retire to their cabins and read or sleep during a portion of the day, and avoid the turmoil on deck, which becomes irksome when continued day after day. Nobody likes to be always in a crowd. A place for retirement is necessary; one person likes to say his prayers, and another chooses to shut himself up and take the sulks for a day, and there is a satisfaction in both. Vessels of 3,000 tons burthen will probably be required to carry their ports open generally, say nine days in ten, and vessels of this size might have two decks for cabins if required, a higher rate of fare to be charged in those on the upper deck, but the passengers to be in all other respects subject to the same treatment, the additional charge being for superior accommodation only.

Arrangement and Size of Cabins.—8 feet 6 inches in length, and 9 or 10 feet wide, would be sufficient and not too large for a cabin for two persons; and every two cabins might have a door for communication between, so that they might be occupied by a family when required. The sleeping berths to be one at the side and the other against the midship bulkhead; the plan of placing one above another is decidedly bad, only fit for Irish emigrants. The sleeping berths raised above the deck about 4 feet, so as to be within the influence of the air from the port and the venetians opening to the steerage, and have drawers under for clothing, &c., &c. Water-closet and wash-basin in every cabin. No sofas, no floor-cloths, no soft beds or bed curtains, no ornamental carving or gilding; air and cleanliness are all that is wanted, and these are indispensable. A passenger having a clean and airy cabin to go to does not care for much room, and can make a very comfortable sofa of the hard mattrass on the bed place, and go to sleep or read at pleasure. The cabins should be erected at the sides of the ship only, none amidships. The ——'s deck amidships was entirely occupied with cabins, store rooms, &c., to the utter exclusion of light and air; even the hatchways were bulkheaded in from deck to deck, leaving only a narrow passage along the cabins on each side, totally insufficient to give air to the cabins under any system of ventilation. The whole of the lower deck was dark, close, and suffocating. The

space amidships should be left clear and open; no other erections seem necessary but that for the engine room. Store rooms should be on the orlop deck, and a railing put round the hatches on the lower deck, and those above have a skylight cover for air and light. A deck arranged in this manner, with a few windsails, would be a paradise compared with those built up amidships in the manner described above.

Baths and Water Closets.—Hot water baths are seldom used on board ship, but one on each side might be desirable. Those of the G.S.S.S. Company's ships were complete in every respect. Cold water baths are indispensable, at least to all Indians, and the shower bath is generally preferred; a sufficient number of these should, therefore, be erected, say one for every twenty-five or thirty passengers, and so constructed that they could be used at any time without calling the bath-man. A space of three feet square would be sufficient for a shower bath; this being at the side would leave a space of six feet by three for dressing, the whole width from the side being the same as the cabins. Perhaps three of these baths on each side, taking up the room of a cabin, would not be too many.

In addition to the water-closets in the cabins to be used only by families and sick persons, there should also be a sufficient number on the upper deck for general use, and the greatest care should be taken to keep them clean. The P. and O. Co.'s ships are most particular on this point; the other Co.'s were not so, and the difference can be better imagined than described. These general water-closets should have a large port, and as much ventilation as possible. Those of the —— were below, and had no means of ventilation except the ports, and they were almost always shut, and it really required a considerable degree of courage to enter into them; and when they got out of order, or the cisterns were without water, the whole lower deck became tainted by them, worse than the celebrated "Forty-twa" of Edinburgh.

Carving, Gilding, and Dirt.—These go together on board ship. Polished maple and mahogany, carving and gilding, polished brass-work, painted floorcloths, carpets, &c., are all very agreeable when in their place, but that is not to be found on board of a seagoing ship. They are not in harmony with tar, pitch, and smoke, and as these latter are useful and cannot be dispensed with, by all means abolish the former. White paint and a clean washed deck make a sweeter saloon than ornamented walls, and floorcloths with a colony of ants and bugs underneath; and the daily scouring of polished brasswork about the poop and quarter deck with filthy oily cloths, is a positive nuisance. These things may be very well in a coasting steamer, but they are entirely out of place on a long sea voyage.

Awnings.—There is nothing to prevent a steamer from being covered in with awnings from the mainmast to the taffrail, nor to keep them from being spread day and night. The only sails in the way are the main and mizen trysails, and these could be made to set over the awnings; the mizen to haul out to bumpkins abaft instead of a mizen boom. The awnings generally found are of too thin a texture to keep

off a tropical sun, and are altogether useless as a protection from rain. Awnings should be made of thick No. 1 or 2 canvas, and spread over a boom amidships, with an elevation like the pitch of a roof, protecting the deck from both sun and rain; and those who felt inclined to sleep on deck under the awning should be allowed to do so, say after ten o'clock, when it would be understood that ladies should retire below. These are small matters it is true, but the *sum* of such small matter makes a *great* one, and deserves attention. Look after the pence, says some one, and the pounds will take care of themselves.

Children.—A portion of the lower deck might be railed in for a nursery for children, where they could be kept apart from the crew, and enjoy air and light. The poor things are too often found sprawling in the passages, in danger of being trampled on; it is painful to see them so uncomfortable, and perpetually crying. They ought also to have a mess table of their own; the cuddy table is inconvenient for them in every respect. In this matter I must confess to pointing ont an evil without being able to suggest a remedy. I can think of no better or more convenient place for a nursery than under the stern.

Smoking.—No smoking is allowed below, nor in the saloon; on the poop, nor on the quarter deck. Where then, it may be asked, are people to smoke? Before the funnel! It may be just as well to say *in* the funnel. Passengers must smoke somewhere, and generally do smoke in one and all of these tabooed places, simply because they have no proper place to go to. Shelter from sun and rain is just as necessary for smoking as for eating one's dinner, and it is difficult to imagine any good reason against smoking in the open air, on the quarter deck or poop of a ship. No passenger will be found rude enough to puff tobacco smoke in another's face, and barring this few will take offence at it. A space on the poop might be appropriated for smoking, say from the mizenmast to the taffrail, and a notice put up to "smoke abaft that" would be readily attended to; whereas the oft repeated order of "No smoking allowed here," is soon unheeded, if not taken as a piece of officious impertinence from some youngster.

Music.—A ship's band is generally a very sorry affair, and its strains afford about as much pleasure as Hogarth's enraged musician. Derived from a band of strolling fiddlers, it does very well in the fore end of a coasting steamer, or among a boat load of Cockneys going to Margate, but is not wanted at sea. A drum and fife, or bugle, to sound at mealtime, is the only music that charms the ear at sea. A couple of good barbers for shaving would be a desirable exchange for the band, and would cost less.

The Mess.—This is a subject for an abler pen than mine, as on it depends much of the comfort of the passengers, and no small share of the expense of the voyage. I feel quite safe in saying that ninety-nine passengers in a hundred prefer plain fare, well cooked and clean, to finery and variety of dishes with French names, but of so questionable an appearance that few are found bold enough to taste them. Should these remarks fall under the notice of any of my late fellow passengers of the ——, they will well remember the daily anathemas vented on

the long array of suspicious looking dishes that were put on the table in the vain attempt at finery and variety, and sent away untouched. Good plain soup, roast and boiled mutton and poultry, salt and preserved provisions can be well cooked, and are all that is looked for at sea. It is quite a mistake to suppose that Indian passengers are fastidious about their diet. It is true that people live rather luxuriantly in India, but that is when they are at home in their own houses; but they are also accustomed to rough it on long journeys, and submit to queer sorts of viands, to which the pleasant fare of a ship will bear no sort of comparison. Much money might be saved to owners, and greater contentment secured to passengers by a more suitable scale of diet at sea. If any one doubt it let the experiment be tried, it is well worth while.

Cooking and Baking.—When confined to plain fare the cooking on board ship is generally clean and good; it is only when too much art and refinement is attempted that it fails. If the fireplace could be so constructed as to roast meat as well as bake it would be a great improvement; baked mutton is passable but baked poultry is very unpalatable. Besides a regular London man of science, every Indian passenger ship should carry a native Indian cook (those of Calcutta are, like every thing else, better than Madrases) for the sole purpose of making curry and boiling rice, which should be a standing dish both at breakfast and dinner; many Indians can be content with this alone, but it must be somewhat different from the *soup* curry and *paste* rice of European manipulation. Blackee understands it well and will do it to perfection, if supplied with the means and left to do it in his own way. Of course a little *advice* (Anglicé, the threat of a good thrashing,) will be understood by him especially as a frequent part of his orders, but don't go further, don't beat him or he will run away the very first opportunity. He will do his work well and make himself very happy under any amount of hard words, but "hands off," he doesn't like to be beat. Discard all prepared curry powders, they will not retain flavour in a ground state under any amount of care; lay in the various roots, seeds, and spices, which are abundant and cheap in any bazaar in India, unbruised. Give Blackee a separate place, if it can be spared, for himself; let him select his own pots and pans, sticks, spoons, and skewers of queer uncouth shapes, and a curry stone and roller, and he will turn out such a curry as is only to be found eastward of the Cape of Good Hope. Mulligatawny soup is also in his line, and various savoury chuttnees can also be made, all of which he can make out of little means and in little room, but he must have a mate, an Asiatic can do nothing alone, he must have some one to talk to. On the whole he will be found a most useful fellow, and, notwithstanding his besetting sins of laziness and lying, which it is no use trying to cure and must only be put up with, a great deal of good can be got out of him if not too roughly handled.

I have seldom seen good bread baked on board ship; if, however, good fresh rolls, not dampers, can be baked for breakfast it would be very desirable, but there is no need for it at dinner, where potatoes,

carrots, and good biscuit are all that is required; not the white tasteless stuff generally supplied for cabin biscuit but something of a secondary sort, between that and the common ship biscuit, which is far more palatable and I believe equally wholesome.

Stock Pens.—These are unsightly encumbrances on a ship's deck and many plans have been tried to make them more "ship shape," but without much success. They are still an eyesore and a stumbling block in the way of a clear deck, the pride of every seaman, but they can't be dispensed with in a passenger ship. The plan of building them as fixtures is bad alike for the ship and the stock as they cannot be kept dry or clean if built on the deck. They should be all made of a convenient size for being moved and the deck scrubbed under at least once a week, and raised on feet for sweeping under daily; a sheep pen may thus be made of a size to contain two dozen, in two compartments, not one above the other, as before stated; this plan is bad for man and worse for sheep or any other description of live stock: the mortality in two decked pens and coops is more than double than in those of single tiers. The cause is obvious, the impossibility of keeping the lower tiers either clean or dry, no kind of live stock, pigs, perhaps, excepted, will thrive unless kept both dry and clean, more depends on this than on their food, but it is too often neglected. If a ship cannot afford room for a sufficient number of pens in single tiers, a few temporary ones might be taken on board, made of bamboo, or other cheap material, and thrown away when empty. Fowl coops are not usually carried on the poop, but I have seen them in some ships made with the spars and feeding troughs outside, and by a little attention to sweeping under them frequently kept quite free of smell. Several hundred dozens of fowls and ducks could be kept in coops round the poop of a large steamer, and the experiment is worth a trial. I suspect that it would only be found fault with when proper attention was not paid to keeping them clean and allowing dead animals to remain putrifying in the coops, a common occurrence. If passengers should find fault where there was no great cause, let the Captain take the opinion of the whole whether it will be better to throw the whole overboard or submit to the unpleasantness; the majority would most likely vote in favour of keeping them. I have seen this plan tried, not in the case of stock but in other matters of general interest to passengers, with the best effects for silencing complaints.

Live Stock.—By far too much dependence is placed on live stock for supplying the tables of passenger ships; large numbers of animals of all sorts, and abundant food for them, are laid in at a heavy expence, and it is not too much to say that one half dies or becomes unfit for use through mismanagement and sheer neglect under the supposition that animals will not thrive on board ship. But this is a mistake. Several kinds of animals thrive and improve fast in condition at sea, but want of cleanliness and irregular and over feeding are very much against them; the whole flock is handed over to the sole care of the butcher and "Jemmy Ducks," who, besides having to feed and clean them, have also to kill and dress them ready for the cook. What can

two or three men do with a hundred or more sheep and a thousand or two of poultry? they are necessarily neglected and die by dozens daily and nobody cares anything about the matter. Only such a quantity should be laid in that there is room for, and a sufficient number of the crew ought to assist at feeding time, which should be overlooked by the chief steward, and the officer of the deck should see that they are properly cleaned every morning while the decks are being washed.

Salt Provisions.—I have said that too much live stock is used, and feel quite certain that a more economical and a better table could be kept by using more salt and preserved meats. Salt beef and pork are very generally relished and not considered "unfashionable" by landsmen on board ship, but they must be excellent of their kind, not American or Cape cured, nor Calcutta, which is worse still and only fit for killing the H.E.I. Co's soldiers on foreign service, while, according to Sir Charles Napier, they are killed in cantonments by bad barracks and "red tape." I suspect, by the way, that the red tape system prevails to a considerable extent in large steam shipping companies, and many of the evils would disappear if more practical and less red tape systems were introduced. The table of the G.S.S.S. Co's ship ——— was supplied to profusion, but many of the supplies were of bad quality and many could have been dispensed with, and I have no doubt the company paid a fine price for all. Salt and dried fish of various kinds, preserved vegetables and fruits, are excellent and economical for a sea mess; some live stock, however, must be taken and it may be well to mention the kinds best suited and also say a few words on their management on board ship. Pigs are inadmissable on account of the almost impossibility of keeping them clean. Sheep, geese, ducks, fowls, and pigeons may all be taken. Turkeys, guinea-fowls, rabbits, &c., are more trouble than they are worth.

Sheep should be laid in at England, the Cape, and Calcutta, those procurable at Madras, Ceylon, or Mauritius are worthless. With a moderate degree of care they improve rapidly in condition on board ship. Ten or twelve is enough for one division in a pen; they must be kept dry and clean, which is easily done by having a rough thick mat under their feet; cord mats answer admirably and there must be two sets for each pen, so as one can be washed and dried while the other is in use; a number of small mats are more convenient for washing than a few large ones. The lazy filthy plan of allowing litter to accumulate for days in the pen ought by no means to be allowed. Take out the sheep and wash the pens inside once a week, and sweep them daily. Give hay at will and a full feed of corn, peas, or grain morning and evening; if the grain be bruised in a handmill, which I have seen done on board of some ships, they will feed all the better. Give a quart bottle of water to each every day at noon and no more; in a few days they will learn to drink from a bottle freely. Hang up a bit of rock salt for them to lick. Mutton fed on this plan on board ship will be found second to none in the world, not excepting London, or even Scotland where it is best of all. It will of course

be understood that sheep and all other descriptions of animals intended for ship board should be trained in dry food for some time previous; sheep taken from the grass, or ducks and geese from the gutters, will fall off and die rapidly at sea.

Geese and ducks are both very handy and thrive well at sea; especial care must be taken to prevent them from getting at salt water while washing decks which is best done by letting down the canvas screen over the spars of the coop and shutting them closely up. They drink salt water greedily, and as surely sicken and die from the effects of it. The coops should be divided so as to hold two dozen geese or four dozen ducks in each compartment; if more, they are apt to huddle together and tread each other to death, besides this they stand better chance of each getting its share of food. Feed them on plain corn or paddy, no bran or meal of any kind, and, mixed with the grain, an abundant supply of water. Feed twice a day, say at 8h. a.m. and 4h. p.m., and after feeding remove or turn the troughs upside down; no feeding with boiled rice or slops between meals, when they ought to be left to sleep, which they will do if not molested. Keep them as dry and airy as possible, don't allow the canvas screens to be put down often nor a moment longer than is necessary, which is only to keep them from salt water or for an hour or two at a time during very rainy weather.

Fowls are delicate and seldom come to be of much worth on board ship. A few large roasting fowls may be laid in for use at the commencement of the voyage, but they soon fall off in flesh and lose flavour. The greater portion should be small and young ones fit for curry. Their food plain corn or paddy given dry, and a handful of pounded sandstone with it; water, after feeding, twice a day. Sickly and quarrelsome birds should be removed and killed, it is no use trying to doctor poultry on board ship, no good comes of it. Turn the troughs upside down when fed, don't neglect this.

Pigeons are very handy stock and feed well on any kind of grain; but, unlike poultry, they must have it in abundance before them all day long, as well as water. They require little care; give a bit of rock salt to pick at, and shut them up during heavy rain, and they will form a considerable addition to the mess, in the shape of pies, curry, &c.

I have now only to notice the milch cow; poor beast, although a general favourite on board and well attended to, poor "crummie" has her troubles to contend with. The greatest is the motion of the vessel, I have seen the litter allowed to lie under a cow for a week and longer on the absurd plea of enabling the animal to keep on her feet; this should not be allowed, and if the directors of large steam shipping companies were more practical men and less red tapists they would issue standing orders against this and such like slovenliness and laziness instead of the many absurd ones, such as "no smoking allowed," "no speaking to the officer on watch," &c., &c., which are to be found on board of these vessels; but better still to shut their mouths and leave all these silly notions to the Captain. There is an Admiralty order extant directing the leading block of the catfall to be hooked on

to its proper eyebolt! the merchant service has not come to this yet. The fewer orders the better. Give crummie a good thick mat to stand on and keep her clean.

The foregoing remarks are all that occur to me touching the ships and their equipment. I will also, Mr. Editor, with your permission, make a few notes on the crew, &c., if the length of my "yarn" has not already tired you out. Having expatiated so fully on cooking, messing, sheep, ducks, and fowls, it may be suspected that my experience at sea has been confined to these departments, but it is not so; I have commanded ships for more than twenty years, and been mate, man, and boy too. I have cleaned shoes and forks and knives in the cabin, passed the lee earing in close reefing a topsail, and observed a lunar distance, each in their turn, and feel competent to give an opinion on practical seamanship.

A screw steamer is fully rigged and spreads about as much canvas as a sailing ship does, the steam power being only auxiliary to the sails, and it seems to me that she requires a much stronger crew than a ship with sails only or with steam only. A sailing ship can only go as the wind allows her, and has only to tack or trim sails on a change of wind; but a steamer goes right on her course in all winds fine or foul; and, instead of the easy process of tacking or bracing the yards round, has to clue all up and furl, which is very heavy work with wet topsails and courses to handle. And this is not all, for, to make the most of the steam power, top-gallant masts and yards and every impediment to a head wind should be sent down, and this, too, very often; indeed, it ought to be done at all times when the sails will not draw, but a crew of the usual number cannot do it. To do it efficiently would require a much stronger crew, perhaps nearly double the number of able seamen; and the question naturally follows would the time and fuel saved on the voyage compensate the cost of additional hands? I fancy a trial would be the only safe way of proving it. Calculations before hand could hardly be depended on, nor would one voyage be sufficient for a trial. But, besides the regular and direct saving of time and fuel (money), a strong crew would lessen the chances of damage arising from gales and hurricanes; this also should be taken to account in estimating the profit and loss of the experiment, especially where the course of the voyage crosses the regions of cyclones. A passenger by the ——— remarked that with a stronger crew her masts and yards would probably have been saved instead of being blown away, and other losses also prevented; this subject is deserving of consideration and even trial.

One word more, Mr. Editor, and I have done. Having been, myself, brought up in a different school, I have no hesitation in stating that the commanders and officers brought up in the large Indiamen are the very best specimens of British seamen. They are generally men of good education and gentlemanly acquirements, besides, the plan of keeping respectably brought up youths apart from the men is good, but they would be no worse if put to do a great deal more work than is usually allotted to them; a lad who has been accustomed to

reef and furl in a dark blowing night knows better how to spill a sail properly for these operations, when he becomes an officer, than one who has been brought up entirely on the quarter-deck. Mixing with the crew at work will do no injury to his morals; it is the contaminating influence of living in the forecastle that is to be dreaded.

The system of handing the passengers over to the Purser is not good; passengers as often select their ship for the good qualities of the Captain as for any other reason, and they feel disappointment on discovering that, by the rules of the ship, the Captain has nothing to say to them. This is another of the rules that may look very well at the Directors' Board, but works badly in practice. Authority and power should be accompanied by responsibility, but by this stupid and contradictory regulation the former rests with the Captain and the latter with the Purser who has not even the authority to order a windsail to be trimmed. This system should be abolished. There are sufficient duties for the Purser to do in purchasing and keeping accounts of provisions, and the passengers can be far better managed by the Captain and the Chief-Steward.

If Directors of large companies, instead of issuing injudicious orders for regulating the economy of their ships, would signify that they expected from their commanders and officers a report at the end of every voyage on what appeared good or otherwise on board, and make such improvements as were pointed out by their own officers, they would save a great deal of money to the Company and add greatly to the comfort of the passengers; and, lastly, would have a more satisfactory channel for hearing of such things than through the newspapers, by grumbling passengers, or through the *Nautical Magazine*, in the long-winded yarns of your correspondent

NORTH.

THE LANDING ON THE CRIMEA.—*By an Eyewitness.*

My last letter to you was anything but cheerful. It could not be otherwise with the fearful epidemic raging around us. Had this scourge come from a mortal enemy it would have been better met and borne, and the general wish was for an opportunity of escaping the former by a speedy advance on the latter, which, even on the last day previous to our departure, seemed doubtful. As we expected, the final determination to "cast the die" revived the spirits of all, as the excitement consequent on an expedition of the sort checked the prevailing disease; and, full of vigour and hope, the finest army the world ever saw is now safely landed fairly in the enemy's territory, and I am sure, confident of the most complete success. I certainly did not expect this descent on the Crimea would take place, owing to the lateness of the season; besides, many were the reports of differences of opinion.

But I think the wisest step has been taken towards effectually closing the war, for, since our arrival here and the possession of information on the country, &c., our prospect brightens considerably.

The morning of the 7th September witnessed an inconceivable sight off Baljik; the fleet of transports making a start under the most favourable circumstances of wind and weather. Steam did the work; it brought up the lazy ones, secured the stragglers, put all in their places, keeping them there and walking off with them in fine style. The liners and attendant war steamers formed a guard, and away we went without a single vessel being dependent on sail. Every one was in tow. I could not help looking around frequently at the magnificent display of shipping, and then felt what it was to be an Englishman and pitied the Czar!

At sea, the expedition kept in very fair order, according to a well arranged plan; so we proceeded and overtook the combined French and Turkish fleet of twenty sail of the line, &c., working to windward. Their transports, a countless swarm of small craft, had previously joined us, which took their steamers from assisting the large ships. Keeping to the northward, and to windward, we soon got into soundings, a sensible precaution, and on the 9th arrived at an appointed rendezvous about equidistant from Odessa, Cape Farkhan, and Coast of Bessarabia, and there anchored on the 10th; no signs of our allies, weather still lovely, wind north, but that was of no consequence as it had been anticipated, and we had accordingly gone well to windward. Plenty of growling at delay.

On the 11th, no arrivals; however, we went our way as before. At night hove to, transports going on slowly; more delay, more growling. At daybreak on the 12th, off Cape Farkhan, French and Turks in sight to leeward, when ourselves and *Vesuvius* were detached to offer them assistance. As we distanced our fleet its magnitude became more visible and a wonder. On nearing the other, it appeared almost as large; so you may give an idea of the whole combined, as at present. A favourable breeze came on, lasting an hour or two, then failed, when four French screw liners took two sailing ones in tow each, and we got the huge Turkish three-decker *Mahmoudie* (flag ship) and a twenty gun brig fast to us, and made a night of it in baffling winds, squalls, &c., avoiding collision with any of the numerous craft surrounding us, with regard to order, knowing each other's intentions or necessary signals. Like a true Turk, the Pasha took it easy and went where we pleased to pull him, which we did in safety.

We came up with the English force in the night, when the scene was extraordinary; I can compare it to nothing better than being in sight of a welt-lighted extensive city. By sunset on the following day the expedition had anchored in company a few miles to the S.W. of Eupatoria Point, steamers having been previously sent to reconnoitre Kalamita Bay, and reported it undefended; meanwhile the town of Eupatoria surrendered on demand. In the night the force again started, our fleet of war ships in company, under sail to save fuel; but a calm at daybreak rendered the use of steam-power requisite, and the

Firebrand, with *Queen*, *Arethusa*, and *Diamond* in tow, joined the multitude of transports, with French and Turkish liners, busily and hastily disembarking their troops on the open sandy beach.

The sea was calm and no opposition offered; in a few hours many thousand soldiers had landed, all our ships assisting. A few Cossacks appeared at first to watch proceedings; they soon however retreated, leaving possession of the beach undisputed. Rapidly continued the stream of human beings pouring upon the shore, and by sunset some 60,000 infantry, with a proportion of cavalry and artillery, had firm footing on the Crimean soil, without a single loss or mishap. Nothing could have been more successful. Certainly the transports had not anchored so regularly as arranged; but when the difficulty of conducting such an enormous force of ships is considered, it is surprising they did so well, and every credit is due to the skilful management of the well-found fine ships in the transport service, which must confirm the character justly given to our merchant commanders.

The French landed first, then Turks and our light division, the latter without superfluous accoutrements or equipage, or even loaded arms, and the afternoon of the 14th September will never be forgotten by those who made their first landing in the Crimea, for it came on to blow in squalls, and rain in perfect torrents, and there stood our troops exposed to it and under arms all night.

Morning brought fine weather and a troublesome surf, yet the disembarkation of men, horses, provisions, and materiel continued; one man and two or three horses only being lost. Although the French had the advantage of first landing, we soon overhauled them, from the use of our small steam tugs and tenders; two of the latter, flat-bottomed, with high-pressure engines, recently purchased from the Austrians, took 1,000 men at a time on board, and boats well filled in tow, making short work of it. What a busy scene it was; hundreds of boats employed most zealously aiding the cause.

It is impossible to describe the appearance of the shore or neighbouring sea at this time; all energies were directed to one object, and that was, rapid disembarkation. We now heard of a division of allied steamers having made a feint of landing to the southward, to prevent any opposition from a Russian force encamped within sight of us; *Sampson* threw a few shells in, but without ascertaining their effect. The light division had captured ninety waggons laden with fine flour on their way to Sebastopol; and a party of the French made prisoners of a Russian man of consequence, his wife, family, and Cossack escort.

The natives behaved amicably, bringing in quantities of supplies, and continued their hay-making (the second crop of the year) as if nothing unusual was occurring. They report that all the Crimea is in our favour; and so it would seem, for vehicles and provisions of every description come in for hire and purchase in abundance. The greatest inconvenience felt is the want of fresh water, for the lakes near are salt; but the ships afford sufficient for present use.

The surrounding country is a rich soil, and well adapted for military

purposes; in fact, nothing could be more suitable on the present occasion. There are a few villages in sight, and the land around shows their prosperity, being covered with crops of grain or mounds of hay ready for housing; a more valuable country cannot be conceived. We shifted berth to within three cables of the shore, in $3\frac{1}{2}$ fathoms, to assist the disembarkation, which to this moment is going on beyond anticipation. I have been on shore twice, and never before did I see armed men to such an advantage; comparatively speaking, they are *the* men to carry all before them, and so confident and full of spirits, in spite of their *hard lines*.

From what I see and hear, Sebastopol may be considered as ours. All else of the Crimea is, so to speak, already, as the population is favourably inclined towards us. Why, to stand on a neighbouring cliff, look first to seaward then on shore, who could doubt it? What must the Russian prisoners have thought at first sight? The peasantry say they have been employed for eight months strengthening the fortifications on the land side of Sebastopol, and every approach is now defended; but still it *will* be taken. I believe all that we have heard of the military resources of this country to be greatly exaggerated; but let them be what they may, it is impossible to see ours for one moment and doubt success. It is really ridiculous to hear how confidently every one speaks of it, and surely it is the best idea to entertain. The soldiers frequently say we have the best of it now, we "navy fellows," but they are on their bare rations, and we feel pleasure in replying by supplying their wants as our means will allow; they really are "hard up" in every sense just now, but bear up cheerfully, in "full dress uniform." Here is a specimen of what England and her noble allies can do; upon my word it makes me feel proud of belonging to them. The French troops figure well; John Turk seems well received by the Tartar people; in fact, the expedition at present bids fair to be completely successful, and no one concerned but is glad it has taken place.

It does not appear what part we shall take in the operations, but suppose the steamers will support the progress of the army along the coast, and an effectual defence on the right wing they will prove. Lord Cardigan, with a division of cavalry, is out reconnoitring; they are expected to cut off the advance of a Russian reinforcement. The French are out also, and depend upon it neither will return empty handed. Marshal St. Arnaud hopes to move to-morrow towards the Russian encampment; but I think the enemy will not risk a fair fight, but shut himself up at Sebastopol. If the worst should come we can hold the country, and I have no doubt but Simperapol and Backserai can shelter the army until the spring; however, a few weeks will decide, and I am glad to think there is a hope of settling affairs in this quarter at least. Aland is an example of what can be done, and the fact that Russia is not wholly impregnable must have a great effect on both sides.

I look forward to the finishing stroke this winter, when, if I am spared, I may once more meet you all. I am really tired of this work,

but do not complain now, for there is sufficient excitement to overcome private considerations. Some French ships are off for more troops; they beat us in settling into camp life readily. Very little sickness prevails at present. The Russians have severely suffered from cholera lately. Apparently the climate is most healthy and pleasant, and I think we may calculate on another month of it.

The causeway is not more than 200 yards broad, and it leads, at the right or southern extremity of the lakes, by a gentle ascent, to an irregular table land or plateau of trifling elevation, dotted with tumuli or barrows such as are seen in several parts of England, and extending to the base of the very remarkable chain called, from their shape, the Tent Mountains. Towards the sea this plateau presents a precipitous face of red clay and sandstone, varying in height from 100 to 150 feet, and it terminates by a descent almost to the sea level, at the distance of nearly two miles from the shores of the lake. Thence towards the south there is a low sandy beach, with a fringe of shingle raised by the action of the waves above the level of the land, and saving it from inundation. This low coast runs as far as the eye can reach, till it is lost beneath the base of the mountain ranges over Sebastopol. The country inland, visible from the decks of our ships, is covered with cattle, with grain in stack, with farm homses, and seems capable of producing enormous quantities of live stock and fodder. The stubble fields are now covered with wild lavender, southernwood, and other fragrant shrubs, which the troops are busily collecting for fuel, and which fill the air with an aromatic perfume. As we cruised down towards Eupatoria, we could see the people driving their carts and busy in their ordinary occupations.

The French were the first to land. Their small war steamers went much nearer than ours were allowed to go, and a little after seven o'clock the first French boat put off from one of the men-of-war; not more than fifteen or sixteen men were on board her. She was beached quietly on shore at the southern extremity of the red cliff I have mentioned. The crew leaped out; they formed into a knot on the strand, and seemed busily engaged for a few moments over one spot of ground, as though they were digging a grave. Presently a flagstaff was visible above their heads, and in a moment more the tricolour was run up to the top, and fluttered out gaily in the wind, while the men took off their hats, and no doubt did their *Vive l'Empereur!* in good style. The French were thus the first to take possession and seisin of the Crimea. There was no enemy in sight. The most scrutinising gaze at this moment could not have detected a hostile uniform along the coast. The French Admiral fired a gun shortly after eight o'clock, and the disembarkation of their troops commenced. In twenty-two minutes, they say, they got 6,000 men on shore. This was very smart work, but it must be remembered that nearly all the French army were on board line-of-battle ships, and were at once carried from their decks to the land by the men-of-war's boats. The *Montebello* carried upwards of 1,400 men, in addition to her crew. The *Valmy*

had in all 3,000. The *Ville de Paris* and *Henri Quatre* were laden with men in proportion; and all the line-of-battle ships and steamers had full cargoes of troops. In fact, it was found that their small brigs and schooners were neither safe nor comfortable, and that they were better suited for carrying stores and horses than men. The fleet of French men-of-war carried more than 20,000 men. Their whole force to be landed consisted of 23,600 men. Our army amounted to 27,000 men, who were embarked in a vast number of transports, covering a great extent of water. But they were carried in comfort and safety; and though there was still much sickness on board, it was as nothing compared to the mortality among the closely packed French. Perhaps no army ever was conveyed with such luxury and security from shore to shore as ours in the whole history of war.

By twelve o'clock in the day, that barren and desolate beach, inhabited but a short time before only by the seagull and wildfowl, was swarming with life. From one extremity to the other bayonets glistened, and red-coats and brass-mounted shakos gleamed in solid masses. The air was filled with our English speech, and the hum of voices mingled with loud notes of command, cries of comrades to each other, the familiar address of "Bill" to "Tom," or of "Pat" to "Sandy," and an occasional shout of laughter. Very amusing was it to watch the loading and unloading of the boats. A gig or cutter, pulled by eight or twelve sailors, with a paddle-box boat, flat, or Turkish pinnace in tow, (the latter purchased for the service,) would come up alongside a steamer or transport in which troops were ready for disembarkation. The officers of each company first descended, each man in full dress. Over his shoulder was slung his havresack, containing what had been, ere it underwent the process of cooking, 4½lbs. of salt meat, and a bulky mass of biscuit of the same weight. This was his ration for three days. Besides this each officer carried his greatcoat, rolled up and fastened in a hoop round his body, a wooden canteen to hold water, a small ration of spirits, whatever change of under-clothing he could manage to stow away, his forage cap, and, in most instances, a revolver. Each private carried his blanket and greatcoat strapped up into a kind of knapsack, inside which was a pair of boots, a pair of socks, a shirt, and, at the request of the men themselves, a forage cap; he also carried his water canteen and the same rations as the officer, a portion of the mess cooking apparatus, firelock and bayonet of course, cartouch box and fifty rounds of ball cartridge for Minie, sixty rounds for smooth-bore arms. As each man came creeping down the ladder Jack helped him along tenderly from rung to rung till he was safe in the boat, took his firelock and stowed it away, removed his knapsack and packed it snugly under the seat, patted him on the back, and told him "not to be afeerd on the water;" treated "the sojer," in fact, in a very kind and tender way, as though he were a large but not very sagacious "pet," who was not to be frightened or lost sight of on any account, and did it all so quickly that the large paddle-box boats, containing 100 men, were filled in five minutes. Then the latter took the paddle-box in tow, leaving her, however, in charge of a careful

coxswain, and the same attention was paid to *getting* the "sojer" on shore that was evinced in getting him into the boat, the sailors (half or wholly naked in the surf) standing by at the bows, and handing each man and his accoutrement down the plank to the shingle, for fear "he'd fall off and hurt himself." Never did men work better than our blue-jackets; especially valuable were they with horses and artillery, and their delight at having a horse to hold and to pat all to themselves was excessive. When the gun-carriages stuck fast in the shingle, half a dozen herculean seamen rushed at the wheels, and with a "Give way my lads—all together," soon spoked it out with a run, and landed it on the hard sand. No praise can do justice to the willing labour of these fine fellows. They never relaxed their efforts as long as man or horse of the expedition remained to be landed, and many of them, officers as well as men, were twenty-four hours in the boats.

The landing of the cavalry and artillery took place the next day. For this purpose it was desirable to approach the beach as close as possible, and signal was made to the cavalry steamers to do so. The *Himalaya* in a few minutes ran in so far that she lay inside every ship in our fleet with the exception of the little *Spitfire*, and immediately commenced discharging her enormous cargo of 390 horses and nearly 700 men. The attendance of cutters, launches, paddlebox boats, and horse-floats from the navy was prompt, and the disembarkation commenced soon after noon. This steamer alone has carried exactly the number of horses which were stowed away in thirteen French horse-transports. The *Simla*, the *Trent*, and the *Jason* also set to work with energy and activity to discharge their living cargoes, and the seamen of the royal and mercantile marine rivalled each other in their efforts. Never did men work so hard, so cheerfully, or so well. The horses, too, are now so acclimated to ship life, they are so accustomed to an existence of unstable equilibrium in slings, and to rapid ascents and descents from the tight ropes, that they are comparatively docile. Besides this they are very tired from standing for fourteen days in one narrow box, are rather thin and sickly, and must be glad of change of air and position. The horses from the *Himalaya* came out marvellously well, and many of the officers and men have been restored to health by the influence of the sea voyage and good living. The paddlebox boats and flats are pulled by launches and cutters, under the command of naval officers, up to the ship to be discharged. A certain number of the men get upon these horse-rafts, and their horses are lowered in order, one after the other, to the number of twelve or fourteen to each large flat, and of six or eight to each paddlebox boat (the latter being provided with temporary floorings for the reception of the horses). The troopers not required to hold the horses, are stowed away in the row-boats, and the little flotilla sets off on its voyage to land. It generally happens that some smart, active, little tug, commanded by a naval officer, rushes down on them ere they have gone far, "makes fast," adds them to a string of some six or eight other boats, and flutters off to the beach, where she leaves them to make the best of their way from the edge of the surf to *terra firma*. Arrived

in the surf, Jack leaps into the water, and by hauling, shoving, thumping, and kicking, manages to "start" the horses down the inclined plane of planks half resting on the beach, half floating on the breakers, and to do the work of half a dozen soldiers in his own wild quaint style. If the greatest care is not taken the floats will tilt over when they touch the ground, and no skill can prevent such a catastrophe at times. It was thus that some horses were lost, and the wonder is, when one stands on the sand and sees the violence of the billows, that many more accidents of the kind are not occurring momentarily. Lord Cardigan and his staff landed from the *Himalaya* at six o'clock on Friday evening. Lord Lucan also disembarked the same evening. The whole of the English cavalry out here, with a Lieutenant-General to command it, and a Major-General second in command, with a large staff, divisional and of brigades, with quartermasters-general and adjutants-general, with staff surgeons, with aides-de-camp, majors of brigade, and commissariat officers attached, does not muster more than 1,000 sabres.

It has been decided to garrison Eupatoria, and Captain Brock and 500 Marines have been sent away for the purpose. The Captain is to be Governor of Eupatoria. The inhabitants appear to have received the passing visit of the fleets with a perfect *nonchalance*, if we are to credit the *Herald* correspondent, who was on board the *Spitfire*. On Eupatoria Point at the end close to the town, is a fine pier of timber, strongly and handsomely built. Near to this are the quarantine buildings and barracks, with a large old fort. The latter mounts no guns, nor did its small garrison of soldiers evince anything but curiosity as we approached it. Satisfied on this head, the *Spitfire* returned, and moved easily past the town, within a quarter of a mile of the beach, to which the people flocked, thinking we were going to communicate. As we passed the Russian quarter, drifting very slowly, and sounding every minute, we had ample time and opportunity to admire the handsome gardens and houses which are near the sea. The balconies of the latter were crowded with ladies and gentlemen, Russians of course, who, sitting in chairs, were laughing, chatting, and talking with a *sang froid* and good humour which we were certainly at a loss to understand. Some of the gentlemen were in uniform, but the majority were in the plain morning dress of London or Parisian society. The ladies were handsomely dressed, nearly all of them, however, in that peculiar *melange* of costume which obtains so much at this time of the year at Southend, Boulogne, or Margate. Some of them were eating cakes or fruit, pointing out the colossal line-of-battle ships, thirty-seven of which were now in the bay, and occasionally laughing immoderately. The invasion evidently had no terrors for them; however, if they and the inhabitants generally like it, of course it is no business of ours; on the contrary, it is rather a pleasure to invade people who take it so quietly. They evidently were at a loss to understand the movements of the *Spitfire*, though in no dread of her; the singular little instruments in the officers' hands for surveying; the eccentric turns which the vessel took for the purpose of getting angles; the number of men

in the chains sounding every minute, and singing out each time their monotonous cry, "half seven, shell," surprised, and, I think, also amused the worthy Eupatorians as we passed under the Governor's house (I presume so); five or six ladies and gentlemen on horseback were talking to the party in the balcony, and all seemed in the best of spirits, and wrapped in astonishment at the enormous extent of the fleet. At this part of the town, also, were carts, precisely like our butchers' carts in England, driving up and down the streets, one or two private carriages, and about a dozen bathing-machines upon the beach.

PROCEEDINGS OF H.M.S. "SPHINX."—*Extracts from a Journal of Commander C. F. A. Shadwell.*

(Concluded from page 528.)

On our voyage across the China Sea, we had a stiff N.E. monsoon and cloudy weather. We anchored in Barn Pool in Napa Roads on the afternoon of the 6th. The anchorage is formed by the lee of some coral reefs, and is safe enough when once inside; but the approach to it should be made cautiously, as the reefs being mostly wholly covered, do not show very plainly, and some of them are detached from the main body.

The object of the *Sphinx's* mission to Loo-choo was twofold: to deliver to the Authorities Lord Palmerston's reply to a communication from them to the British Government relative to the settlement at Loo-choo of Dr. Bettelheim, a Protestant Missionary, which had been sent by them in the preceding year; and, secondly, to make inquiries relative to the position of Dr. Bettelheim and his treatment by the authorities.

On the 8th a message was sent to the Regent and Chief-Minister to inform them that I was the bearer of a letter from Lord Palmerston, Her Majesty's principal Minister for Foreign Affairs, in reply to their previous communication to him, and that I intended to deliver this in person at Shuy (the capital of the island), at the citadel or royal city, and that, at the same time, I had a message to deliver to them. I requested they would name an early day for its reception.

In reply, they stated that they would receive me at noon of the 10th at Napa, the seaport town off which the *Sphinx* was then lying.

It was necessary to decline this offer and to insist on the reception taking place within the citadel at Shuy, partly because, in official intercourse with the people of these countries, it is always necessary to insure that the ceremonial is conducted in a manner which is dignified according to their ideas, and partly because, with reference to this

particular matter, we knew that the Imperial Commissioners from China were always received at the citadel. It was, therefore, unbecoming that a communication from a high Minister of the Queen of Great Britain should be received in a less dignified manner.

The Loo-choo authorities then named the public offices at Shuy, a place within the walls of the citadel. On which, they were informed that I could not think of delivering my communication in any other place than within the royal citadel, and I reminded them of the manner in which communications from the Court of Pekin were always received at Loo-choo.

On the afternoon of the 9th, the Regent and Chief Minister, without giving any notice previously of their intention, came on board the *Sphinx* to visit me; but, as I had previously gone on shore, accompanied by the Interpreter, Mr. Meadows, they were unable to explain their wishes, and, after being shown over the ship by the officers, they returned on shore again.

In the middle of the night they sent off a message to say that they would again wait on me early on the following morning; and, accordingly, soon after daylight, the Regent, accompanied by the "Pu-ching-ta-foo," or Chief Minister, made his appearance on board, and, as soon as they were conducted below to the cabin, the Regent, falling on his knees, presented a written petition, of which the following is a translation:—

"The due petitioners, Shang-ta-mo, Regent, and Ma-leang-tsae, Minister of Loo-choo, hereby state their circumstance and in grief prefer a request.

"Your Excellency wishes to have a meeting in the royal city and in person deliver to us an Imperial edict.* But in our poor country, when the Imperial Commissioner of Investiture (from China) arrives, the ceremonies attendant on the reception of the letter of investiture take place at the hotel of the celestial (Chinese) Commissioner at Napa. And now that your Excellency wishes to deliver over an Imperial edict at Shooe,† we greatly fear that, from our boy Sovereign and his Royal mother downwards to the gentry and common people, the mind of all, old and young, will be filled with breathless alarm and apprehension. We therefore humbly entreat your Excellency to take our distressed circumstances into your mighty consideration and, allowing your benevolence and commiseration to descend upon us, graciously permit that we, low officers, respectfully receive the Imperial edict at the public hotel at Potsun,‡ and we will ever bear in grateful remembrance your vast grace. An earnest petition."

Somewhat shocked at the humble and almost abject manner in which the Regent presented this paper, I instantly raised him from his knees and motioned him to a chair, and endeavoured in the subsequent conversation to reassure him as much as possible, and to con-

* Meaning Lord Palmerston's letter.
† Shooe, Showle, or Shuy, the Capital of Loo-choo.
‡ A place near Napa.

vince him that our intentions were perfectly straightforward and friendly.

I accordingly proceeded to assure him that in declining to deliver Lord Palmerston's letter anywhere else than at the citadel at Shuy my only object was to ensure its being received in the same dignified manner as communications from the Imperial Court at Pekin; that although I should find it my duty to land in state and proceed to Shuy with several attendants, yet that on arrival at the citadel, only myself and the officers of my suite would enter its precincts and that all inferior persons would remain outside, so that there should be no cause of alarm or apprehension to the people of the city.

Their minds seemed to be tranquillised by these assurances, and a discussion then ensued as to the time when I should have my audience. They wished for a delay of two days, but it was eventually settled that I should come on the following day. Soon after this they took leave and returned on shore.

In the evening they made another effort, through Dr. Bettelheim, to induce me to forego my intention of delivering the letter at Shuy; but I did not think proper to accede to that gentleman's request.

On the morning of February 11th, at 9h. a.m., I landed at Napa, accompanied by several of the officers in full dress and attended by a guard of honour of Marine Artillerymen and seamen, amounting in all to about forty persons.

On Lord Palmerston's letter leaving the ship, a salute of seven guns was fired; and at the same time the national ensigns were displayed from the mast-heads.

"Cargons," a species of sedan-chair, carried by four bearers, had been sent for the accommodation of myself and the officers; in which, preceded and followed by the guard, we went to the capital.

Shuy, the capital of the Island of Loo-choo, is nearly three miles distant from Napa and connected with it by a good hard road. The town contains several streets with good houses enclosed in compounds and gardens, and there are also some handsome buildings for public purposes which, surrounded by plantations of trees, have a very picturesque effect.

The citadel is built on an eminence on a hill on the south side of the town. Towards the south the rocky hill on which it is built is in many places naturally quite precipitous, and in other parts it is surrounded with a triple row of ramparts of stone and earthwork, which would make it quite impregnable to an army unless furnished with heavy artillery. The whole appearance of the place forcibly recalled the descriptions one has read of ancient fortresses before the invention of artillery.

On our arrival at the gates of the citadel, the guard, after presenting arms as I passed, were left outside the gates, none entering within the wall except the officers who accompanied me. We were received at the first gate by some officers of inferior rank, and on arrival at the gate in the second wall by the Regent and the Pu-kiang-ta-fu in

person; who, with much courtesy and ceremony conducted us to a spacious hall in one of the grand courts of the palace.

Having taken our seats, myself, Mr. Meadows, the Interpreter, and the Regent and his Chief Minister, at a small table by ourselves, while all others present sat at a little distance, we proceeded to business.

The envelope containing Lord Palmerston's despatch was formally produced from the box in which it had been brought and presented to the Regent, who, respectfully receiving it, handed it to an officer in waiting.

A message which, in accordance with the instructions of H.M. Plenipotentiary in China, I was deputed to deliver to them, was then read by Mr. Meadows from a written paper, which was subsequently left with them. This message chiefly related to the position of the Missionary, Dr. Bettelheim, among them. The Regent replied by giving repeated assurances of their desire to treat that gentleman with every kindness and consideration.

A conversation then ensued on various matters more or less connected with Dr. Bettelheim's affairs, to which that gentleman had called my attention. To all of which the Regent and his Minister gave courteous explanations and satisfactory assurances. In fact, throughout the whole proceedings their manner and behaviour was that of ceremonious dignity and deferential courtesy, which created a very favourable impression on our minds towards them.

At the conclusion of the conference, the Regent invited myself and the officers to an entertainment at his residence; and, having accepted his offer, we proceeded to his house, which was situated outside the walls of the citadel, on the road to Napa.

The Regent's house was a well built edifice, containing one large and spacious apartment opening towards the front and looking into the garden, some smaller apartments being at the sides and in the rear. The house was surrounded by an enclosed walled space, laid out with a good deal of taste as a garden; the earth being banked up against the walls all round and planted with shrubs and rock-plants.

The entertainment was in the usual Chinese style, from bird's-nest soup and shark's fin downwards to fruit and confectionary. Nor, while the Regent was feasting the officers, did he forget to extend his hospitality to our men; all of whom were taken to another house not far off and surfeited on the delicacies of Loo-choo;—as I learnt afterwards, very much to their amusement and satisfaction.

Before we took leave of the Regent, presents, consisting chiefly of trinkets and some specimens of Loo-choo manufactures in silk, were given to myself and the chief officers, and the Regent and his Minister accepted my invitation to visit me some other day on board the *Sphinx*. We then returned on board.

It unfortunately happened that blowing boisterous weather which subsequently occurred prevented the Regent and his Minister from fulfilling their intentions, although on one occasion they came down to Napa for the purpose. I much regretted this, as I should have liked

to have entertained them courteously after what had happened, and after having been obliged to press them so hard in the matter of the reception at Shuy.

After waiting in the roads a sufficient time to enable the authorities to send any counter-communication to the despatch I brought them, had they been inclined, and finding there was no chance of their being able to come on board, I sent a message to take leave and some return presents, and on the 16th February left the Island.

During our stay at Loo-choo we had frequent opportunities of rambling over the Island in the vicinity of Napa and Shuy. The general appearance of the country exhibits the features of an advanced stage of oriental civilization.

The country is extremely well cultivated with various kinds of grain, green crops, tobacco, &c., divided into fields by hedges and stone fences, and showing the usual organization of the rights of property. The land is undulating and in many parts well wooded, affording many picturesque views. The roads and pathways were well paved, and the houses well built and comfortable-looking. Each house generally stood singly in its own plot of ground, planted with trees and surrounded by a stone wall. They were chiefly of one story in height, and the roofs (of tiles) were remarkably heavy and substantial in proportion to the general scantling of the houses themselves. It was inferred that this was the better to resist the furious gales which at times sweep over the Island.

The Island seems to be thinly peopled; the inhabitants small of stature. They always treated us with great respect, rather avoiding us than otherwise; but, at the same time, watching our proceedings with a rather suspicious curiosity. In their general habits they seem to resemble the Chinese. Their language is a dialect of the Japanese, but the official people converse in Mandarin Chinese, *i.e.*, the Court dialect, and our communications with them were conducted in that language.

Dr. Bettelheim, a Missionary under the auspices of a Society in England, has been resident in the Island since 1847, but has not, hitherto, been very successful in making many converts; but as he has mastered their language and has translated some of the books of scripture, as well as some other works of an educational character, into their tongue, it is to be hoped that the foundation has been laid for a successful progress on a future auspicious occasion. Dr. Bettelheim also practises the medical art, and has introduced the practice of vaccination among them with some success. He lives, with his wife and children, in what was formerly an old temple, in a romantic situation near the brink of a cliff on the south side of the anchorage in Napa Roads.

The climate of Loo-choo is remarkably mild and much warmer than the contiguous coast of China on the same parallel of latitude. The islands are too small ever to have much trade, and their secluded situation and their want of a commodious anchorage will, probably, always prevent their becoming of much political or commercial importance.

From Loo-choo the *Sphinx* returned to Hong Kong, touching at Amoy on her way, and experiencing a strong N.E. monsoon during the passage.

After our arrival at Hong Kong we endeavoured to dock the ship at Whampoa, for the purpose of repairing the damages sustained at Shinpoo on the 27th January; but in consequence of the dock's mouth not being wide enough at the bottom to admit the ship, the attempt failed, and the repairs to the bottom were postponed till a more convenient season.

On the 17th May the *Sphinx* left Hong Kong and proceeded to Singapore; on the 19th passed to the westward of the Paracels. We had a light S.W. monsoon all the way down, and as we crossed the mouth of the Gulf of Siam a strong breeze and a confused S.W. swell. We anchored at Singapore at 3h. a.m. on the 26th.

The Horsburgh Light on Pedro Branca, which we now had the benefit of for the first time, was of great assistance to us as we approached Singapore.

After coaling we proceeded to Penang, where we arrived on May 30th, and joined the Admiral. From thence the *Sphinx* proceeded to Calcutta, calling at Rangoon on her way with despatches. Nothing worthy of hydrographic notice occurred on these voyages.

The *Sphinx* remained at Calcutta till the 3rd August, and was efficiently and economically repaired at the government dock at Kidderapore, every assistance being rendered by the government officials, and every facility for the convenient accommodation of the officers and crew in the interim being obligingly rendered, the most noble the Governor General himself taking a personal interest in our concerns.

On the 3rd August the *Sphinx* left Calcutta and proceeded to Rangoon, taking down a detachment of H.M.'s 80th to the seat of war.

We arrived at Rangoon on the 9th August, and from that period till the time when the *Sphinx* was ordered home in February, 1853, we took an active part in the events of the Burmese war, the vessel herself making trips to Madras, Calcutta, and Moulmein, conveying troops, while her boats were constantly detached on service on the Irawaddy, assisted in the capture of Prome and Pegu, and in the defence of Shoni-dong and Herzadah, and taking part also in numerous other expeditions.

It is not our intention on the present occasion to enter into any narration of the events of the Burmese war. The history of those events is not of necessity connected with the legitimate object of these pages, while other considerations, moreover, restrain us. The contest in Burmah was never popular, and the interest attached to events there while they were in progress has long since passed away, and is now difficult to revive, especially since all attention is at present absorbed by the great impending events of the European strife in which we are now engaged.

We cannot, however, omit to bear testimony, in allusion to this subject, to the uniform patience, energy, cheerfulness, and good conduct which characterized the crews of the boats of all Her Majesty's ships

employed on service in Burmah. Detached from their ships often for weeks and months together, subjected to much exposure, fatigue, and privation, ever actively on the watch against the enemy, and often engaged, their good discipline and zealous attention to duty, under all circumstances, was in the highest degree creditable to themselves, and to the system of their officers. Never was Her Majesty more zealously served.

Without entering into the disputed question of the policy of the annexation of the province of Pegu, a few remarks on the advantages we are likely to have obtained may not be out of place.

The possession of Pegu completes the compactness of our Indian possessions. All is ours now from the mouth of the Indus to Sincapore. Our domain is within a ring fence, formerly there was a break between the Arracan and Tenasserim provinces; and whatever may be said in denial of the positive value of the acquisition of Pegu, it is certainly something to have excluded the chances for ever of Rangoon being held by a foreign power.

When the organization of the civil administration of Pegu is completed, and the country has settled down into a state of tranquillity, I see no reason why our newly acquired province should not prove a very valuable acquisition. Drained by the delta of the Irawaddy, the country is remarkably fertile. Good timber abounds in the up-country; rice, indigo, and cotton can be produced to any amount in the plains. The Peguans, tractable, and, judged by an Asiatic standard, industrious, and moreover unhampered by the prejudices of caste, will probably be found, under European superintendence, capable of considerable advancement in civilization.

Bassein and Rangoon, especially the latter, will prove to be ports of great utility for commercial purposes; and the latter, at no distant period, will probably become a formidable rival to Moulmein.

Although the land in the vicinity of Amherst, at the mouth of the Moulmein river, is higher, and, therefore, affords better seamarks than the low coast at the entrance of the Rangoon river, yet the strength of the tides, and the dangerous proximity of the Godwin Shoal, will always render great caution necessary in approaching the port of Moulmein; which, when inside the numerous flats, and the tortuous windings of the channel, often cause the passage up the river, although only 25 miles in point of distance, to be an affair of several days, especially to deeply laden ships.

At Rangoon, on the contrary, the entrance into the river once effected, there is nothing to prevent vessels proceeding without impediment to Rangoon, except the Hastings Shoal, just below the town, where it is sometimes necessary for large ships to anchor and await the rise of the tide. There is at present some difficulty in making out the entrance of the river, owing to the lowness of the coast and almost total absence of any natural landmarks. But this inconvenience will, we trust, ere long be materially modified by the erection of a suitable beacon on Elephant Point, and by placing a floating

light off the entrance to the river, both of which measures are in contemplation.

The mention of Elephant Point reminds me to observe, that to recognise in the appearance of the land or the trees near Elephant Point, so called, any resemblance to that stately quadruped, requires a much warmer poetic temperament than falls to the lot of most people; and the navigator who approaching Rangoon wishes to recognise it as such, must draw very largely on his imagination.

The port of Rangoon affords great capabilities for the construction of docks, a convenience much wanted in the Indian seas. The points where there are docks at present are far apart, and for different reasons not always very accessible. Bombay, Calcutta, and Whampoa, (below Canton,) are the places where they already exist; the first and the last named are inconvenient of access, and at Calcutta the port charges are very high, and the place insalubrious. The position of Rangoon is central and convenient, and in other respects it offers equal advantages, from its magnificent tidal river, as the other places we have mentioned.

Lastly, we must say a word in favour of the much abused climate of Burmah. In spite of all the eloquent denunciations of its "pestiferous swamps," we believe it to be quite as healthy as any other part of India, and truly think that if the same attention be paid there to the precautions for preserving health as are customary generally in India, the climate will not be found to be any more unhealthy. Fever and cholera prevail there as elsewhere, and the sun is as potent an enemy, and as much to be avoided, as in India; and although it is true that our troops were sometimes sickly, yet it must be remembered that to contend against a tropical climate, under all the disadvantages of active service in a campaign, and to mitigate its inconveniences by the appliances which become possible when we have quiet possession of the country, are two very different things; and the unfavourable opinions which have been pronounced on the subject have chiefly been in relation to the first mentioned condition of affairs. With the exception of occasional cases of dysentery, and some instances of spasmodic cholera, the health of the boats' crews employed on the Irawaddy was remarkably good, and the only quarter where the health of the troops was decidedly unsatisfactory was at Prome; which station will doubtless become more salubrious when the country has been cleared around it.

On the morning of the 7th February, 1853, intelligence reached Rangoon of the disastrous result of the expedition in the neighbourhood of Donabew against the celebrated robber chieftain Nya Myat Ton, amd of the death of the gallant and lamented Capt. G. G. Loch, C.B., who died on the 6th from the effects of a mortal wound received on the 4th, while leading his men to attack the enemy's position.

Thus in the prime of life, and in the midst of a career which seemed to afford every promise of honourable usefulness, Granville Loch was prematurely cut off.

Of him truly it might have been said, without disparagement to others:—

"Erom è alcun fra tanti
————————or feritor maggiore
O piu bel di manure e di sembrianti
O piu eccelso ed intrepido di core."

But alas!

"The paths of glory lead but to the grave."

"Boast not thyself of to-morrow, for thou knowest not what a day may bring forth."

In consequence of this event the writer of these pages assumed the command of H.M.S. *Winchester*, and was followed in the command of the *Sphinx* by Commander Hillyer.

Some time before this, the *Sphinx's* boilers having become very defective, that vessel was ordered home, and accordingly left Rangoon on the 19th Feb., on her return to England.

Following up the record of the *Sphinx's* fortunes, from the information afforded by her log, we find that, on her voyage across the Bay of Bengal, she experienced variable and light N.E. winds, and arrived at Trincomalee on February 27th.

Leaving Trincomalee on March 14th, the *Sphinx* appears to have had chiefly light S.E. winds till they crossed the equator, in long. 85° 30′ E.; then light west and S.W. winds till about March 27th. On which day, in lat. 11° S., they got the S.E. trade wind, which, with moderate breezes and generally fine weather, carried them on till April 8th, when the tradè left them in lat. 26° S. From this time till April 25th, when they reached Simon Bay, at the Cape of Good Hope, they had moderate and variable winds, chiefly south and S.W.

On May 16th the *Sphinx* left the Cape. On the 25th got the trade in lat. 20° S.; called at St. Helena and Ascension, and lost the trade in 4° 30′ N. on the 13th June. On the 17th fell in with the N.E. trade wind, in lat. 11° N., which carried them to the northward to the parallel of 36° N., where they lost it, off St. Michael; at which island they touched for water.

From St. Michael to the Channel, the winds were generally from W.S.W. and occasionally variable from the northward. The weather throughout, from the Cape to England, seems to have been moderate and fine.

On July 10th, the *Sphinx* anchored in Plymouth Sound, and, after coaling, proceeded to Portsmouth, where she arrived on the 12th, and was subsequently paid off and put out of commission on the 23rd.

During the period of H.M.S. *Sphinx's* commission, from February, 1850, to July, 1853, the quantity of coals expended was 6,640 tons. Under steam, with or without the assistance of sails, the vessel went 40,737 miles; under sail only, with the wheels disconnected, 18,056; and under sail, with the floats detached from the wheels, 2,528; making a total of 20,584 miles under sail only, and a grand total of 61,321 miles under steam and sail together.

The accompanying Table gives an abstract of the Meridian Distances measured in the *Sphinx* during the years 1852-3. Advantage

Abstract of Meridian Distances measured on board H.M.S. *Sphinx*, 1852–3.

No.	Date.	Places.	Points to which the Meridian Distance has been reduced.	Meridian Distance h. m. s	Position.	No. of Chronometers.	Range. s.	Interval Time Observtns. d.	Interval Rate Observtns. d.	Remarks.
1	Jany.	Hong Kong	Victoria Cathedral..	0 29 16·24	E.	5	10·99	18·925	18·925	
		Shanghai ..	Consular flagstaff...							
2	Jany.	Shanghai ..	Consular flagstaff...	0 24 52·28	E.	5	17·43	19·93	19·93	
	Feb..	Loochoo ...	Bridge Napa							
3	Feb..	Loochoo ...	Bridge Napa	0 54 13·87	W.	5	9·62	14·037	14·037	
		Hong Kong.	Victoria Cathedral..							
4	Jany.	Moulmein..	The Pagoda.....	0 5 54·74	W.	6	19·14	10·0	10·0	
		Rangoon...	Dagon Pagoda							
5	Feb..	Rangoon...	Dagon Pagoda	0 59 34·98	W.	4	21·03	27·34	27·34	
	Mar.	Trincomalee.	Ft. Frederick flgstff.							

Memorandum of Two Meridian Distances measured on board H.M.S. *Winchester*.

1	Mar.	Rangoon...	Dagon Pagoda	1 3 42·55	W.	6	4·59	22·0	22·0	
	April	Madras	The Observatory ...							
2	April	Madras	The Observatory ...	0 4 1·64	E.	6	5·52	19·0	19·0	
	May.	Trincomalee.	Ft. Frederick flgstff.							

NOTE.—The letters W. and E. in the column headed Position, indicate the situation of the second named place relative to the first.

The Interval Time Observations is the interval between the epochs when the errors on mean time were determined.

The Interval Rate Observations, is that between the epochs when the rates were determined.

has been taken of the opportunity also to place on record two measurements made in H.M.S. *Winchester*, during the brief period of my command of that ship.

In bringing these pages to a close,

"Post varios casus, post tot discrimina rerum,"

we conclude our remarks with the same words with which we began, and ask, with more truth than Æneas,

"Quæ regio in terris nostri non plena laboris?"

On the Cape Verd and Hatteras Hurricane, *of September*, 1851, *and other Storms.—With a Chart.—By W. C. Redfield.*

(Concluded from p. 539.)

Gales of the Eastern Pacific, near the Mexican Coast.

Our direct knowledge of the paths of these gales is necessarily limited; but the interest of an increasing commerce, as well as of meteorological science, claim the notices which follow.

1. The *Joseph Butler*, on or about the 24th of June, 1850, encountered a severe gale of wind, near lat. 16° N., long. 107° W., (260 miles from the shore of Mexico,) which carried away her mainmast. I have no further accounts of this gale.

2. The barque *Como*, on the 5th of August, 1850, in lat. 14° 20′ N., long. 117° W., encountered a severe gale, commencing at north, and veering to west and south. Lost sails and bulwarks, and sustained much other damage. These winds denote a course of progression corresponding to that of the hurricanes in the West Indies, and that the vessel was in the left side of the storm-path.

3. *Niagara's Hurricane.*—The *Niagara* was dismasted in a hurricane September 9th, 1850, about ninety miles south of Acapulco (lat. 15° 16′ N., long. 99° 50′ W.)

The *Diana*, September 11th, lat. 22° N., long. 116° W., had a severe hurricane from N.E., veering to S.W.; blew five hours; vessel hove on beam ends.

The *Diana's* position was in the left side of the storm-path, but near to the axis line; the progression of the storm being still northwesterly. Its course of progression from the *Niagara* was 34° north of west; or W.N.W., nearly. Its rate of progress was nearly twenty-three miles an hour; allowing no error for the nautical dates. Part of the track falls on our Chart. See Track xxviii.

4. The *Laura*, September 26th, 1850, lat. 26° N., long. 123° W., in a severe gale was thrown on her beam-ends; lost cargo, &c. I have no further account of this gale.

5. The *Kingston*, from San Francisco for Panama, experienced a severe gale on the Mexican coast, and was thrown on beam-ends, Oct.

1st, 1850, in lat. 14° N.; and reports that the gale swept the whole coast with great violence; as may be seen in the succeeding statements.

The *Belgrade*, from San Francisco for Realejo; October 1st, fine breeze from W.N.W., and *heavy swell from* S.E. At 10h. p.m. wind hauled suddenly to S.E., with increased force and squally appearances; at midnight under single reefed topsails; 1h. a.m. still increasing, with vivid lightning and heavy rain; 4h. a.m. split fore-topsail; 8h. a.m. lost foresail; gale increasing to a hurricane; thrown on beam-ends, with loss of main and mizen-topmasts, with head of mainmast, when the ship righted a little. At 1h. p.m. October 2nd, hurricane still increasing, ship on her beam-ends; lost fore-topmast, with much other damage; at midnight, blowing as hard as ever; at 4h. a.m., October 3rd, more moderate, heavy rain; October 4th, lat. 18° 11′ N., long. 104° 5′ W., made for Acapulco. It may be seen that this vessel was on the right of the axis path of the storm.

The *Galindo*, on the same route, experienced a severe hurricane on the 1st and 2nd of October; was thrown on beam-ends and dismasted; and arrived at Acapulco at the same time with the *Belgrade*.

The *Lovina*, off Cape San Lucas, the southern point of California, October 5th, was thrown on beam-ends in a violent hurricane, and lay twenty-one hours.

The *Fanny*, from Mazatlan, in the Gulf of California, for San Francisco, was damaged in the gale, on the 5th and 6th of October, and put back to Mazatlan.

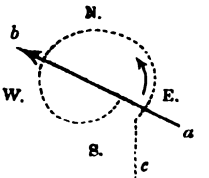
The progress of this hurricane, during four days, appears to have been N.W.b.W., nearly; at a rate not exceeding eight or ten miles an hour. Part of this track falls on our Chart: Track xxix.

6. *Amazon's Hurricane.*—The brig *Amazon*, from New York for San Francisco, encountered a severe hurricane October 3rd, 1850, in lat. 13° 30′ N., long. 116° 50′ W.: which commenced at S.W., veering successively to S.E., east, north, west; ending at S.W.; in which lost main-topsail and foresail. Capt. Watt states, that the gale was equally severe as those in the West Indies. This off-shore hurricane was cotemporaneous with that last noticed. The following is drawn from the account which was published by a passenger of the *Amazon*.

October 4th, lat. 13° 40′ N., long. 116° 30′ W.: last night the brig encountered a hurricane, preceded by squalls from S.W., with heavy rain. The squalls increased in number and intensity, until 5h. p.m., when the hurricane commenced; brig under close-reefed fore-topsail and mainsail. Capt. Watts put his vessel before the blast, or "scudded" her. The tempest raged during the night, with momentarily increased fury. It veered from S.W. to due south, thence to S.E., and thence to N.E. and north, and from thence to S.W., thus making the circuit of the compass! According to our reckoning, it veered thirty-four points in the space of six hours; during which time the brig was kept before it, in which lay our only chance of escape. At 4h. a.m. the foresail was blown from the yard, and the vessel was then brought to the wind, but could not withstand the tornado, and was blown directly down on her side, or beam-ends. Apprehending she would

founder, the order was given to put her again before the wind, but the attempt was unsuccessful. As a last resource, the main-topsail was let go, when she paid off, and dashed away like lightning before the tempest. She was kept scudding till the hurricane ceased, and was then laid to in a heavy gale from S.W., which followed the hurricane.

From the above we may infer that the course of the vessel while scudding, was not unlike that shown in the annexed figure.



a b Course of the storm's progression.
c Course of the *Amazon* in the gale.

The short time in which the brig ran entirely round the axis of the gale, after entering its violent portion, shows that its diameter was small; and that its progression was remarkably slow. This slowness is also shown by the manner in which the brig, steering north for San Francisco, was able to *overtake* the cyclone, and run into it, upon its south-eastern side, where its wind was south-westerly. Hence, too, after clearing the vortex of the cyclone, and heaving to, the duration of the exterior portion of the gale was so much prolonged, notwithstanding the drift of the vessel was in a direction opposite to the progression of the storm. It is probable that this progression did not exceed four miles an hour; and it may have been less.

This is a slower rate of advance than I have yet found on the Atlantic; but it accords well with other cases which have occurred within the tropics, in the Indian Ocean. It appears, also, as having some relation to the slow rate of advance already noted in the cotemporaneous in-shore hurricane of the *Kingston*. Hence, we may infer, that the great current of rotation in which the cyclones are imbedded was at this period and in this region, at least, comparatively sluggish and inactive. We have noticed a similar condition in the Eastern Atlantic, in the previous month; in the case of the Cape Verd hurricane of Track xxiii.

7. *Capt. Budd's Gale of Oct.* 1851.—Capt. Budd's steamer from San Francisco for Panama was, on the 21st of October, in lat. 22° 7′, off Cape San Lucas. At daylight of 22nd the wind was very high, hauling to S.E., preceded by *a heavy swell from the same quarter*. The gale blew heavy from S.E., and then commenced hauling to N.E., and blew still more heavy: bar. 29·75. He had now crossed the entrance of the Gulf of California, to within sixty miles of Cape Corientes. At 4h. p.m. gale abating and hauling to the westward, going round by the north.

The winds in this case appear to indicate that Capt. Budd fell under the right hand or northern side of the gale, as it first approached; and that the gale recurved northward, upon the contiguous portion of Mexico, before the axis of the storm had reached the position of the ship. See Chart.

8. *Panama's Gale of July* 1852.—The *Panama* experienced a hurricane July 16th, 1852, in lat. 15° N., long. 115° W.; which lasted ten hours: carried away top-gallant masts, yards, sails, &c.

Extract from log-book of ship *Empire*, bound for San Francisco:

July 19th, 1852, commences with heavy gales and bad sea from the north; under double-reefed topsails and courses: (ship in front part of the gale, to the left of its axis path). At 8h. p.m., heavy gale from N.N.W. At 10h. p.m., very heavy gale; hove the ship to under triple-reefed main-topsail. Midnight, gale increased to a hurricane; the mainmast went by the board, together with the mizen-mast, fore-top-gallant-mast, &c., with everything attached; blowing a complete typhoon. At 5h. a.m., succeeded in clearing the wreck. At 7h. a.m., gale had in some measure abated; and at 8h. a.m., got the ship before the wind, then blowing from S.S.W.; at noon of 20th, only a brisk gale from S.S.E. Lat. by account, 17° 4′ N., long. 117° 35′ W.

This could have been none other than the *Panama's* gale moving on a course between 30° and 40° north of west; and, if there be no error in the *Panama's* date, at the rate only of about three miles and a half per hour!

This slowness of progression, in the three hurricanes of the *Panama*, *Amazon*, and *Kingston*, is of great interest for navigators in the Pacific; for it shows how perfectly the exposure and safety of their vessels, during such hurricanes, are placed in their own control; at least, in cases where sea room on all sides is afforded them. Thus, if the Master of the *Amazon* had comprehended the character of his hurricane, or its law of rotation and progression, he might have run more eastward until the state of the barometer and winds would have allowed him to come up to his desired course. This would have enabled him to make a safe, rapid, and successful run towards his port of destination, while he kept in the outskirts of the gale.

The *Empire*, when headed off by the north wind in the front of the gale, could not pursue her course for San Francisco, nor safely heave to, on either tack. But she had opportunity to run southward in the beginning of the gale, keeping the wind on the starboard quarter, until the state of the barometer and the diminished strength and westerly changes of the wind should enable her to turn eastward, around the rear of the hurricane, and thus regain her course with a fair wind.

9. A violent hurricane occurred at Cape Corientes and Ipala on the night of October 11th, 1853; in which the *Eclipse*, a valuable ship, was totally lost about five miles east of Ipala: (in lat. 20° 10′ N., long. 105° 25′ W.) It first blew off the land from the northward, and shifting suddenly to the westward, blew a perfect hurricane right on shore. This may indicate its recurvation near the southern entrance of the Gulf of California at Cape Corientes. It has been shown that some hurricanes of the Gulf of Mexico, commence their recurvated course to the northward and eastward in a still lower latitude. For such a case, see the *American Journal of Science*, vol. i, New Series, p. 153–162.

The inter-tropical gales of the North Pacific which are comprised in these few notices, are seen to have occurred in the several months from June to October, both inclusive; and I have now before me an

account of another violent gale, far to the westward, in the month of May. The prevalence of storms on that coast in the other months, from October to April, has been noticed by Humboldt and other writers; and is now but too well known by the experience of navigators.

We thus establish the prevalence of violent cyclones upon the south-western coast of North America at all seasons of the year: and find that these are sometimes of great violence. That many of these cyclones pass over the Mexican territories, some to the Gulf of Mexico, under the local name of *northers*, and others to the territory of the United States, I can find no reason to doubt.

The very prominent characteristic of S.E. winds, in the storms which commonly visit the Pacific coast, affords evidence of their progress along the coast in the lower latitudes, and of their direct entrance upon those shores in higher latitudes, subsequent to their northwardly recurvation. These characteristics early attracted my attention in the gales which are noticed in the voyages of Cook, Vancouver, and others, and in the journals of whalers which came under my inspection.

We might infer, therefore, without reference to other and direct evidence, that the same general system of cyclonic movement prevails on the continent of North America that is found on the Atlantic. Indeed, a glance at our storm chart might afford conviction of this fact.*

A competent knowledge of the cyclones and of the law which governs their development, has become essential to our navigators. Both merchants and insurers are beginning to discover that even the good qualities of a vessel have commonly less influence upon the safety of her voyage, than has the intelligence and skill of the commander. Hence, there are now insurers who freely select those risks which are in charge of the most competent masters; leaving other risks, of whatever class, to underwriters who are willing to rely on the classification of the vessels.

American Storms of December, 1836.

From the 30th day of November to 21st December, 1836, six great cyclones passed successively over the United States; having passed New York on Nov. 30th, Dec. 5th, 10th, 14th, 17th, and 21st, respectively: under which, my barometer fell ·62, ·35, ·44, ·86, ·90, and 1·05 in., in the several cases.† The surrounding waves of ex-

* In almost every region of the Pacific, violent cyclones are known to occur: and even within five or six degrees of the equator, the ravages of a hurricane at certain islands have occasioned the destruction of a large portion of the native population.

The results of the recent inquiries have now shown, by direct observations, the prevalence of the cyclonic system of storms entirely around the globe, in both hemispheres; excepting some interior or inaccessible portions of the old continent.

† This series may serve to illustrate the continued succession of cyclones in the United States.

terior pressure raised by their rotation, and separating each cyclone from the other, were indicated by my barometer as follows, viz: Nov. 28th, 30·27; Dec. 4th, 30·29; 8th, 30·35; 12th, 30·28; 16th, 30·45; 19th, 30·80; and 22nd, 30·72 inches. Each cyclone exhibited here the winds of its two right quadrants, gradually veering from a southern quarter to the western board, as it went onward; thus showing the cyclonic centres to have passed far westward of New York, and over the Canadas, in their several routes to the northern regions of the Atlantic.

In the last of these storms, which has been examined by Professor Loomis,* the wind at New Orleans, on the 20th, blew hard from a southern quarter, and also on our Atlantic coast, during the latter part of 20th and early part of 21st; veering westward. At Rochester, N. Y., it blew from S.E. on the afternoon of 20th, with great power, and furiously at Buffalo, also veering round by the south to the west, during the night; thus showing that the axis of this gale passed northwardly at a distance much to the west of these places. This fact is confirmed, also, by the reports of winds as made to the Regents at Albany, and by those obtained from the military posts and other sources; very many of which are given by Professor Loomis. The same fact is shown by barometric observations as published by him. For although the central nucleus of the storm, or area of greatest barometric depression, passed the western observers during the night, when the greatest and most rapid fall and rise of the barometer was not noted, yet, the depression as recorded proves to be greatest as we go towards the true centre-path of the storm, as the same is approximately indicated on the Chart: marked xxvii. This is seen in the observations made at Lexington, (K.) Springfield, (O.) Marietta, Twinsburg, Rochester, Syracuse, Albany, Montreal, Hanover, and Quebec; which, even as given, show a mean fall of 1·075 in.: while those of twelve places on or near the Atlantic border, from Savannah to Newfoundland, show a mean fall of but ·91 in. If the true course of the storm had been from west to east, the fall in the barometer would have been much the greatest on the Atlantic border; owing to the lower level, which is not considered and allowed for in the above estimate, and to a less obstructed rotation of the storm, on reaching the Atlantic.†

* *Transactions of the American Philosophical Society*, vol. vii, New Series, p. 125–164.

† The extreme range of the barometer in a period of seven years at Hudson, (O.,) near to Twinsburg, and about 1,100 feet above tide, as given by Professor Loomis, is 1·719 in.: while the range observed in New York during the same period, was 2·25 in. Difference, ·531. The mean of the annual ranges at Hudson during the same period appear to have been 1·402 in.: while the mean of the annual ranges at New York was 1·874 in. Difference, ·472 in. It appears, therefore, that near half an inch should be added to the depression of the barometer in some of the western observations of this storm, in order to a fair comparison of the barometric indications with those on the Atlantic border in the same storm.

Moreover, the barometric minimum was observed at Quebec about as early, on the 21st, as at New York and its vicinity; although 420 miles further to the north, and nearly on the same meridian. This more rapid advance of the central portion of the storm, which has been seen in other cases, proves that the true course of progression was on the general route which I have indicated. The rate of the storm's progression, from noon of 20th to noon of 21st, I estimate at about thirty-three miles an hour.

It is true, however, that Professor Loomis has traced this storm *eastward*, from the Mississippi to the Atlantic; and has stated, also, that in this case "there was no whirlwind." But, not rejecting his claims as a cyclonologist, I may state that he had almost no observations other than from the right side of the storm's centre-path. Now, in like limited manner, and *with like directions and changes of the wind*, the great hurricane of September last, which we have just considered, may be traced eastward from its centre-path, for a greater distance, and in the same latitudes, as already shown. The like is also true of the great Cuba hurricane of 1844, which was examined in the *American Journal of Science*;* as also, of Col. Sir W. Reid's hurricane which crossed Bermuda and Newfoundland, in September, 1839, (see chart,) on perhaps the most northerly course that has been traced in any storm.

Yet, who that duly examines these cases, will doubt that these storms, in their essential character, were great whirlwinds, moving northward and eastward? Indeed, the same or like phenomena may be traced in every great cyclone that passes over these latitudes. This eastward extension appears due, in part, to the enlargement of the cyclone; and while affecting its external form, and that of the lines of equal pressure, it does not essentially change the rotative movement; as may be seen by the continued development of the cyclonic winds, and their influence on the barometer.

It is well known that other and similar tracings from west to east have been made of the progress of various storms in the United States. It is believed, however, that the clue to these cases is already afforded; and that many or most of these storms were true cyclones; with orbital courses really analogous to those which are seen on the chart.

What are Cyclones?—The term Cyclone was first proposed by Mr. Piddington, to designate any considerable extent or area of wind which exhibits a *turning or revolving motion;* without regard to its varying velocity, or to the different names which are often applied to such winds. If used in this sense it may prevent the confusion which often results from other names, more variable or indeterminate in their signification. Thus, all hurricanes or violent storms may perhaps be considered as cyclones or revolving winds. But it by no means follows that all cyclones are either hurricanes, gales, or storms. For the word is not designed to express the degree of activity or force, which may

* Vols i, and ii, New Series, 1846.

be manifested in the moving disc or stratum of rotating atmosphere to which it is applied. It often designates light and feeble winds, as well as those which are strong and violent.*

It follows that the local directions and changes of the wind in any cyclone, and their effect on the barometer, are much like those exhibited in the gales and storms of the same region, except in the *degree* of their effect; which is doubtless proportioned to the general activity of the rotation, integrally considered.

The cyclones are often productive of rain in a portion of the cyclonic area; but vary in this respect in different regions and at different seasons of the year.

Universality of Cyclones.—As early as 1833 my inquiries led me to announce the conclusion that the ordinary routine of the winds and weather in these latitudes often corresponds to the phases which are exhibited in the revolving storms already described, and that a correct opinion, founded upon this resemblance, can often be formed of the approaching changes: and that the variations of the barometer resulting from the mechanical action of circuitous winds and the larger atmospheric eddies, pertain not only to the storms, but to a large portion of the winds in these and the higher latitudes.†

The more inert and passive cyclones which seldom gain attention, but which constantly occupy in their transit the greater portion of the earth's surface, appear to move in orbits or courses corresponding with those of the more active class which have been traced on the storm-

* As regards the temperate latitudes of the northern hemisphere, the true normal wind is commonly from the south-western quarter of the horizon; and the accession of a cyclone, except on its right margin, is usually marked by a change of the wind from the western board to some point on the eastern side of the meridian, accompanied and often preceded by a fall of the barometer. On the right margin of its path the cyclone may commence from near the S.W., in perfect continuance with the normal wind with which it here coincides. As the cyclone advances, the wind on the right of its axis-path *veers* "with the sun," or from the east towards the south and west; while on the left side of this path or line, the same cyclonic wind changes from the east to the *north*. On and near the axis-path the earlier winds of the cyclone blow *across* the line of progress, from the south-eastern quarter to the north-western, with a falling barometer; and when the axis of the cyclone has passed, its later winds are found crossing the line of progress in the opposite direction, from the north-western quarter to the south-eastern, with a rising barometer.

The true cyclonic wind may not always be found at the earth's surface, in every portion of the path of the cyclone, if its action be feeble, or subject to interruption, or to the interposition of bordering winds or cyclones. Even in stormy cyclones, irregularities of direction are often noticed at the surface; but in these cases it commonly happens that the *storm-scud*, at the elevation of a few hundred feet, exhibits locally the true direction of the cyclonic wind. But the changes of direction successively observed in the storm-scud, are commonly *in advance* of those in the lowest wind.

† Vide *American Journal of Science*, for October, 1833, (vol. xxv,) pages 120 and 129.

charts; a result that will not be doubted by those who have given careful attention to this branch of inquiry. In a broad view of the case, the constant occurrence and progression of the cyclones, in various degrees of activity, constitutes the normal condition of the inferior or wind-stratum of the atmosphere, at least in the regions exterior to the trade winds of the globe; to say nothing of their prevalence in the intermediate region, where their presence is shown on some occasions by the most indubitable evidence.

At the late meeting of the American Association for the Advancement of Science, held at Cleveland, an ably elaborated paper was presented by Professor James H. Coffin, of Easton, Pa., on the relations which exist between the direction of the wind and the rise and fall of the barometer. By a careful analysis of these effects during all seasons of the year, as observed at various places in the north temperate zone, Professor Coffin establishes the north-eastwardly progression and leftwise rotation ↻ of a continued series of cyclones, in which are developed the same local relations between the rotary action of the various winds and the movements of the barometer that are found in the several rotary storms and hurricanes which have been subject to investigation; and such in kind, though not in degree, as we have seen in the principal case already considered. Thus, if I rightly appreciate the labours of Professor Coffin, the cyclonic character of the variable winds in the temperate latitudes, which had been inferred from special observations and an extended range of geographical inquiry, is now established by a different and wholly independent method of investigation.

The storm-paths and routes of the cyclones clearly indicate, also, the true course of the principal circulation in the lower atmosphere, on both sides of the equator. An enlarged view of these physical truths and conditions may serve to convince meteorologists and others of the necessity for a thorough revision and correction of the received views of dynamical meteorology. Such revision, I apprehend, is now imperatively required. For the constant recession from the equator of a great portion of the lowest currents of atmosphere, as seen in the orbital courses of storms in all latitudes, and to which I have already alluded, together with the mean direction of the observed winds in the northern temperate zone, even neglecting other world-wide phenomena, may suffice to show, that the current theory or hypothesis for explaining the general winds of the globe, is essentially erroneous and defective in its application, and greatly obstructs the path of scientific inquiry.

New York, March, 18th, 1854.

CAISSON FOR THE REPAIR OF THE S.S. "CRŒSUS," SYDNEY, AUSTRALIA.—*By John Vine Hall, her Commander.—With a Plate.*

Perhaps amid the excitement of war you may have no space in your valuable work for so quiet a subject as the construction and fitting of a caisson or cofferdam to repair the defects of a ship. However, knowing that one great object of the *Nautical Magazine* is to disseminate professional information, I send you the enclosed drawing of the caisson I have had fitted to the S.S. *Crœsus*, under my command, to repair some damage to the plates about the heel, and thereby stop the formidable leak which has been caused by the vibration of the rudderpost.

You will most likely have heard that we sprung a leak on our outward passage. The mode of repairing my ship at a place where I knew there were no docks, naturally engaged my attention, and I determined, in the absence of better means, to apply the machine of which I send the enclosed sketch, very little different from my first rough draft. It was built on shore of strong hard wood framing, (as shown,) well bolted and kneed together, then planked with 3-inch deals, and finally caulked all over. The fore part is made sloping, for it struck me that as I was pretty sure there were no repairs wanted before the stern post at the upper part, by adopting the sloping line the aperture at that part (except where the enlargement for shaft and the keel come) might be nearly parallel, and thus avoid much difficulty in fitting it to the swell of the ship (also stronger).

When launched, then it was trimmed upright with tackles, and weighted with chains, till the buoyancy of the wood was counterbalanced, then placing it right astern, it was hauled forward with tackles, and with a great deal of contrivance finally fixed in its place. In doing this, the chief difficulty consisted in resting it on the keel, which it may be observed is curved, and has a flange or sole-plate on it. This, in conjunction with the swell round the shaft, and also the necessity of the aperture fitting as closely as possible, added very much to our trouble. When in its place, a diver, with the usual apparatus, went down and caulked the space left between the ship and the caisson at the fore part; the pumps were manned and the water gradually thrown out. As its level lowered inside, it was necessary to place strong cross shores from side to side, and also diagonal ones in the corners, to resist the enormous pressure (about 100 tons) from without. Other shores and guys, as were deemed necessary, were added, till firmly secured in its place. Soon I had the satisfaction of seeing it dry; descending and examining what damage was done and what repairs were requisite.

It is perfectly successful, and the workmen work in it almost as well as in a shop. Necessary to have hands to attend the pumps day and night, as it is impossible to make it absolutely tight. One thing I found very effectual in tightening it. After the rough caulking I

had a long strip of canvas well thrumbed, and passed round at the junction of the ship and caisson; this was drawn towards the narrow space wherever any leak existed, and materially assisted in reducing the quantity of water made.

I think I need add nothing more, save perhaps to mention that when we have done with the contrivance it can be fitted to any other vessel with but little alteration to repair a rudder, examine a screw, or any thing of that sort.

We extract the following description of the *Crœsus* from the *Sydney Morning Herald:—*

We visited a few days ago this beautiful specimen of steam ship-building. It seemed desirable that the *Queen of the South* should take home the particulars connected with the delay of the *Crœsus*, and we have accordingly taken some pains to ascertain the facts, so that the Company, who own the vessel, as well as the public at large, who take so deep an interest in steam communication to these colonies, may have all the facts of her disaster before them.

We may premise that this vessel, the *Crœsus*, was the crack ship of the General Screw Company. Her commander, Capt. John Vine Hall, was selected on account of his qualifications as a nautical man, and also because of his polite and gentlemanly bearing to his passengers and officers. He had been four or five years in the Company's service, and his patience and perseverance during the voyage, along with the skill and scientific knowledge he manifested, shows how correctly the directors of the Company estimated his talents. Amidst unexampled difficulties, the passengers, one and all, speak of his conduct in the highest and most respectful terms. Nor is this respect for Capt. Hall's personal and professional worth confined to his passengers; he has won the hearty confidence and thorough sympathy of every colonist who has had the pleasure of intercourse with him since his arrival in Sydney.

The *Crœsus* is lying at anchor in Berry Bay, on the North Shore, about five minutes pull from the ferry at Dawes Point. This beautiful bay, surrounded as it is by the picturesque and bold scenery of the North Shore, presents one of the loveliest scenes which can be visited in any portion of our unrivalled harbour. We were very kindly received by the captain and officers, and were struck with the order and cleanliness of every part of the ship, in every department, from the upper deck down to the hold into which we descended. The store and luggage rooms, in fact every part of this capacious steamer, is preserved in a state of order that is truly surprising. The deck is flush from stem to stern, and furnishes a long promenade. The *Crœsus* is furnished with heavy guns with percussion locks, and also with several stands of rifles, as well as other arms for defence. In case of any attack being made upon her, Capt. Hall would rely mainly upon

the vessel's strong and sharp stem, which in bearing down upon a ship of smaller dimensions, would do great execution. She sails, under canvas alone, easily 12 knots, and 14 with a fresh breeze; she will steam 10½ knots. Capt. Hall mentions, that but for the unfortunate leak, the repairing of which now detains her, her passage out would perhaps have been the shortest to Melbourne of any yet made. As it was she was underway only 66½ days, from which four or five, if not more, may well be taken for the deviation of going into Lisbon and the Cape, not a voluntary detour, but rendered necessary by the cause above referred to. No seafaring man knows better than Capt. Hall that the Cape is not in the road to Australia, but quite a thousand miles out of the shortest track.

The whole tonnage of the *Crœsus* is 2,500, out of which she carries 1,200 tons of cargo. Her length on deck is 310 feet, and breadth of beam 43 feet. There are nine splendid boats, four of which are life-boats. Including the first and second class passengers' cabins, 200 berths are provided, and so well is the ventilation managed, that no smell or closeness is perceived. The chief saloon is 80 feet long by 20 feet wide.

The engine-room is highly creditable to Mr. Smith, the chief engineer. It is beautifully clean, and all the machinery and appurtenances display how much expense has been disregarded by the Company. There are four tubular boilers, and sixteen fire-places. The engines have horizontal cylinders, of direct action; and although each has a nominal horse-power of 450, they are capable of working up to three times as much more. The shaft tunnel is a place of great interest. The shaft is about 105 feet long by 11 inches thick, and is of course the communication from the engine to the screw. The telegraph from the bridge and the upper deck to the engine-room, by which all the signals are made, is perfect. One trigger strikes the gong, thus securing the instant attention of the engineers on duty, and afterwards succeed such orders as are requisite to be conveyed by other triggers, which act upon a dial plate. Thus not a word is spoken; there is neither noise nor confusion.

But whatever else calls for admiration, the repairs going on, and the means of effecting them, are of great interest. During the voyage the ship had made so much water, that it became necessary to ascertain the cause, and to remedy it, if possible, before venturing to return home. Every attention was paid to ascertain the locality of the leak, and at length it was found right aft. The extent of the damage or disarrangement was not apparent, but it was evident that the after part of the vessel must be made dry. Capt. Hall knew there was no dry dock in Sydney, and he became naturally anxious to devise the best means under the circumstances to repair the defects; and in the event of no other facilities being offered, he determined and planned a caisson. However, such an expensive experiment was not to be entered upon without due deliberation; and as the *Adelaide*, after lying in Sydney some months, had gone to Launceston to take advantage of

the greater rise and fall of tide, Capt. Hall sought information both from Capt. Henderson, of the *Adelaide*, and residents at Launceston; also of others in Sydney conversant with the river. From data thus gained, Capt. Hall decided that for several reasons that plan was ineligible, and determined to adopt the original one of a caisson. He had made a rough draft of it; but as it was very essential to enclose the whole of the damage, he availed himself of the services of Messrs. Beddome and Co.'s diver, and having within six hours of casting anchor got his report of apparent damage, he decided on the dimensions, and on the next day applied to two different parties for a contract to make the same; finally giving it in favour of Mr. Dawson, somewhat influenced by his (Mr. D.'s) having previously constructed something of the kind, though on a small scale, for the *Thomas Lowry*. The execution of this was most satisfactorily accomplished. It occupied some three weeks, when the huge machine was launched (not without difficulty,) and floated off, and at length attached to the ship.

We can imagine with what satisfaction they saw these efforts crowned with success, and were enabled to see the damage, with the convenience of repairing it. So justly was the locality of the leak estimated, that the ship has made no water since. The difficulty of fitting it to the ship was great, from the curve and peculiar shape of keel, also of the projection from the run through which the shaft passes. It was found that in consequence of there not being sufficient stiffness given to the keel, the effort of the rudder caused a flexion of the rudder-post, and a twisting motion, the stress of which, thrown on the after ends of the lower plates, loosened many of the rivets, displacing some, and thus causing a considerable leak. But we are enabled to state that means are being taken to remedy all defects, and to render the keel and rudder-post very much stronger than ever, thus preventing the slightest chance of recurrence. Excepting this small spot, the ship is a model of strength and beauty. There is also a means of proving the soundness of the work when complete, before removing the caisson, by filling the after compartment with water under great pressure; this will indicate the smallest leak.

The caisson is constructed of strong hardwood framing, and planked over with three-inch deals, and then well caulked. It is a huge box, sloping from the base towards the top, at the fore part only, being at base 22 feet, top 15 feet, depth 20 feet, breadth 9 feet, displacement of water about 100 tons, and when pumped out, as might be expected, altered the trim of ship, raising the stern 19 inches. When once fitted to the ship, it was necessary, as the water was pumped out, to put in strong cross-beams to prevent collapsing. From the extreme difficulty of making such an apparatus perfectly tight, two 7-inch pumps are fitted and attended to day and night, so as to keep it dry.

Fate of Sir John Franklin.

At length the mystery which has hung over the actual fate of Sir John Franklin and his party is cleared away. What has been surmised has really taken place, and the melancholy fact that they have perished has been revealed to us in terms too sad and dreadful to dwell upon. But we are, as yet, in possession of the mere fact of our unhappy countrymen having met their end from the effects of famine,—the same mystery which has hitherto concealed them and all the proceedings of that unfortunate expedition is hanging over it still. Did they ever penetrate as far as the arctic ice at the head of the Wellington Channel, from whence Sir Edward Belcher has just returned? How long did they stay at Beechey Island? When did they abandon their ships? All this is yet uncertain, and are yet severally points for the speculation of opinion, although they might all be revealed by papers and notes; which might, in all probability, be found at the scene of their last sufferings!

But, in the absence of such information, and for which we must long wait, if ever we do get it, there is some concurrent testimony which must not be slighted. Whether in their ships or in boats, they are supposed, for good reasons, to have passed southward on the western side of North Somerset. But when? In August, 1851, a boat's spar and a plank, were certainly found by Dr. Rae on the S.E. shore of Victoria Land. In 1850, say the following reports of Indians sent us by Dr. Rae, a large party with a boat were seen by them,—some on King William Island and some on the main land and on Montreal Island, at the entrance of Back River,—all in the same locality. Now, as Sir James Ross passed down the west shore of North Somerset and returned northward in June, 1849, the party must have passed beyond his horizon to the westward at the time; or down the same coast as he did before or after he was there. The present report inclines one to the belief that it must have been after, as four seasons ago would bring the event to the spring of 1850.

There is another point of interesting coincidence, also, in the report brought home by Captain Parker, of the *Truelove*. In this report, two ships (it was in 1849) were stated to be west of Prince Regent Inlet that had been there four seasons in the ice, and two east of the same which had been one season in the ice. The rude sketch by the Esquimaux showed two with their top-masts down and two with them up, corresponding to the ships of Franklin and Ross. There were one or two other points in which there was evidently some misconception, such as the communication between them that had been represented, which had not taken place. But the report goes far to show that the ships of Franklin were on one side of North Somerset and those of Ross on the other. Thus both the accounts coincide in stating Franklin's ships or party to be on the western side of North Somerset, one in 1849 and the other in 1850. There is nothing un-

reasonable in this, but the *Truelove's* account was unfortunately accompanied by statements which were proved to be impossible, and which, perhaps, were never made by the Esquimaux, and thus their story, which seems to have been "founded on fact," was set aside.

In 1849 or 1850, Franklin's party passed to the southward, west of North Somerset, either in his ships or in a boat, and it must have been previous to August, 1850, as it was on the 24th of that month that the numerous signs of them, in the shape of tin canisters, pieces of rope and canvas, were found on Beechey Island by Captain Ommanney, who accompanied Captain Austin's expedition. What became of poor Sir John Franklin and his party then between the spring of 1846, when we know he was at Beechey Island, and August, 1850, when we know he had left it, is still a mystery; but a clue to some portion of it is to be found in the above account, and, in all probability, the truth will only be arrived at from the papers which it is not unreasonable to believe will be found, as we have observed, at the scene of this dreadful catastrophe.

The reader will find all the points to which we have alluded accompanying the November and December numbers of our last year's volume.

The following is Dr. Rae's Report to the Secretary of the Admiralty:—

Repulse Bay, July 29th.

Sir,—I have the honour to mention, for the information of my Lords Commissioners of the Admiralty, that during my journey over the ice and snow this spring, with the view of completing the survey of the west shore of Boothia, I met with Esquimaux in Pelly Bay, from one of whom I learned that a party of "white men" (Kabloumens) had perished from want of food some distance to the westward, and not far beyond a large river, containing many falls and rapids. Subsequently, further particulars were received, and a number of articles purchased, which places the fate of a portion, if not of all, of the then survivors of Sir John Franklin's long-lost party beyond a doubt, a fate terrible as the imagination can conceive.

The substance of the information obtained at various times and from various sources was as follows:—

In the spring, four winters past, (spring, 1850,) a party of "white men," amounting to about forty, were seen travelling southward over the ice and dragging a boat with them by some Esquimaux, who were killing seals near the north shore of King William Land, which is a large island. None of the party could speak the Esquimaux language intelligibly, but by signs the natives were made to understand that their ship, or ships, had been crushed by ice, and that they were now going to where they expected to find deer to shoot. From the appearance of the men, all of whom, except one officer, looked thin, they were then supposed to be getting short of provisions, and purchased a small seal from the natives. At a later date the same season, but previous to the breaking up of the ice, the bodies of some thirty persons were discovered on the Continent, and five on an island near it, about a long day's journey to the N.W. of a large stream, which can be no other than Back's Great Fish River, (named by the Esquimaux Doot-ko-hi-calik,) as its description, and that of the low shore in the neighbourhood of Point Ogle and

Montreal Island agree exactly with that of Sir George Back. Some of the bodies had been buried, probably those of the first victims of famine,) some were in a tent or tents, others under the boat, which had been turned over to form a shelter, and several lay scattered about in different directions. Of those found on the island one was supposed to have been an officer, as he had a telescope strapped over his shoulders, and his double-barrelled gun lay underneath him.

From the mutilated state of many of the corpses, and the contents of the kettles, it is evident that our wretched countrymen had been driven to the last resource, cannibalism, as a means of prolonging existence.

There appeared to have been an abundant stock of ammunition, as the powder was emptied in a heap on the ground by the natives out of the kegs or cases containing it; and a quantity of ball and shot was found below high water mark, having probably been left on the ice close to the beach. There must have been a number of watches, compasses, telescopes, guns, (several double-barrelled,) &c., all of which appear to have been broken up, as I saw pieces of those different articles with the Esquimaux, together with some silver spoons and forks. I purchased as many as I could get A list of the most important of these I enclose, with a rough sketch of the crests and initials of the forks and spoons. The articles themselves shall be handed over to the Secretary of the Hudson Bay Company on my arrival in London.

None of the Esquimaux with whom I conversed had seen the "whites," nor had they ever been at the place where the bodies were found, but had their information from those who had been there, and who had seen the party when travelling.

I offer no apology for taking the liberty of addressing you, as I do so from a belief that their lordships would be desirous of being put in possession at as early a date as possible of any tidings, however meagre and unexpectedly obtained, regarding this painfully interesting subject.

I may add, that by means of our guns and nets we obtained an ample supply of provisions last autumn, and my small party passed the winter in snow-houses in comparative comfort, the skins of the deer shot affording abundant warm clothing and bedding. My spring journey was a failure, in consequence of an accumulation of obstacles, several of which my former experience in Arctic travelling had not taught me to expect.

I have, &c.

JOHN RAE, C.F.,
Commanding Hudson Bay Company's Arctic Expedition.

The following are extracts from Dr. Rae's journal:—

On the morning of the 20th we were met by a very intelligent Esquimaux, driving a dog sledge laden with musk-ox beef. This man at once consented to accompany us two days' journey, and in a few minutes had deposited his load on the snow, and was ready to join us. Having explained to him my object, he said that the road by which he had come was the best for us, and, having lightened the men's sledges, we travelled with more facility. We were now joined by another of the natives, who had been absent seal-hunting yesterday, but, being anxious to see us, had visited our snow-house early this morning, and then followed up our track. This man was very communicative, and on putting to him the usual questions as to his having seen "white men" before, or any ships or boats, he replied in the negative; but said that a party of "Kabloonans" had died of starvation a long distance to the west of where we then were, and beyond a large river. He stated that he did not know the exact place, that he never had been there, and that he could not accompany us so far. The substance of the information then and subsequently obtained from various sources was to the following effect:—

In the spring, four winters since, (1850,) while some Esquimaux families were killing seals near the north shore of a large island, named in Arrowsmith's charts King William Land, about forty white men were seen travelling in company southward over the ice, and dragging a boat and sledges with them. They were passing along the west shore of the above-named island. None of the party could speak the Esquimaux language so well as to be understood, but by signs the natives were led to believe that the ship or ships had been crushed by ice, and that they were now going to where they expected to find deer to shoot. From the appearance of the men, all of whom with the exception of an officer were hauling on the drag ropes of the sledge and looked thin, they were then supposed to be getting short of provisions, and they purchased a small seal, or piece of seal, from the natives. The officer was described as being a tall, stout, middle-aged man. When their day's journey terminated they pitched tents to rest in.

At a later date the same season, but previous to the disruption of the ice, the corpses of some thirty persons and some graves were discovered on the continent, and five dead bodies on an island near it, about a long day's journey to the N.W. of the mouth of a large stream, which can be no other than Back's Great Fish River, (named by the Esquimaux Oot-koo-hi-ca-lik,) as its description and that of the low shore in the neighbourhood of Point Ogle and Montreal Island agree exactly with that of Sir George Back. Some of the bodies were in a tent or tents; others were under the boat, which had been turned over to form a shelter, and some lay scattered about in different directions. Of those seen on the island it was supposed that one was that of an officer, (chief,) as he had a telescope strapped over his shoulders, and a double-barelled gun lay underneath him.

From the mutilated state of many of the bodies, and the contents of the kettles, it is evident that our wretched countrymen had been driven to the dread alternative of cannibalism as a means of sustaining life. A few of the unfortunate men must have survived until the arrival of the wild fowl, (say until the end of May,) as shot were heard and fresh bones and feathers of geese were noticed near the scene of the sad event.

There appears to have been an abundant store of ammunition, as the gunpowder was emptied by the natives in a heap on the ground out of the kegs or cases containing it, and a quantity of shot and ball was found below high water mark, having probably been left on the ice close to the beach before the spring commenced. There must have been a number of telescopes, guns, (several of them double-barelled,) watches, compasses, &c., all of which seem to have been broken up, as I saw pieces of these different articles with the natives, and I purchased as many as possible, together with some silver spoons and forks, an Order of Merit in the form of a star, and a small silver plate engraved "Sir John Franklin, K.C.B.

Enclosed is a list of the principal articles bought, with a note of the initials, and a rough pen-and-ink sketch of the crests on the forks and spoons. The articles themselves I shall have the honour of handing over to you on my arrival in London.

None of the Esquimaux with whom I had communication saw the "white" men, either when living or after death; nor had they ever been at the place where the corpses were found, but had their information from those who had been there, and who had seen the party when travelling on the ice.

From what I could learn, there is no reason to suspect that any violence had been offered to the sufferers by the natives.

List of articles purchased from the Esquimaux, said to have been obtained at the place where the bodies of the persons reported to have died of famine were found, viz:

One silver table fork—crest, an animal's head, with wings extended above; 3 silver table folks—crest, a bird with wings extended; 1 silver table spoon—crest, with initials "F. R. M. C." (Captain Crozier, *Terror)*; 1 siver table spoon and 1 fork—crest, bird with laurel branch in mouth, motto, "*Spero meliora*;" 1 silver table spoon, 1 tea spoon, and 1 dessert fork—crest, a fish's head looking upwards, with laurel branches on each side; 1 silver table fork—initials "H. D. S. G." (Harry D. S. Goodsir, assistant-surgeon, *Erebus)*; 1 silver table fork—initials, "A. M'D." (Alexander M'Donald, assistant-surgeon, *Terror)*; 1 silver table fork—initials, "G.A.M." (Gillies A. Macbean, second-master, *Terror)*; 1 silver table fork—initials, "J. T.;" 1 silver dessert spoon—initials, "J. S. P." (John S. Peddie, surgeon, *Erebus)*; 1 round silver plate, engraved, "Sir John Franklin, K.C.B.;" a star or order, with motto, "*Nec aspera terrent*, G. R. III., MDCCCXV."

Also a number of other articles with no marks by which they could be recognised, but which will be handed over with those above-named to the Secretary of the Hudson Bay Company.

Repulse Bay, July, 1854. JOHN RAE, C.F.

RETURN OF THE ARCTIC EXPEDITION.

The *Cork Examiner* gives the following interesting account of the arrival of one of the ships composing the Arctic squadron at Queenstown:—

The *Phœnix*, screw, one of the last expedition fitted out by the British government for the North Sea, has dropped anchor in our waters, having on board Captain M'Clure, the hero of Arctic navigation, and several of the crew of his vessel. It will be remembered that in the May of 1850 an expedition was sent for the double purpose of ascertaining the fate of Sir John Franklin, and of continuing the exploration of the long-sought north west passage. This expedition consisted of two vessels, the *Investigator*, commanded by Captain M'Clure, and the *Enterprise*, under the command of Captain Collinson, the first of which succeeded in proving the existence of a sea passage along the northern coast of America. Up to the year 1852 no account had arrived of the fate of those vessels, and accordingly an expedition was fitted out under the command of Sir Edward Belcher, consisting of his own ship, the *Assistance*, the *Resolute*, Captain Kellett, the *Intrepid*, Captain M'Clintock, and the *Pioneer*, Captain Osborne, to go to their assistance. Thus there were then altogether six ships engaged in prosecuting the investigation, in which alone Captain M'Clure has been successful. In the May of this year the *Phœnix*, screw, and the *North Star* and *Talbot*, store-ships, were sent out to the relief of those vessels, and on their arrival they found the whole of the two former expeditions, with one exception, the *Enterprise*, completely blocked up in the ice in the district embracing Lancaster Sound, Bechey Island and Wellington Straits. In Melville Bay the ice was found to be worse than it had been for seven years before, and everything gave promise of a winter unprecedentedly rigorous, while there was no prospect whatever of getting the ships free this summer. Under these circumstances, Sir Edward Belcher, on his own responsibility, ordered the abandonment of the entire five vessels, which were accordingly left to their fate, and the crews distributed among the store-ships. It was at Beechey Island the latter landed, and the crews of the abandoned vessels had to proceed a distance of 200 miles overland to reach them. The *Phœnix* has brought home the greater part of the crew of the *Resolute*, a few of that of the *Assistance*, and one officer and one man, besides Capt. M'Clure, of the *Investigator*. The vessels sailed together until they met with adverse

winds off the Orkney Islands, when they parted company, the *Phœnix* steaming for Queenstown, where she could coal, and the others obliged to beat up as well as they could for London. The *Phœnix* has, unfortunately, brought no decided intelligence of the only ship of the late expedition now missing, the *Enterprise:* but Captain M'Clure stated that he feels confident of her safety. It is conjectured that the ship had got into one of the numerous creeks or bays on the western coast of the North American continent; that she had been abandoned by the crew, and that the latter were making their way over the land. These conjectures have been formed from a number of concurring circumstances, but the principal one was from the nature of a number of interesting despatches from Captain Collinson, found at different points, bearing date about the year 1852, the second year of his being in the ice. Among other circumstances, it appeared from those that he had followed for a great distance nearly the same course that Captain M'Clure had pursued, and that at one period they were so close to each other as twelve days' sail, or a space of less than 100 miles. During the whole of her perilous voyage of nearly four years, the *Investigator* has lost but one officer and five men out of a crew of sixty-five.

The Courts Martial on Sir E. Belcher and his Officers of the Arctic Expedition were held on board the *Waterloo* flag-ship, off Sheerness. The charge gone into was against Captain M'Clure and his officers and men of the *Investigator,* for deserting her. The report of the surgeon was read, stating that all the officers and crew were suffering more or less from debility at the time of the abandonment; then Captain M'Clure was examined. He said that according to orders he made the best of his way to Melville Island, where he arrived on the 23rd of September, 1851. The ship soon after got frozen up, and having remained till June, 1853, two years and a half, and seeing no sign of her being melted out, he ordered her abandonment, the crew being in the state of health stated by the surgeon. The court acquitted the gallant voyagers, giving them the highest commendation. Captain Kellett and his men were then tried for abandoning the *Resolute* and her tender, but it appearing that he did so, somewhat reluctantly, under the peremptory and repeated orders of Sir E. Belcher, his superior officer, they were also fully acquitted. The court then proceeded with the trial of Captain Richards for abandoning the *Assistance,* and her tender the *Intrepid.* Sir E. Belcher was called as a witness, and stated that he had assumed the command of the *Assistance,* and that she and her tender, the *Intrepid,* had been abandoned by his orders. Captain Richards was therefore also acquitted. The court then sat upon Captain Sir E. Belcher for deserting the *Investigator* and *Assistance,* and the finding of the court was to the following effect:—"The Court is of opinion that the abandonment of Her Majesty's ship *Investigator* was directed by Captain Kellett, who was justified in giving such orders. The Court is of opinion, from the great confidence reposed in Captain Sir E. Belcher by the Lords Commissioners of the Admiralty, and the ample discretionary powers given to him, that he was authorized, and did not act beyond his orders, in abandoning Her Majesty's ship *Assistance* and her tender, the *Pioneer,* or in directing the abandonment of Her Majesty's ship *Resolute* and her tender, the *Intrepid,* although, if circumstances had permitted, it would have been advisable that he should have consulted with Captain Kellett previously; and the Court doth adjudge the said Captain Sir E. Belcher to be acquitted, and he is hereby acquitted accordingly." The President then returned Sir E. Belcher his sword without observation.

The Japan Squadron.

We are under obligations to a friend for the following letter from an intelligent officer in Commodore Perry's squadron. It contains much the fullest and most graphic account of the operations of the squadron, and of the proceedings relative to the negociation of the treaty, on the second visit of the United States ships to the Japanese waters that we have seen. It will be observed that the writer, whom we all know to be perfectly reliable, and who had not the slightest conception of writing for publication, says that the Commodore yielded to the entreaties of the Japanese Commissioners and Interpreters, and did not approach even within sight of Jedo.

U.S.S. *Vandalia*, Bay of Jedo, Japan, April, 1854.

We sailed from Lew Chew on the 31st January, in company with the *Macedonian*, *Southampton*, and *Lexington*, and, without anything particular occurring on the passage, arrived at the entrance of Jedo Bay on the 12th of February, where the Commodore, with the three steamers joined us, having sailed several days after. Each steamer then took one of the sailing vessels in tow, and in that manner we entered the Bay, one of the most beautiful in the world, and where no foreigner had ever visited before. Our ships, with their sails furled, moving up at the rate of eight miles an hour against a head wind, was an astonishing sight to the natives, who in great numbers were looking at us from the shore. Previously to the Commodore's visit last year, they had never seen a steamer.

The Japanese had expected that we would have stopped where the Commodore did before, viz: at Uraga, a little town situated in the entrance to the Bay, where they had made preparations to receive us; but he resolved to get as near to the capital as possible; so we ran up and anchored in the middle of the Bay, within eight miles of the city, notwithstanding the entreaties of the Interpreters to the contrary. About two weeks were spent here in fixing upon a place to negociate, the Japanese importuning us to go back to Uraga, while the Commodore insisted upon going to Jedo. They objected so strongly, however, that he at last determined to conciliate them, and a compromise was effected, by which the town of Yokohanna was appointed as the place of meeting between the Imperial Commissioners and himself. This place contains about 10,000 people, and is situated on the shore just opposite the then anchorage of the ships. So we sailed in, and moored in line with our broadsides bearing upon the town.

On the 8th of March, the day appointed for the first meeting, quite a display was made. About 900 officers, seamen, and marines armed to the teeth, landed and, with drums beating and colours flying, were drawn up on the beach, ready to receive the Commodore. As soon as he stepped on shore, the bands struck up, salutes were fired, the marines presented arms, and, followed by a long escort of officers, he marched up between the lines, and entered the house erected by the Japanese expressly for the occasion. Thousands of Japanese soldiers crowded the shore and the neighbouring elevations, looking on with a good deal of curiosity and interest. The house was nothing but a plain frame building, hastily put up, containing one large room—the audience hall, and several smaller for the convenience of attendants, &c. The floor was covered with mats, and very pretty painted screens adorned the sides. The long tables and benches, covered with a red woollen stuff, placed parallel to each other, three handsome braziers filled with burning charcoal on the floor between them, and a few violet coloured crape hangings suspended from the ceiling, completed the furniture of the room. As we entered, we took our seats at one of the tables. The three Japanese Commissioners, all princes of the empire, soon came in, and placed themselves opposite to us, at the other

table; while behind us both, seated on the floor on their knees (their usual position, for they do not use chairs), was a crowd of Japanese officers, Mandarins, &c., forming the train of the Commissioners. After the usual forms and ceremonies the "pow wow" commenced. The business was carried on in the Dutch language, through Interpreters, of whom they have several who speak very well, and two or three who speak a little English. They were on their knees between the Commissioners and the Commodore. Our interpreter was seated by the side of the latter. It was curious to see the intolerable ceremony observed by them, quite humiliating to a democratic republican. A question proposed had to pass first through the Interpreters, and then through several Mandarins ascending in rank, before it could reach the Commissioners, every one bowing his forehead to the floor before he addressed his superior. Refreshments were served immediately in elegantly lacquered dishes. First of all tea, which, as in China, is the constant beverage; then different kinds of candy and sponge cake (they are excellent confectioners, and very fond of sugar); lastly, oranges, and a palatable liquor distilled from rice, called sacki.

The Commissioners were intelligent looking men, richly dressed in gay silk petticoat pantaloons, and upper garments resembling in shape ladies' short gowns. Dark coloured stockings, and two elegant swords pushed through a twisted silk girdle, finished the costume. All the Mandarins and high officials are dressed in this manner. Merchants, labourers, &c., are not permitted to carry swords, and instead of petticoat trousers wear tights made of coarse cotton stuff. Straw sandals are worn, but are always slipped off upon entering a house. They do not cover the head, the top and front part of which is shaved, and the back and side hair being brought up, is tied so as to form a tail three or four inches long, that extends forward upon the bald pate, terminating about half way between the apex and the forehead. It is a very comfortable fashion, and were it not for the quantity of grease used in dressing it would be a very cleanly one. Two audiences a week were held, at which the same programme was performed as related above, except that we fared more luxuriously. Becoming better acquainted with our taste, they feasted us with a broth made of fish, boiled shrimps, hard boiled eggs, and very good raw oysters.

At one of the interviews, the presents from our Government were delivered. They consisted of cloths, agricultural implements, fire arms, &c., and a beautiful locomotive, tender, and passenger car, one-fourth the ordinary size, which we put in motion on a circular track at the rate of twenty miles an hour. A mile of magnetic telegraph was also erected on shore, and put in operation. The Japanese were more interested in it than in anything else, but never manifested any wonder. So capable are they of concealing and controlling their feelings, that they would examine the guns, machinery, &c., of the steamers, without expressing the slightest astonishment. They are a much finer looking race than the Chinese, intelligent, polite, and hospitable, but proud, licentious, unforgiving, and revengeful.

Just before the treaty was concluded, the Commodore gave an entertainment to the Japanese officials on the quarter-deck of the *Powhatan*. They did full justice to the American cookery, and were exceedingly fond of champagne, under the influence of which they became so very merry and familiar, that one of them vigorously embraced the Commodore, who, until his epaulettes began to suffer in the struggle, was very good naturedly disposed to endure it.

Previously to leaving Yokohama, the Commodore expressed a wish to run up before the city of Yedo, merely, as he said, to salute the Emperor, but in reality to get a view of that celebrated place. The Commissioners informed him they had no authority to permit it. But he was determined upon going,

so the next day he moved up towards the city. The Interpreters, who were on board the Commodore's ship, told him that, just as sure as he came in sight of Yedo, they would perform the "Hari Kari" on themselves, that is to rip open their bowels, (an action they think highly commendable,) and the Commissioners would do the same also. He endeavoured to reason with them on the folly of such an intention, but they coolly replied that they were not there to discuss the propriety of their customs, but to conform to, and execute them. They had already stripped themselves to their under garment, when the Commodore, seeing their resolution inflexible, turned his ships about, and anchored a considerable distance down the Bay. It would have been in the highest degree censurable to have gratified our curiosity at the expense of so much life; so we were obliged to content ourselves without having had even a glimpse of one of the largest and most remarkable cities in the world.

There are no chimnies in Japan. A charcoal fire is built in a little sand pit in the middle of the floor, around which the family are usually found, seated on their knees, drinking their tea and smoking their pipes. Not a chair, or any other piece of furniture, can be seen. Tubs of water are kept in front of each house, as well as on the roofs, in readiness against any fire, for conflagrations are so frequent and extensive that whole towns are sometimes burnt down.

The temples, chiefly Buddhist, are beautifully situated in the suburbs. The entrance to them leads generally through rows of elegant trees and wild camelias. They are large plain structures with high peaked roofs, resembling the houses pictured on Chinese porcelain. In the space immediately in front is a large bell for summoning the faithful, a stone reservoir of holy water, and several roughly-hewn stone idols. The doorway is ornamented with curious looking dragons, and other animals carved in wood. Upon entering, there is nothing special about the buildings worth noticing, the naked sides and exposed rafters having a gloomy appearance. The altar is the only object that attracts attention. It so much resembles the Roman Catholic that I need not describe it. Some of the idols on these altars are so similar to those I have seen in the churches in Italy, that if they were mutually translated I doubt whether either set of worshippers would discover the change. The priests count beads, shave their heads and wear analogous robes, and the service is attended by the ringing of bells, the lighting of candles and the burning of incense. In fact, except that the cross is nowhere to be seen, one could easily imagine himself within a Roman Catholic place of worship.

During the seventeenth century Christianity was introduced by the Jesuits, and for a time made rapid progress, but the Missionaries, inflated by success, became haughty and presumptuous, and beginning to interfere in politics and government brought about a violent persecution. So deadly a hatred was conceived against the Portuguese, that in the space of forty years they and their religion were completely extirpated. Even to this day, in certain parts of the empire, the custom of trampling on the cross is annually celebrated. To such a pitch were the Japanese exasperated that none of the Romish ceremonial was permitted to survive. Now the resemblance in the outward forms of the two religions, as I have mentioned above, is strikingly remarkable, and is an interesting fact in reference to the priority of the ceremonies of the church of Rome, as it is still undetermined whether they originated with herself or were borrowed from Pagans. Great liberty of conscience exists. Every Japanese has a right to profess whatever faith he pleases, provided only it be not Christianity.

I saw some very pretty girls here. They understand the art of applying rouge and pearl powder as well as some of our ladies at home. The married women have a horrid and disgusting fashion of staining their teeth black.

On the 6th May, in company with the squadron, we sailed from Semodo, and in five days arrived at Hockodate, the second port that the Japanese had opened to us. It is situated on the Island of Jesso, is much larger than Semodo, and possesses a safe and commodious harbour. Our whalers will find it a convenient place of resort. Having completed the survey of the harbour, we sailed for Shanghai on the 31st May. The Commodore, after touching at Semodo and Lew Chew, will return to Hong Kong, from whence he expects to sail for home in the autumn. He then intends publishing a complete history of the expedition. He has drawings of all the important events, so that there will be no want of illustration to render his book interesting.

New York Journal of Commerce.

BALAKLAVA.

The following description of this place we abridge from Dr. Clarke's travels:—

So much has been said by travellers of the famous Valley of Baidar that the Vale of Balaklava, which is hardly surpassed by any prospect in the Crimea, has hitherto escaped notice. Yet the wild gigantic landscape, which towards its southern extremity surrounds the town, its mountains, its ruins, and its harbour—the houses covered by vines and flowers, and overshadowed by the thick foliage of mulberry and walnut trees, make it altogether enchanting. The port of Balaklava is certainly one of the most remarkable in the Crimea. From the town it appears like one of the smallest of our northern lakes, landlocked by high precipitous mountains. Though its entrance is so narrow that ships can hardly find a passage, yet it affords excellent anchorage and security in all weather from the dreadful storms of the Black Sea. Ships of war, of any burden, may find sufficient depth of water and a safe asylum there. The heights around it are the first objects descried by vessels in sailing from Constantinople. But if any ill fated mariner, driven by tempests, sought a shelter in the port of Balaklava during the reign of Paul, he was speedily driven out again, or sunk, by an enemy as inhospitable as the wind or the waves. The inhabitants had small pieces of artillery stationed on the heights, with the most positive order, from the insane tyrant, to fire at any vessel who should presume to take refuge there. The town is at present (1809) colonised by Greeks from the Morea, a set of daring pirates, to whom the place was assigned by the late Empress for the services they rendered in her last war with the Turks. We found the inhabitants of Misitra, Corinth, of the isles of Cephalonia, Zante, &c., living without any intermixture of Tartars or Russians, according to the manners and customs of their own country. We were treated by them, as I had reason to think we should be, with every degree of politeness and hospitality. The paroxysms of the fever I had caught in the bad air of Inkerman, perhaps increased by constant fatigue of mind and body, might have induced many a worthy landlord to have denied me admission to his house through fear of communicating the plague to his family; but the brave Spartan Feodosia, with whom we lodged at Balaklava, not only received me, but attended me with all the solicitude of a Samaritan. We arrived by moonlight; his house was beautifully situated upon a rock near the harbour. The variety of different nations which are found in the Crimea, each living as if in a country of his own, practising its peculiar customs, and preserving its religious rites, is one of the circumstances which renders the peninsula interesting to a stranger. At Baktcheserai, Tartars and

Turks; upon the rocks above them, a colony of Karaite Jews; at Balaklava, a horde of Greeks; an army of Russians at Akmerchet; in other towns, Anatolians and Armenians; in the steppes, Nagays, Gipsies, and Calmucks; so that in a very small district of territory, as in a menagerie, very opposite specimens of living curiosities are singularly contrasted. * * * On the heights above the mouth of the port are the ruins of a magnificent fortress, built by the Genoese when they possessed this harbour. The arms of Genoa are upon the walls. The mountain on the north-east side is covered by its mouldering towers, and the rock itself has been excavated so as to exhibit stately magazines and chambers, the sides of which were lined with coloured stucco. It is surprising the inhabitants of Balaklava do not use these caves; for they are very habitable, and the stucco is still in the highest preservation. We entered one, which was a spacious oblong chamber lined throughout with stucco, and somewhat resembling the famous Piscina miriabile, near the supposed village of Lucullus, at Baia, in Italy. We could form no conjecture for what purpose this place was intended, except as a granary or storeroom; it bore no marks of any aqueous deposit upon its sides, and was at the same time dry and in perfect preservation, therefore it could not have served as a reservoir for water. The mountains, which surround the port, are of red and white marble, full of cracks and fissures; but calculated for ample quarries, if worked beyond the surface. The shore is in some parts covered by a fine glittering sand, the particles of which consist wholly of gold-coloured mica in a state of extreme division, making the most beautiful writing sand that can be used, and, as it may be obtained in any quantity, would answer very well as an article of commerce. There has been nothing of the kind yet sold by stationers which can be compared with the sand of Balaklava; for when scattered over fresh writing, it produces an effect as if the ink had been covered with minute scales of polished gold, which it will retain for any number of years. * * * The streets in Balaklava, I have no reason to believe, are exactly the same now as they were in very ancient times. They resemble what Pompeii would be if it was again inhabited according to its ancient form. The principal street of Balaklava is as narrow as that which has been exposed at Pompeii, and paved in the same manner; only the materials are variegated with red and white marble instead of lava, and their appearance proves that the marble of Balaklava is susceptible of a very high polish. The shops are also like those at Pompeii, and the inhabitants of them Greeks. Their uniform adherence to the ancient costume of their country, though a little theatrical, supported the illusion. They wore fielmets; but these being made of green and red morocco, and not a little greasy with use, might be said to serve rather for a caricature than a portrait of their progenitors. Their market of fruit is a very good one, particularly for melons. I went into one of their melon shops, which contained about 2,000 water melons, piled in a regular square mass, selling for ten copecks the dozen, less than a halfpenny each. The water melon of the Crimea does not attain half the size in which it is seen at Naples, but the flavour is nearly as fine. At Cherson, which is more to the north, it grows as large as in Italy. Vines cover the porticoes of all the doors in Balaklava; and so rapid is the growth of that plant that in two years (if they told us truth) a vine yielded two bushels of grapes. The rest of their shops were appropriated to the sales of the few necessaries which the inhabitants require, who seemed to lead a very idle life, smoking, taking coffee, chewing tobacco or opium, lounging about the streets, or playing at chess or at draughts in the coffee-houses, or before the doors of their houses.

A private letter says :—" Balaklava is a most singular place. The harbour contains, when closely packed, about twenty vessels, with deep water all over it. The *Agamemnon* and *Sanspareil* are moored head and stern in the centre. No place could have been found better adapted to the operations now carrying on, as it is distant only eight miles from Sebastopol. The only fortifications about are the decayed remains of some Venetian castle of an early date, but without guns. At the distance of a quarter of a mile the entrance to the harbour is invisible. It is Dartmouth in miniature. The hills around it rise in majestic loftiness, with bold, rugged granite and limestone cliffs. It seems just the nook in which Byron would have delighted. It is so admirably fitted for a pirate's fastness that, had the poet of the " Corsair" ever visited the spot, Balaklava would have been immortalized in song."

EDWARDS' PATENT PRESERVED POTATO.—This estimable vegetable diet having been tested and approved for so many years in the Royal Navy, and as a general sea store, it is with satisfaction we find it forms a ration for our brave soldiers at the seat of war, and is highly appreciated by them.

THE HURRICANE THEORY.

Mr. Editor,—Those who undertake to write instructions for the guidance of seamen in hurricanes, should be careful that they are right in the laws that they lay down. In a pamphlet called the " Law of Storms," by Mr. Jas. Sedgwick, formerly of the Hon. E.I.C. service, as the titlepage has it, in reference to the hurricanes of the Southern Hemisphere, which he begins with, he says,— " If the first shift of wind now occur to the Eastward, it follows that we are in the left-hand semicircle," &c. Being no great hurricanist, and barely understanding sufficient to doubt the truth of this assertion, you will oblige a constant reader of your valuable Magazine if you will inform me whether I am right or not in questioning the accuracy of this assertion.

Q.

Our correspondent asks a very important question, for, as he says, seamen must not be misled in these matters, and much responsibility rests with those who do so. As he is sufficient of a hurricanist to have his doubts, we may inform him that he is right in doubting the assertion as a general rule, which its unqualified condition assumes it to be. In the same semicircle the changes of wind will, both Eastward and Westward, be depending on the bearing of the focus, and the course the hurricane is following. Thus, take the Mauritius hurricanes, travelling as they do first to W.S.W. and S.W. In this case the rule holds good, that is, in the left hand semicircle the changes of wind take place to the *Eastward*. But take the same storm after it has curved round to the S.E., and travelling in that direction, the changes of wind will then take place to the *Westward*, but the changes will in both cases be in the same direction, because on the same side of the storm circle with reference to the cardinal points the same wind happily is always found, affording the seaman the great advantage of knowing the bearing of the focus. If our correspondent will refer to our " *Storm Compass*," he will there see this point exemplified ; or if he will make one for himself as therein pointed out, he will immediately see the mistake seamen might be led into by implicitly believing this assertion, and not thinking for themselves as the *Storm Compass* tells them how to do.—ED. *N. M.*

NAUTICAL NOTICES.

BARROW TOWER.—*Coast of Lancashire.*

June 27th, 1854.

SIR,—Having received the enclosed reply from Mr. Macfarlane, commanding H.M.S. *Prospero*, respecting the Tower erected at Ulverstone to the memory of my father, I shall feel obliged by your inserting it in the *Nautical Magazine*, for the information of others who may have to navigate their vessels into Morecombe Bay.

I am, Sir, your obedient servant,
JOHN BARROW.

To the Editor of the Nautical Magazine.

H.M.S. *Prospero*, Pembroke Dock, June 24th.

SIR,—In reply to your letter of the 20th inst., received yesterday on my return to this place, I beg to state that Sir John Barrow's monument appears to me to be very valuable in enabling a stranger to recognise the land about Morecombe Bay, before the low land is visible. I went there the other day for the first time, and distinguished the Tower at a distance of I should think ten miles, and before I could see either Walney Lighthouse or Pict Castle, and I should think it cannot fail to be of great use to all vessels navigating Morecombe Bay, especially to strangers unacquainted with the shape of the mountains at the back.

I am, Sir, your's truly,
John Barrow, Esq. GEO. A. MACFARLANE.

ACCIDENT TO A BOAT'S CREW OF "VIXEN."—A deplorable accident is reported to have occurred to a portion of the crew of H.M.S. *Vixen*, stationed at Buenos Ayres, by which ten poor fellows are supposed to be drowned. They had been ashore, and whilst returning to their ship, towed by the *Menai*, in making a sharp turn to cross the bank, the back-water from the steamer burst into the boat, which filled her, and forty poor fellows were immediately upset into the river. All were extricated with the exception of the number missing. Had it not been near the shipping, where assistance was available, the whole number must have been drowned.—*U. S. Gaz.*, 14th Oct.—[What was the officer in charge about?]

THE BAY OF MANILA.—We understand that Capt. Caldbeck, on his voyage from England to China, in the command of the P. and O. Company's steamer *Tartar*, a few months ago, took advantage of the opportunity for making some useful hydrographical observations in the Bay of Manila and the Banca Strait; but the most interesting information collected by him on the occasion related to the discovery of an immense magnetic mass in Banca. Capt. Caldbeck had put into Mintow to coal, and here the particulars were communicated to him by the Dutch Resident Herr Schaap. This gentleman gave him to understand that the discovery was made in the course of geological researches which had been recently undertaken in the island. It was the opinion of the Dutch residents of the place that this magnetic mountain, from its influence on the compass, may possibly have been the real though unknown cause of the shipwrecks in Gasper Straits. Herr Schaap furnished Capt. Caldbeck with a specimen of the magnetic matter, which on repeated experiments curiously exemplified its

power over the compass. One of these experiments appears to have been made at the Government House in Singapore, and excited much interest, especially among several persons belonging to the American Scientific Expedition in the Indian Seas who happened to be present.—*Hurkaru*, July 25th.

A YANKEE CLIPPER WITH A VENGEANCE!—The six new steam frigates for the U.S. Navy ordered last winter by Congress, were being actively proceeded with under the supervision of Mr. George Steers, at the Brooklyn Navy Yard by the last advices. One of these vessels, the *Niagara*, is to have a speed of seventeen miles an hour under sail alone (?) She is to be a propellor, and to carry guns of eleven inch bore. the largest calibre used in our navy. The extreme length of the *Niagara* will be 345 feet; depth of hold 31 feet; breadth of beam, 55 feet; draught when loaded, 22 feet 9 inches. The five remaining frigates are all to be much smaller than the *Niagara*, having a displacement of about 3,500 tons. They were all commenced about two months since.

THE FALKLAND ISLANDS.—The captain of the *Great Britain* makes a very favourable report of Stanley Harbour as a place of call for steamers. He says:—"The government charts are exceedingly correct; the land, as you approach it, is made out without any difficulty, and we saw Pembroke Point and its beacon (now to be superseded by a lighthouse) at the distance of about seven miles. The harbour itself is like a large dock, secure from all winds, and with an entrance sufficiently wide for a good smart sailing vessel to beat through with ease. All the dangerous points are distinctly marked by the seaweed. The anchorage is excellent, varying from four to five fathoms at low water. The facility for watering ships is good; a reservoir, holding about 200 tons of water, communicates by means of pipes with the end of a jetty, where, even when the tide is out, there is alwas about three feet depth of water, which is sufficient for a flat-bottomed boat to float off 10 tons at a time. The governor promised that, should Stanley become a port of call for steamers, a floating tank should be built, so that water could be alongside the ship immediately on her arrival, and pumped into the tanks or casks as the case may be. There are considerable herds of cattle on the islands, and, when put up to feed their beef is very good; vegetables of the more ordinary kind, such as potatoes, cabbages, and turnips, can be had when in season; ship chandlery and grocery stores can also be purchased to a limited extent. Labour is scarce, as the population of Stanley (the only settlement) is only about 400; but every year, as the islands become better known, this want will, no doubt, be less felt. I should add that the hulk for coaling the *Great Britain* was placed in the most convenient situation."

NEW BOOKS.

THE MATE AND HIS DUTIES: *containing Remarks on Discipline, &c.* Rockliff and Son, Liverpool; Taylor, Minories, &c.

It would be well if the class of persons to whom these few pages are addressed, would look into them, and read therein the causes of their own discomforts, and learn from them their remedy. On all subjects concerning the very important duties of a Mate in reference to the Master and his crew, his responsible position, and the evil and good which results from that position being discreetly filled or not, he will find ample information to profit by himself,

and to impart to his commander. What is it that makes our merchant ships in too many cases the very emporium of misery, we might almost say, reckless insubordination, mutiny and all its evils? when they might be, supported as they are by law, the abodes of happiness. Our author attributes it all to ignorance of those in command, who, destitute of the resources of knowledge, and ignorant of the mode of obtaining authority over their crew and a respect for their position, fly to the only resource they have in physical force, and thus at once stir up the brutal feelings of those whom they might control if they knew but how to control themselves. In our opinion the author is right. Ignorance, generally the twin sister of idleness, is the bane of power, and in the man of a mind prone to tyranny produces the foregoing results; while the man of information in command has learnt from example how to command, to bear and forbear, has a happy ship, sets a good example to his crew, and is beloved and respected by them. Would that this were general in the British Merchant Service; and it is the production of such valuable essays as this addressed to the Mate by an old Seaman that will go very far to make it so.

NEW CHARTS.

Published by the Hydrographic Office, Admiralty, and Sold by J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill.

NORTH SEA, Sheet 3, from Flamborough Head to Moray Firth, and the Texel to the Naze of Norway, Captains Hewett, Slater, and Washington, R.N.	3	0
NOVA SCOTIA, Halifax Harbour, Captain Bayfield, R.N., 1853	2	6
MALTA ISLAND, Valetta to Marsa Scirocco, with Views, Captains Graves and Spratt, R.N., 1854	1	6
BLACK SEA, Varna, corrected to August, 1854, Captain Spratt, R.N.	0	6
,, Kustenjeh, ditto, 1854	0	6
,, Danube River, Soulina Branch, ditto, 1854	1	0
,, Plan of the Heights of the Alma River, by Lieutenants Mansel, and Wilkinson, and Mr. Brooker, Second-Master, R.N., September 23rd, 1854	1	0
,, Ackmechet Harbour, Russian Survey, 1836	0	6
,, Balaklava Port, ditto, 1836	0	6
,, Bender Erekli, Captain T. Spratt, R.N., 1854	0	6
SOUTH AMERICA, West Coasts, Sheets 19 and 20, Captain Kellett, R.N., C.B., 1847–48 each	1	6
,, ,, Central America, Sheets 1, 2, and 3, Captains Kellett and Wood, R.N., 1849 each	1	6
,, ,, Panama Bay, Captains Kellett and Wood, R.N., 1847	2	0
,, ,, Buenaventura Port, Captains Kellett and Wood, R.N., 1846	2	6

EDWARD DUNSTERVILLE, Master, R.N.

Hydrographic Office, Admiralty, October 21st, 1854.

TO CORRESPONDENTS.

We hope to resume our "RECOLLECTIONS OF NATAL" in our next.
"A SUGAR PASSENGER SHIP," and the "VOYAGE TO AUSTRALIA" also.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

DECEMBER, 1854.

A Stray Leaf about Passenger Ships from Madras.

"Now, my lads, if you take us over that surf without a ducking, you'll have a couple of rupees for your trouble; and if you wet us, why you'll have the weight of this walking-stick over your shoulders with interest; so please yourselves." Such was the short and pithy address of the skipper with whom we crossed the celebrated Madras surf on the morning of embarkation on board the good ship *Royal Blunderbore*, in which vessel we were destined to return to England after an absence of several long years.

Capt. Alltork's notification seemed to be perfectly understood, and the more advantageous part of it was duly appreciated by the boatmen, whose skilful efforts entitled them to the reward held out. We crossed the surf without receiving a spray; our light and buoyant boat was soon rising to the long and regular swell of the Madras Roads; the boatmen lightened their labours with a wild song; Capt. Alltork drew forth from his capacious pocket a large and loosely-bound account-book containing letters and papers, in which were doubtless recorded various commercial events and transactions worthy of the attention and enterprise of him who now appeared absorbed in their contents; the sun had just risen; a light breeze was blowing off the land; and our boat had well increased her distance from the strand, when we were aroused from a reverie made up of scenes we had left and others we hoped to realize, by the skipper exclaiming all at once,—"There she is, sir; there she is; the fine, fast-sailing, frigate-built ship *Royal Blunderbore*, 800 tons, Messrs. Shugerum & Co., the largest owners in London."

Our attention was thus directed to a ship lying at single anchor about a cable's length ahead of the boat. It was not difficult to perceive the effects of the numerous attempts that had been made in order that she might not fall short of that imposing and attractive advertisement resorted to by Messrs. Shugerum & Co., and which had now been so happily and faithfully quoted for our edification by Capt. Alltork. The *Royal Blunderbore* was a vessel of some eight hundred tons burthen, built expressly for the emigration trade. She possessed various contrivances for the stowage of her human cargo; each individual was made to occupy the smallest possible space, paying the smallest possible sum for the same, a combination of diminutives that resulted in much discomfort and inconvenience to the emigrants, who had soon learnt by painful experience on board the *Royal Blunderbore* how small a space is considered sufficient for the accommodation of man in the estimation of shipowners and other enterprising individuals connected with the emigration trade.

It would be difficult to enumerate the various appliances in use on board this "frigate-built ship" by which the most was made of the few hands on board composing the crew. Single and double blocks, tackles great and small were liberally supplied in all parts of her rigging aloft, while patent winches in the waist enabled the few hands composing the watch to bouse down the fore and main tacks, or perform other heavy work, which could not have been done without their aid. She had heavy spars for a ship of her size; and the poop being continued considerably before the after swifter, in spite of all the paint expended to disguise the fact, contributed not a little towards giving her a general appearance of clumsiness, which by no means accorded with the flattering description we had just received from her captain, who was now gazing with a seaman's pride on the vessel he commanded, doubtless considering her a perfect model of naval architecture and nautical skill combined.

A few more strokes of the paddles brought us alongside the ship, which was so deeply laden that it was but a step from the gunwhale of the Masoolah boat to the deck. The use of man-ropes therefore was almost superfluous, notwithstanding which, a tall and anxious-looking youth, anxious perhaps for the dignity of his captain, succeeded, after much trouble, in reeving one man-rope the wrong way. Perceiving this, Capt. Alltork seized the aforesaid man-rope, and made a sudden spring in the direction of the attenuated individual with the intention of inflicting summary punishment for what he designated a "confounded lubberly trick." Past experience however taught the erring youth the expediency of absence on such occasions, and having retreated speedily for safety to a remote and secret place among the cotton bales below, he thus foiled the weighty indignation of his commander.

"Here you are, sir?" said Capt. Alltork, turning to me, somewhat out of breath after his exertion. "You see, I must keep them young devils in order, because if I didn't why I shouldn't be doing my duty to the owners nor their parents and guardians that pay the premiums.

Allow me, sir; allow me to introduce you to my chief officer, Mr. M'Botherum," who stood before us; a tall bony Scotchman, who gave a deliberate stare on this announcement being made by his commander. Having apparently satisfied his curiosity, he turned to him, and made some observations, which ended with our being invited by the skipper to look at the cabin which had been prepared for our use. It was one of the poop cabins, of tolerable dimensions, deriving light and air from a small scuttle in the ship's side; the proximity of the mizen rigging however somewhat interfered with these good intentions, and rendered the cabin so dark, that it was some time before the eye became accustomed to its subdued light. A survey of our future abode, however, was very satisfactory, so we determined to make things comfortable; and having duly attended to cleats and lashings, sallied on deck.

Here every thing was in preparation for sea. The chain was hove short, the sails hung loose from the yards, Capt. Alltork desired Mr. M'Botherum to turn the hands up, and lose no time in getting the ship under way. The word was immediately passed for the "boatswain," who having presented himself received his orders, and after the preliminary pipe, called "all hands," which was duly repeated. Keeping an eye on the fore scuttle, expecting to see a crowd of blue-jackets rushing forth from the forecastle in answer to the boatswain's call, our disappointment was great on beholding three men and a boy quietly ascend one after the other at a pace that would not have disturbed the digestion of the Lord Mayor and aldermen after a state banquet.

"Come, tumble up, there; tumble up;" cried the boatswain, with a view of expediting their movements; they tumbled up in their own way, however, and did not appear at all disposed to tumble up in any other. All hands were now on deck, and though no smartness was visible in their movements, they did their work with a kind of dogged determination as if there was not the least necessity for hurry, each man being perfectly aware that in due course the *Royal Blunderbore* would be under way, and on her passage home. Perhaps it was that happy thought that inspired them with the cheerful chorus they shouted out as they hung on to the topsail halyards and hoisted the yards slowly one after the other to the mast-heads.

It was impossible not to watch them as they were thus occupied; and certainly never have we seen before or since such a strange and motley set as were the crew of that "frigate-built ship;" and let us not be thought presumptuous if we venture to include the master and mate in that observation. The whole ship's company consisted of the master, mate, boatswain, carpenter, cook, steward, butcher, six seamen (able and ordinary), two landsmen working their passage home, a sail-maker, three boys, and four individuals termed midshipmen, who, in virtue of having paid a premium, mounted gold lace bands on their caps, and decorated them with the flag of Messrs. Shugerum & Co., and wore gilt buttons on their jackets, bearing a device emblematical of the great wealth and power of the opulent and celebrated firm to which the *Royal Blunderbore* belonged.

This vessel had recently arrived from Australia, where she had lost most of her crew by desertion, and had been navigated from thence to Madras by means of *two able seamen!* While here, Capt. Alltork deemed it prudent to add more hands to his ship's company, and had succeeded, after some trouble, in obtaining the addition of four other bluejackets, who had consented to join his ship on the understanding that the proper complement of hands would be made up before she sailed for England. The addition of the two landsmen was also made on this occasion. But here the augmentation ceased; and in spite of the remonstrances of the deluded tars, the wily skipper never could be induced to make the proper additions to his crew, according to the promise made to the men on signing articles, and thus increase the number to that which the size of the ship and safety of those on board so imperatively demanded. "If," said Capt. Alltork, "I could bring this ship from Australia to Madras with two hands in the forecastle, not counting boys and idlers, I can take her from Madras to London with eight, although two of them be landsmen." This was the reply that met all remonstrances. The men were in hopes that the ship would not be allowed to go to sea, and that the Custom-house clearance would be withheld until a few more hands had been added to the crew; but the Custom-house authorities declined interfering in the matter, granted the ship's clearance in due course, and Jack found himself called upon to do double duty in order that Messrs. Shugerum & Co.'s pockets might be benefitted thereby, and that the skipper might receive his due meed of praise for so considerable a saving in seamen's wages. The landsmen who worked their passage home received no wages, and cost their employers nothing more than the food they consumed on the passage. Such was the collection of individuals composing the crew of the *Royal Blunderbore* on the morning of our departure from Madras.

Mr. M'Botherum directed the duties of the men in their immediate occupation, while Capt. Alltork employed himself by a general supervision of the whole, occasionally making a sudden dive among the crew for the purpose of intimidating or threatening any individual whom he suspected of want of zeal or of not doing his utmost. He was in fact most active and energetic, encouraging those under him both by word and deed; he not only appeared ready to stimulate the indolent with blows and abuse, but never failed to encourage those who did their utmost with a certain amount of laudation. The topsails were soon sheeted home and hoisted, the head yards braced up to give her a cast to port, all hands to the windlass, the anchor was off the ground and soon up at the bows, the ship, obedient to the action of the wind on her sails, fell off as required, the head yards were braced round and filled, the head sheets duly tended, and the *Royal Blunderbore* was fairly under way for England.

There was plenty of work for every one on board, and if there had not been the united genius of Capt. Alltork and Mr. M'Botherum would have discovered occupation for any number of men. Their inventive powers were however not put to the test on the present occa-

sion. We seated ourselves on a humble hencoop, far removed from the busy turmoil of sheets and braces, and watched with much interest and satisfaction the method of "carrying on" on board the "fast sailing ship" in which we had taken a passage.

The boatswain and Mr. M'Botherum were in the forecastle with the men stowing the anchor; every body seemed to have a great deal to say; and had we not been favoured with a personal introduction to the mate, it would have been no easy matter to determine who it was that really directed and superintended the work that was going on forward. Every one seemed to have something to say, and though any one might be deeply impressed with the importance of his views on the matter in hand, and expressed them accordingly, he was stopped short and consigned to perdition with a brevity and candour peculiar to the forecastle. There was so much talking and swearing, such futile attempts at strange choruses, that it was quite wonderful how the mate managed to maintain his supremacy, or indeed how anything was done as it should be. Even the two landsmen, by virtue of their former voyage, and following the example of their companions, ventured occasionally to make suggestions with reference to their present occupation; but they invariably met with such rebuffs that they were at length subdued, and confined themselves to singing out of tune, and joining in the choruses at the wrong time, thus contributing their share to the general confusion.

In due course, however, the watch was called, and the steward came to announce breakfast. We accordingly descended to the cuddy, a term peculiar to merchant ships, and familiar to the nautical reader. The part next to the stern of the ship was occupied by a large cabin extending across the deck, from which the cuddy continued forward with cabins opening into it from both sides. It was occupied by a long table, &c.

We soon found ourselves seated at the breakfast-table, doing justice to the good things prepared for us, listening to the observations of the skipper on the *Royal Blunderbore's* powers of sailing on a wind. These of course were marvellous; and it is only charitable to suppose that the fact of her being so deeply laden prevented her from ever realizing the various rates of sailing mentioned by her commander on this and other occasions. But our attention was suddenly attracted by a most peculiarly unpleasant odour, which seemed to pervade the whole ship, and may it never be our lot again to encounter anything so detestable. Let the reader imagine an essence compounded of bilge water and London sewerage and he may form some idea of the stench that exists in sugar ships. In our ignorance, the nuisance had been traced to other causes, and we made a precipitate retreat to the poop, hoping there to lose it. But even the strong breeze that was blowing at the time failed to dissipate the powerful odour which ascended through the cuddy skylight, and tainted the whole atmosphere of the ship. The cuddy soon became untenable, and in a short time all had left the table, quite overcome by the repeated attacks sustained by their olfactory nerves.

Seeing Capt. Alltork on the poop we ventured to ask for an explanation of what we imagined was an unusual occurrence; but the worthy Commander's reply somewhat confounded us, for his answer to our inquiry was, that "it was the sugar steaming; that it was only just beginning, and that we should be very lucky if we could stay in the cuddy at all, as it would probably increase as we proceeded on our voyage." Then showing me his black hands, he said, "Look here, I put my hands under the combing of the after hatchway to see if the steam was coming up strong, and see what I've got by it." Here then the secret was out. We had taken our passage in a ship, in which we were doomed to suffer from the effects of five hundred tons of unrefined Madras sugar, which formed part of the cargo. Had it been necessary, we could have put up with any amount of inconvenience in the shape of bad accommodation and worse fare. We could have endured without a word of repining the companionship during a four month's voyage of Messrs. Alltork and M'Botherum; but to be condemned to live in the midst of a horrid foul atmosphere, to have the fresh sea breeze polluted and made unwholesome by the foul exhalations of sugar, was not to be borne without expressions of dissatisfaction, annoyance, and disgust. Surely, we concluded, Messrs. Shugerum and Co. should have intimated to the commanders of their vessels that, previously to receiving invalid passengers on board, it should be fully explained to them how detrimental to health and comfort a sugar cargo is, for no person who has not actually experienced it would credit its evil effects. But then the object of the advertisement would have been defeated, and the mammon of unrighteous profit would have been lost to the merchants who had thus employed the services of the *Royal Blunderbore*. What to them were the opinions or feelings of invalid passengers, who with constitutions, weakened by a residence in India, might have been returning home for health, and trusting to benefit by the fresh sea breeze on their passage. Messrs. Shugerum and Co. were gainers, *but* their passengers found an atmosphere so foul and tainted as to set them on their guard in future, and to caution their friends against it also.

The most hardy veteran accustomed to the odours peculiar to ships cannot imagine the nauseous sickening smell arising from the steaming of sugar. There was scarcely a spot on board free from the effects of the unwholesome gas which arises from it. Giddiness, sickness, headache, loss of appetite, and diarrhœa are the usual results living in such an atmosphere. In the course of a four months' voyage we had an opportunity of witnessing the sufferings of the crew and passengers on board the *Royal Blunderbore* from this cause; no person was so fully in the enjoyment of good health as when free from the exhalations of the sugar cargo.

Determined to see how matters were going on below, we again descended to the cuddy. Its only occupant was the steward, a good-natured mulatto, whose complexion did not readily exhibit the effects of the sugar stain. He was engaged with great zeal in the duties of his office, and as he polished the cups and glasses indulged in a hissing

noise similar to that made by a groom when cleaning a horse. Attracted by his good-natured face, and being desirous of obtaining information, we asked him what he thought of the effluvia, which seemed stronger at that moment than ever. "Very bad, sir, very bad," said he, hissing away like a steam engine, "dirts the plates and dishes, dirts the cups and saucers, dirts the tumblers and wine glasses, and makes my white sugar and salt quite brown." Of the truth of this latter fact we had ample experience. "Then," continued the steward, "how can I keep myself clean, my hands and face not show sugar stains, but everything else all sugar, sugar, sugar." Finding there was no consolation to be had from this quarter, a glance over our cabin assured us that the steam was indeed in full force. The paint, which was originally salmon colour, had turned brown; there was a gloss over it similar to that produced by black lead. A bucket of salt water and a brush was applied forthwith, and, after a good scrub, restored the cabin to its former colour; but, alas, it very soon resumed its natural hue from the effects of the sugar!

There was nothing left for us but to put up with it. We were fairly in for it, and had been *done*. We might think of law and damages and all that but it was more philosophical to be resigned to our fate in the *Royal Blunderbore*. At first, the usual midnight stillness was broken by sundry exclamations consigning the sugar and its owners to places unmentionable, in which the voluble Captain Alltork was distinctly audible, and the firm of Messrs. Shugerum & Co. desired to be no further off than the hold of the ship, listening, if they could, to the groans and execrations of the passengers. Here, indeed, they would have heard of "something to their advantage," at least more so than in carrying sugar if ever they cared for passengers. How often, after a sleepless night from the nausea of the sugar cargo, have we rushed on deck to do away its effects by the early morning breeze.

By the time that we had been a week at sea the paint work in the cabins and cuddy had turned quite black, and came off on everything that touched it.

The want of a look out in merchant ships is well known and proved by the numerous and fearful collisions that are frequently taking place. The following incident will show that the *Royal Blunderbore* was no exception from the rest. Coming on deck one morning when it was blowing a stiff breeze, she was carrying top-gallant sails over single-reefed topsails. No one was on deck but the man at the wheel,—the officer of the watch gone below to shave! The standing part of the weather main-top-gallant brace gave way, when the man at the wheel called out "Please, sir, just put your head down the cuddy skylight and give Mr. M'Botherum a hail." "All right, I'm coming," was the answer, and in due course the mishap was remedied. It was no extraordinary occurrence that the *Royal Blunderbore* was left to take care of herself, which she generally managed to do very well with the help of the man at the wheel.

Our voyage proceeded prosperously enough, and the satisfaction

with which its termination was hailed can only be appreciated by those who have experienced the miseries of a sugar cargo.

We had the usual allowance of heavy weather on passing the Western Islands, but got clear off with the loss of a few light spars and sails. At length, we sighted the Lizard Lights and shaped our course up channel with a fair wind. Here all our troubles seemed to begin again. After we had once seen these Lights all further reckoning was at an end, and the *Royal Blunderbore* was supposed to know her way up channel so well as to be independent of chronometers and sextant, lead or log. Next day, however, we found ourselves in a thick fog, blowing hard from the northward; not a soul on board had any idea of the position of the ship, and matters looked serious; and, doubtful as the skipper was of our whereabouts, further than being actually in the Channel, it was some time before a cast of the lead was determined on. The *deep sea* lead was then employed and the ship was found to be in eight or ten fathoms water! The nature of the soundings having been ascertained, with a view of discovering our position, with the exception of firing guns to attract notice, there seemed little more to be done, and we began to think that the valuable freight of the *Royal Blunderbore* would be consigned to the waves. But, as the day wore on, the fog cleared off; a pilot was hailed, and in due course she anchored in the Downs.

The happiness of being once more clear of that "fast sailing frigate-built ship" was not to be described. How different were the feelings with which we had embarked in her at Madras to those with which we now saw her as we proceeded to the shore, inhaling the pure air, rejoicing in its freshness, and pitying those who were doomed to pass only a few more days amidst the foul and filthy exhalations of her sugar cargo. As we neared the shore, we wished them well through their sorrows, and if these lines should have the effect of placing passengers from India on their guard against the miseries of foul air, the object of their author will have been attained, and his friendly caution to them will have been well disposed of in the pages of the *Nautical Magazine*, to beware of sugar ships.

PRINCIPAL DEPRESSIONS ON THE SURFACE OF THE GLOBE.—*By Dr. Buist.*

When the crust of the whole earth, or any portion thereof, first assumed its present character and conformation, it must necessarily have been devoid of rivers until a sufficiency of rain fell to moisten its surface, fill up its hollows, and occasion an overflow; the surplus water passing off in the form of rivulets, brooks, streams, or rivers, to the nearest lower level, and so downward till they found their way to the sea. If we assume the dry land all at one time to have been sub-

merged, and all to have risen directly, either at once or through a long succession of elevations, to its present level, such of the spaces as were depressed below the surrounding country at the time of their emergence, and that so continued, would of course be filled with salt water, and would probably thus remain, either until evaporation converted it into a mass of solid salt, or until, washed down to the sea by the rains, its place came to be occupied by pure water. In many places, as will presently be seen, fragments of the primeval ocean remain in the bosoms of our continents in nearly the condition in which they originally appeared. Though the most stupendous disturbances and frightful distortions amongst the rocky beds must have occurred at the time of their elevation, there can be no doubt that change and commotion continued long after this, and that ridges, hills, and mountains rose, chasms were split open, and valleys sunk everywhere in multitudes throughout the whole lapse of intervening time; examples of such things occasionally occurring in volcanic countries down to our own day.

Just 280 years before Christ the great fresh-water lake of Oitr, in Japan, was formed in one night by a prodigious sinking of the ground, at the same time that one of the highest and most active volcanoes in the island rose into existence. The volcanic peak of Jurullo, on the table-land of Mexico, 70 miles from the Pacific, rose on the night of the 29th September, 1759, 1,683 feet above the plain, and is the highest of six mountains that have been thrown up on the table-land since the middle of last century. In July, 1757, a volcanic island arose off Pondicherry, near Madras, and after remaining for several days above the water, throwing out smoke and flame, disappeared. About the same time Chedooba, and the islands along the shores of Arracan, were suddenly raised about 10 feet, having twice before, at intervals, as is supposed, of half a century, sustained similar upheavals. In 1762, during a violent earthquake, a mountain sank and disappeared near Chittagong, in the upper part of the Bay of Bengal; another descended till the summit alone remained visible, while 60 square miles of sea shore were permanently submerged. In 1831 a volcano called Grahams Island rose on the coast of Sicily to the height of 80 feet, and after continuing in active conflagration for three months, sank down and vanished beneath the waters; and in June, 1819, the Runn of Cutch, in our own neighbourhood, sank down and became a salt water marsh—a vast mound, called the Ulla Bund, rising in its neighbourhood, and cutting off from the sea one of the mouths of the Indus. The island of Bombay and plains of the Deccan must at one time have been on the same level with each other.

So soon as rain began to fall, all the hollows would be filled up, and transformed into lakes, either with rivers running into them, or out of them, or both. Our great river systems now first make their appearance, and connect in long reaches of nearly stagnant water the original hollows, now transformed into lakes united together by rapids and cataracts. In process of time the more shallow and inconsiderable of these pools would become filled up with mud or gravel, assisted by the

hitches and upheavals to which the crust of the earth from the first seems to have been periodically subjected, forming our haughs, carses, and holmes, the only depressions remaining permanently as lakes being those near the sources of rivers, where the feeders that supplied them, being inconsiderable in size, brought comparatively little solid matter along with them, rendering the process of filling up infinitely slow. All our lakes, however, are in process of gradual obliteration, more solid matter being carried into them than finds its way out, and all that is required is a sufficient lapse of time to accomplish their extinction, when those at the sources of our streams will undergo the transformation to plains and levels their predecessors along their tracks have already undergone. The depth of many of our lakes is very great indeed, the bottom of their basins being often far below the level of the sea; so that were their supplies of water diminished, or the evaporation from their surfaces increased, we should have examples presented us wherever this prevailed parallel to that with the lakes of Asphaltites, Assal, Tiberias, the Caspian Sea, and many others, of a pool of entirely salt water at the bottom of a hollow lower than the level of the sea; and to this class of hollows only do we give the name of depressions.

The bottoms of Lochness and some of the other lakes along the line of the Caledonian canal, are not only below the level of the surface of the German Ocean, but beneath that of its bed anywhere in the line of their axis across to ths shores of Norway.

Were the Straits of Babelmandeb closed, the Red Sea would be all but dried up in a moderate lapse of years, presenting us with a huge chasm, in some places half a mile in depth, with a long narrow bitter lake, margined with rock salt, at the bottom.

The following are some of the dimensions of the most notable of our lakes:—

Names.	Area.	Elevation of Surface.	Depth.	Bottom below Sea.
	Square miles.	Feet.	Feet.	Feet.
Geneva	240	1,230	1,012	.....
Superior	32,000	672	932	300
Ontario	.....	279	647	268
Titicaca	2,225	12,846	720	.....
Tiberias	50	—329*	165	494
Dead Sea	185	—1,312	1,300	2,612
Caspian Sea	140,000	—82	.....	82

* Mrs. Somerville says in a note on these depressions that the level of Tiberias, as given by actual measurement of Symonds, is not to be relied upon, as it falls short by above 100 feet of that determined barometrically by three different observers, Berton, Russerger, and Von Wildenbruch, who give the mean at 755; the mean assigned to the Dead Sea by the traveller is 1423·5. With great deference to so distinguished an authority as Mrs. Somerville, I should certainly prefer the most ordinary levelling over so moderate a distance to the best barometric measurements, where there could be no good barometer

I shall turn next to the great continental river basins, or valleys of no outlet, where the rivers on all sides flow towards some central lake or lakes, and the whole of their waters are carried off by evaporation. These may be classed under two divisions—those above, and those beneath the level of the ocean; and the first we must note of the first class are those of America, the most notable being that of the Great Salt Lake of the Rocky Mountains, which, as will by-and-bye be seen, in many points closely resembles the Dead Sea. The Great Salt Lake, until then chiefly familiar to us by name from the Mormon settlement on its borders, was first explored by the American Government in 1847, by an expedition under Fremont, which seems to have been mainly one of general inspection; a second expedition under Capt. Stansbury, U. S. Engineers,* laid down a base of six miles near the lake, and made an elaborate and careful trigonometrical survey of the whole district. It is situated between the 42nd and 43rd parallels, about the 115th western meridian, in the bosom of the Rocky Mountains, betwixt the Missouri and the Pacific. Vast inhospitable tracks of country prevail to the north and south of it; on the east, for the space of nearly 1,000 miles, are the trackless and barren steppes of the Rocky Mountains, a similar extent of salt desert bordering it to the west. The place where the Mormons have taken up their abode is one of the most isolated and extraordinary the world contains; remarkable for its beauty and fertility on the very borders of the most unspeakable desolation. The Valley of the Salt Lake is about 4,000 feet above the level of the sea, and is about 500 miles either way in extent. This space, which is enclosed by a circle of rugged precipices and majestic mountains, consists of great stretches of salt desert, perfectly smooth and level, bearing all the marks of marine origin. Some of these are from 60 to 70 miles across; and they are separated from each other by precipitous rocky eminences of great elevation. On the slopes which bound the plain are a series of thirteen distinct terraces or beaches, the highest of them being about 200 feet above the valley, and to all appearance the margins of a former sea, which had subsided by intervals, and left behind it the marks where it had for a time remained at rest. There are many valleys and recesses amongst the Rocky Mountains, with terraced slopes similar to those just described, having all the appearance of the basins of former seas. Within the basin, but at a much higher level, besides the Great Salt Lake itself, is the fresh water lake Utah, from which flows a stream of considerable magnitude, on which the name of the Jordan has been bestowed, and which, after passing the Mormon settlement, discharges itself into the

of reference to fall back upon. The hour of the day might make all this difference; the barometer read at 10h. or 4h., without a corresponding reading at the same level at exactly the same hour, would give an error of 100 feet.

* I have not been able to refer to the American works themselves, (they are in none of our libraries,) but take my information at second hand from the *Athenæum*, October, 1852; *Jameson's Journal*, 1852; and *Chambers' Journal*, 1853. A good outline of the Salt Lake is reserved for future works on physical geography.

Salt Lake. The Salt Lake itself is nearly 300 miles in circuit, including all its indentations, and is about 70 miles in length and 20 in breadth. It is studded with mountain islands, springing up abruptly from the surface of the water to altitudes of from 500 to 1,000 feet, Antelope Island rising to the height of 3,000 feet; eminences of similar form and size, which had been islands before the waters shrunk within their present dimensions, being scattered about over the adjoining plains. The waters of the lake contain 22 per cent. of saline matter, or about the same quantity as the Dead Sea. Of this 20 per cent. is pure chloride of sodium, or sea salt; it is said to throw down in summer muriate of soda, and in winter sulphate of soda, or glauber salts, a circumstance that seems so strange that better evidence than we possess is requisite before the fact can be accepted as established. They are so acrid as to be dangerous to animal life, and even so affect and corrugate the throat when swallowed, that a mouthful would be fatal. They are so heavy that the body floats on them without effort, about a sixth of its mass remaining above the surface. The lake itself is singularly shallow; its greatest depth is 33 feet, and in some places a stiff breeze blows the water altogether to one side, and leaves large expanses of the bottom bare. At no distant period the lake seems to have been many times its present size, and to have covered the low lands around with its waters. It seems still diminishing in size, the balance betwixt fall and evaporation not having as yet been attained in a climate where little rain falls, and the atmosphere is intensely dry. Amidst all its stern grandeur the scene around is one of dreary and oppressive desolation; there is no tree or plant to relieve the eye, the atmosphere feels hot and suffocating, and the sluggish waves scarcely ripple before the breeze. Along one side of the lake the surface of the earth is covered with a sheet of solid salt of the most dazzling whiteness; this is converted into a muddy marsh by every shower of rain. Various streams of fresh water flow into the lake from the neighbouring mountains—the Jordan, Bear River, and Weber being all of considerable size—and the banks of these, before they enter the salt region, are covered with the richest vegetation. Hot springs and salt in masses abound in the neighbourhood of the lake. Around its margin is a band of soft, fœtid, slimy mud, consisting entirely of the larvæ of insects, or other animal matter, emitting smells the most offensive that can be imagined. All around are evidences of volcanic action, and thick cakes of mud, six or eight inches in diameter, charged with sulphur, and erupted in a semi-liquid form from small spiracles beneath, are found scattered about. In the plain, at no great distance from the lake,* is a group of volcanic cones and apertures covering several acres of ground, with steam and mud issuing from at least half a dozen of chimneys. The cones are from four to six feet in elevation, terminating in a spiracle or vent, some of which are hardened, and lined with crystals of sulphur, and other substances. From one of

* *American Annual of Scientific Discovery* for 1852, *Jameson's Journal*, No. 105, p. 180.

these steam and water are thrown from ten to fifteen feet into the air; they rush out with a noise resembling the escape of a steam-engine; the water is hot and cold by turns, and is strongly impregnated with sal-ammoniac. Some of the cauldrons are from ten to twenty feet in diameter, filled to within three or four feet of the top with boiling mud, which occasionally runs over. Besides the numerous mud cones, there is one of lava, in the midst of a mass of volcanic rocks within the valley; it is about fifty feet in height, sheets of salt, strongly impregnated with sal-ammoniac, surrounding its base. In the mountains, not far off, are wells of petroleum and naptha.

If I have bestowed more space on the great Salt Lake than I ought to have done, or than time will allow to devote to other depressions of equal interest, it is because it has but lately become known to us, and I am aware of no single paper or work in which all the information that has been collected regarding it is to be fouud in moderate compass,—as already mentioned, the latest of our physical atlasses and physical geographies fail to bring our information down to this point. I have no doubt it will be treated with his usual care and ability by my friend Mr. Keith Johnstone in the new edition of his great work now preparing for the press.

There are besides the Valley of the Great Salt Lake, whose mere magnitude is the point of least interest about it, two depressions, or continental river basins of no discharge north of Mexico, on the highlands betwixt the Gulf of California and Rio del Norte, one of about 200 by 50 miles, betwixt the 29th and 33rd parallels, another about four times this size, nearly under the tropics. Both contain salt lakes of some magnitude, with fresh-water streams flowing into them. Beyond this little is known regarding them. The Rio Grande, about 300 miles in length, is the largest river in this quarter swallowed up by evaporation; and but for these continental streams the country would be doomed to a state of perpetual sterility—a few showers occurring in September being all the rain that ever falls in the neighbourhood.

In the great Andes plateau in South America, stretching from the Tropic of Cancer northwards for the space of 1,200 miles, with a mean breadth of 200, is a depression with a surface area equal to about that of the Red Sea. This basin is about 12,000 feet above the level of the ocean, the principal lake being that of Titicaca, occurring at an altitude equal to that of Tenerife. It is about 26,000 square miles in area, and 700 feet in depth. The scenery and verdure around seem in the last degree rich and beautiful, and the climate delightful.

There are no continental river basins or valleys of any extent in any part of Europe, the rains being sufficiently abundant, and evaporation moderate enough, to enable the moisture which falls to accumulate in the valleys till it forms lakes which discharge their waters into rivers, all finding their way to the sea; and the only depressions at all resembling those under consideration, and of the same character, though of inconsiderable depth, and due, doubtless, to the same causes, are those in Holland—the Lake Haarlem and the Zuyder Zee.

We know so little of Central Africa that we are unable to speak of its characteristic features with anything like certainty. From the magnitude of some of the lakes known to exist, and the streams made mention of, compared to the scantiness of the discharge of fresh water into the sea, there is reason to believe in continental river basins great in number and vast in size. The only depressions well known to us are those of the Lake Mareotis, on the Mediterranean shore, close by Alexandria, of the Bitter Lakes in the Isthmus of Suez, like Mareotis, and the Natron Lakes, all in Lower Egypt, and Lake Assal, off the shores of the Gulf of Aden, a short way into Abyssinia. The first of these depressions has probably been seen by most of you who have made the journey overland. It seems to have been formed by a sinking of the Delta up to close upon the shore, where a barrier was left; it is at its lowest some six or eight feet below the Mediterranean, and occupies an area of about 5,000 square miles, being about 30 across and 150 in length. It seems to have been a fresh water marsh in Pliny's time, when the Nile was admitted to it by Canal, and it was transformed into a lake. By the end of last century it had become nearly dried up, and its ancient bed, remarkable for its fertility, was irrigated by canals from the Nile. In 1788, during the siege of Alexandria, then held by the French against the English, a letter was found on the body of General Roitz, expressing alarm lest the sea should be admitted to the lake Mareotis, and the town deprived of fresh water. The hint was taken by the British General, and the barrier cut across. The vast plain was immediately submerged, the sites of three hundred villages were flooded, and one of the most fertile and profitable portions of Egypt—the very garden of the Nile—reduced to sterility. For ten or fifteen miles the railway skirts or traverses the margin of the lake, so as to bring it within the view of overland passengers betwixt Europe and the East. Near the period of low Nile the waters of the lake are concentrated by evaporation up close to the point of saturation, and vast sheets of salt of dazzling whiteness, the reflection of which is seen in the sky far out at sea, spread over the shallows round its borders, to be redissolved when the waters of the Nile are admitted during the inundation. A benevolent Government or enterprising people would speedily pump out the brine by steam, and restore the soil to its wonted fertility by repeated washings from the Nile. As matters at present stand it is likely to remain for ages, until the Nile silts it up to the level of the sea, a monument of the cruelties wars of agression inflict or compel, and of the apathy and indifference of an administration which makes no attempt to heal the wounds after they have been inflicted.

The Bitter Lakes occupy a series of hollows about 30 miles in length, 10 in breadth, and 50 feet in depth, under high water mark in the narrow neck of land intervening betwixt the Red and Mediterranean Seas. They seem at one time to have formed the upper portion of the Gulf of Suez, which was cut off from them by the rising of the desert barrier of about 13 miles which now divides them. The water now found in them is extremely salt and bitter, the result of

concentration. The isthmus, which is only 70 miles from sea to sea, seems within the last 4,000 years to have been subjected to frequent elevations and depressions, the latest of which in all likelihood occurred a considerable time after the Exodus.

The Natron Lakes, in the upper part of the Delta, are also completely isolated, and occupy a depression of considerable but uncertain depth. In summer they are nearly saturated with salt, the muriate and subcarbonate of soda, or the sea-salt and soda of commerce. In winter they rise, and become freshed, from the percolation of the waters of the Nile, which appear to take about three months to force a passage through the porous soil beneath.

Before noticing Palestine, close by the locality just being described, we shall close the account of the known depressions in Africa with a notice of the Lake of Assol, on the Somali shore opposite Aden. The lake was, I believe, first surveyed by the party of Sir W. Harris, in 1841; it is described by him, as well as by Dr. Kirk and Capt. Barker, who took its level and dimensions. It is in lat. 11° 33′ 12″ N., long. 42° 30′ 6″ E. It is about seven miles in length, 16 in circumference; and its surface is 570 feet beneath the level of the sea. No stream or rivulet enters it, or flows from it; scarcely any rain ever falls in its neighbourhood; its waters dried up and concentrated by evaporation, have nearly reached the point of saturation, and about one third the lake is at certain seasons covered with a sheet of solid salt. It is separated from the outer sea, of which it at one time formed a part, by a barrier of lava, cracked and rent in all directions, the whole being obviously the result of recent volcanic agency, accomplished, probably, when the vast group of cones extending from Aden 500 miles into Abyssinia, and at least 300 up the Red Sea, were in a state of conflagration. Under operations so violent and extensive as may then be supposed to have been in progress, the upheaval of a barrier a few dozens of miles across and severation from the sea, of a lake about the size of the island of Bombay, would appear a very trifling affair.

(To be continued.)

OBSERVATIONS ON THE WESTERN ESQUIMAUX AND THE COUNTRY THEY INHABIT, FROM NOTES TAKEN DURING TWO YEARS AT POINT BARROW.—*By Mr. John Simpson, Surgeon, R.N., Her Majesty's Discovery Ship "Plover."*

The term Western Esquimaux is usually understood to apply to all the people of that race who are found to the west of the Mackenzie River; but, as they form two distinct communities, whose nearest respective settlements are separated by an interval of three hundred miles of coast, it is proper to state that the term is at present restricted

to the more westerly branch. The tract of country exclusively inhabited by them is that small portion of the north-western extreme of the American continent included by a line extended between the mouth of the Colvile River and the deepest angle of Norton Sound and the coast line from the latter, through Behring Straits and the Arctic Sea, back to the Colvile. The seaboard for a little way to the south of Norton Sound is also occupied by a few scattered families of the same race. As these people divide themselves into numerous sections, named after the portions of land they inhabit, or the rivers flowing through them, it will be convenient, before speaking more particularly of themselves, to give some account of the country, as described by them; and that this may be more easily understood a map will be almost indispensable, distinguishing upon it by red ink whatever depends solely upon native authority. The information is principally derived from the people of Point Barrow, some of whom have travelled and lived for a time in different localities, and from strangers who came to visit them during the time of the *Plover's* stay at that place.

By Captain Beechey's survey the south and western part of this district will be seen to be mountainous and deeply indented by arms of the sea; but the northern and more inland portions have been examined to only a short distance from the coast. The natives of Point Barrow describe the latter as uniformly low, and full of small lakes or pools of fresh water, to a distance of about fifty miles from the north shore, where the surface becomes undulating and hilly, and, further south, mountainous. The level part is a peat-like soil covered with moss and tufty grass, interspersed with brush wood, perfectly free from rocks or stones, and only a little gravel is seen occasionally in the beds of rivers. The bones of the fossil elephant and other animals are found in many localities, and the tusks of the former are used for some purposes. Small pieces of amber are also frequently found in the pools inland, or floating on the sea, to which they have been carried in the summer by the floods. The whole is intersected in various directions by rivers, which are traversed by boats in the summer and by sledges in the winter. Many of the streams seen from the coast become united, or have a common origin in some pool in the interior, and sometimes offer a short channel from bay to bay deep enough for boats, which thus avoid a more circuitous and inconvenient passage round the coast.

The largest and best known rivers are four; all of which take their rise far to the S.E., in a mountainous country inhabited by Indians. The most northerly of these is the Kang'-e-a-nok, which flows some distance westward, then turns northward, receiving on its right bank two tributaries, called the A'-nak-tok and Kil'-lek. At a distance of probably one hundred miles from the coast it divides into two streams, the eastern of which follows a nearly north curve to the Arctic Sea one hundred and forty miles east of Point Barrow, when it has been identified with the Colvile. It bears the native name of Nig'-a-lek Kok or Goose River, and is said to receive a large tributary at thirty

miles from its mouth, called the It'-ka-ling Kok or Indian River, coming in from the mountains in the east. The other division flows through the level country nearly due west to fall into Wainwright Inlet, ninety miles S.W. of Point Barrow, when it is named Tu-tu-a'-ling, but is more generally known as Kok or Kong, "the River." The next is called the Nu-na-tak', also a large river, whose source is very close to that of the Colvile; but, instead of turning, like the latter, northward, it pursues a westerly course through the heart of the country, then bending to the south and a little east, falls into Hotham Inlet near its opening into Kotzebue Sound. This certainly, in the estimation of the Point Barrow people, is the most important river in their country, and gives its name to by far the larger portion of the inhabitants of the interior. At one point of its course it approaches so near a bend of the Colvile that boats can be transported in less than two days from one river to the other. The Ko'-wak is the next in order as well as in size and importance, chiefly on account of a few mineral substances procured in its neighbourhood and held in esteem by the natives of the coast. It also flows westward and then bends southward to join Hotham Inlet near its eastern end. The fourth is the Si'-la-nik, which, having a more southerly origin, follows a more direct westerly course and empties itself into a large lake communicating with the eastern extreme of the same inlet, near the mouth of the Ko'-wak. All these rivers have been identified by different officers from the *Plover* having visited their embouchures, and those falling into Hotham Inlet were found bordered with large pine trees. The natives add that trees also grow on the banks of the rivers in some parts of the interior. The other rivers along the north and N.W. coast are small and hardly known, except to persons who have visited them; and the Buckland and others to the southward are but little spoken of by the people generally, although aware of their existence.

The larger settlements are at Point Barrow, Cape Smyth, Point Hope, and Cape Prince of Wales, which are never altogether deserted in the summer. But, besides these, there are numerous points along the coast, as at Wainwright Inlet, Icy Cape, the shores of Kotzebue Sound, Port Clarence, and Norton Sound, where there are smaller settlements or single huts, occupied in the winter but generally abandoned in the summer.

The inhabitants state that the sea affords them several varieties of whale, only one of which is usually pursued, the narwhal, (occasionally,) the walrus, four different sorts of seal, the polar bear, and some small fish. The inlets and rivers yield them the salmon, the herring, and the smelt, besides other kinds of large and small fish. And on the land, besides abundance of berries and a few edible roots, are obtained the rein-deer, the im'-na, an animal which nearly answers to the description of the argali or Siberian sheep, the hare, the brown or black bear, a few wolverines and martens, the wolf, the lynx, blue and black foxes, the beaver, musk rats, and lemmings. In summer, birds are very numerous, particularly geese, in the interior, and ducks,

on the coast. The ptarmigan and raven remain throughout the winter, and the latter is the only living thing we know to be rejected as food. Blacklead and several varieties of stones for making whet-stones, arrow-heads, and labrets, and for striking fire, are also enumerated as the produce of the land and articles of barter. The articles in common use for which they are indebted to strangers are kettles, knives, tobacco, beads, and tin for making pipes, almost all of which come from Asia. English knives and beads are also in use, and, within these few years, at Point Barrow, the Hudson Bay musket and ammunition. The skin of the wolverine is held in high esteem, and is, like the English goods, procured from the Indians, occasionally directly, but most commonly through their more eastern brethren at Barter Point. The latter also supply narwhal skins, large lamps or oil burners, made of stone, which form part of the furniture of every hut.

The great trading places are King-ing, at Cape Prince of Wales, Se-su'-a-ling, at the mouth of the Nu-na-tak, Nig'-a-lek, at the mouth of the Colvile, within their own country; and Nu-wu-ak, at Point Barter, to the eastward: between all of which there is a yearly communication. It might be expected that the Russian ports near Norton Sound would supply the Russia goods, but such is not the case, as they are all, or nearly all, brought from the Kokh'-lit Nuna, as they call Asia. They say four or five Asiatic boats cross the Straits after midsummer, proceeding from East Cape to the Diomede Islands and thence to Cape Prince of Wales, where trade is carried on with people belonging to the neighbourhood of Norton Sound, Port Clarence, &c. The boats then proceed along the shore of Kotzebue Sound until the high land near Cape Krusenstern, comes into view, when they steer by it for Hotham Inlet, and encamp at Se-su'-a-ling. At this place, towards the latter end of July, people from all the coast and rivers to a great distance meet, and an extensive barter takes place among the Esquimaux themselves as well as with the Asiatics, amid feasting, dancing, and other enjoyments. A large proportion of the goods falls into the hands of the people living on the Nuna-tak, who carry it into the interior and either transfer it to others or descend the Colvile with it themselves the following year to meet their friends from Point Barrow. At the Colvile the same scene of barter and amusement takes place in the latter part of July; and early in August the goods are carried to Point Barter by the Point Barrow traders, to be exchanged for the English and other produce of the east. The Nu-na-tang'-meun, or Nu-na-tak people thus become the carriers of the Russian kettles, knives, &c., to be found along the north coast; and, being known only by name to the inhabitants east of the Colvile as the people from whom these articles were procured, it is easy to perceive how Sir J. Franklin and Mr. Simpson were led to conjecture that a Russian port existed upon that river, and that the agents residing there were called Nu-na-tang'-meum. The word Nu-na-tak appears to signify "inland," from its being commonly applied to persons coming from any part of the interior; but they do not use any corresponding word to comprehend the different tribes on the coast.

The number of inhabitants within the first named boundaries does not, from all we can learn, exceed 2,500 souls, and is, probably, little more than 2,000; all of whom have the same characteristics of form, feature, language, and dress, and follow, with little variation, according to the locality, whether on the coast or in the interior, the same habits and pursuits. The remarks which follow, therefore, though more particularly referring to the people of Point Barrow, will be equally applicable to them all.

Point Barrow is the northern extreme of this part of the American continent, consisting of a low spit of sand and gravel projecting to the N.E. Its length is about four miles and it is little more than a quarter of a mile in average breadth, but expands considerably at the extremity, when it rises to about sixteen feet in height, and sends out to the E.S.E. a low, narrow ridge of gravel to a distance of more than two miles, succeeded in the same direction by a row of sandy islets, enclosing a shallow bay of considerable extent. The assemblage of winter huts is placed on the expanded and more elevated extremity, where there is a thin layer of grassy turf. It is called Nu-wuk′, or Noo-wook, which signifies emphatically "The Point." No doubt the settlement owes its existence to the proximity of the deep sea, in which the whale can be successfully pursued in the summer and autumn, and to the great extent of shallow waters around, where the seal may be taken at any season of the year. The number of inhabited huts in the winter of 1852–3 was fifty-four, reduced to forty-eight in the succeeding year in consequence of the scarcity of oil to supply so many fires, besides a few others which do not seem to have been tenanted for several years, and two dance-houses.

The total population at the end of 1853 was 309, of whom 166 were males, and 143 females. The older people say their numbers are much diminished of late years, a statement to the truth of which the remains of a third dance-house and the number of unoccupied huts bear silent testimony. The latter are in some degree taken care of as if to preserve the right of ownership, and to prevent their being pulled down. Further, a disease, which from description seems to have been influenza, is said to have carried off no less than forty people in the commencement of the winter of 1851–2. In 1852–3 the births we heard of were four or five, and the deaths about ten; and within the last twelvemonths, when our information was more accurate, we notice only four births, but no fewer than twenty-seven deaths, most of which occurred from famine, reducing the population at the present time to 286. The settlement at Cape Smyth, about ten miles distant, consisting of forty huts, and having about three fourths the inhabitants, has been reduced in a more than proportionate degree, having lost forty people since July, 1853. Some of these had fled in the depth of winter from their own cold hearths to seek food and warmth at Nu-wuk′, when, finding no relief, they perished miserably on the snow.

These people are by no means the dwarfish race they were formerly supposed to be. In stature they are not inferior to many other races,

and are robust, muscular, and active, inclining rather to spareness than corpulence. The tallest individual of these Esquimaux who visited us was 5 feet 10½ inches and the shortest 5 feet 1 inch. The heaviest man weighed 195 lbs. and the lightest 125 lbs. The individuals weighed and measured were taken indiscriminately as they visited the ship, and were all supposed to have attained their full stature. Their chief muscular strength is in the back, which is best displayed in their games of wrestling. The shoulders are square or rather raised, making the neck appear shorter than it really is, and the chest is deep; but in strength of arm they cannot compete with our sailors. The hand is small, short, broad, and rather thick; and the thumb appears short, giving an air of clumsiness in handling any thing, and the power of grasping is not great. The lower limbs are in good proportion to the body, and the feet like the hands are short and broad, with a high instep. Considering their frequent occupation as hunters they do not excel in speed, nor in jumping over a height or a level space; but they display great agility in leaping to kick with both feet together an object hanging as high as the chin or even above the head. In walking their tread is firm and elastic, the step short and quick, and the toes being turned outwards and the knee at each advance inclining in the same direction, give a certain peculiarity to their gate difficult to describe.

The hair is sooty black, without gloss and coarse, cut in an even line across the forehead, but allowed to grow long at the back of the head and about the ears, while the crown is cropped close or shaven. The colour of the skin is a light yellowish brown, but variable in shade; and in a few instances was observed to be very dark. In the young, the complexion is comparatively fair, presenting a remarkably healthy sunburnt appearance, through which the rosy hue of the cheeks is visible: before middle life, however, this from exposure gives place to a weather-beaten appearance, so that it is difficult to guess their ages.

The face is flat, broad, rounded, and commonly plump, the cheek-bones high, the forehead low, but broad across the eyebrows and narrowing upwards the whole head becomes somewhat pointed towards the crown. The nose is short and flat, giving an appearance of considerable space between the eyes. The eyes are brown of different shades, usually dark, seldom if ever altogether black, and generally have a soft expression; some have a peculiar glitter which we called gipsy-like. They slope slightly upwards from the nose and have a fold of skin stretching across the inner angle to the upper eyelid most perceptible in childhood, which gives to some individuals a cast of countenance almost perfectly Chinese. The eyelids seem tumid opening to only a moderate extent, and the slightly arched eyebrows scarcely project beyond them. The ears are by no means large but frequently stand out sideways. The mouth is prominent and large, and the lips, especially the lower one, rather thick and protruding. The jaw-bones are strong, supporting remarkably firm and commonly regular teeth. In the youthful these are in general white, but towards middle age they have lost their enamel and become black, or all worn

down to the gums. The incisors of the lower jaw do not pass behind those of the upper, but meet edge to edge, so that by the time an individual arrives at maturity, the opposing surfaces of the eye and front teeth are perfectly flat, independently of the wear they are subjected to in every possible way to assist the hands. The expression of the countenance is one of habitual good humour in the great majority of both sexes, but is a good deal marred in the men by wearing heavy lip-ornaments.

The lower lip in early youth is perforated at each side opposite the eye-tooth and a slender piece of ivory smaller than a crowquill, having one end broad and flat like the head of a nail or tack to rest against the gums, is inserted from within to prevent the wound healing up. This is followed by others successively larger during a period of six months or longer until the openings are sufficiently dilated to admit the lip-ornaments or labrets. As the dilatation takes place in the direction of the fibres of the muscles surrounding the mouth, the incisions appear so very uniform as to lead one to suppose each tribe had a skilful operator for the purpose; this however is not the case, neither is there any ceremony attending the operation.

The labrets worn by the men are made of many different kinds of stone and even of coal; but the largest, most expensive, and most coveted, are each made of a flat circular piece of white stone, an inch and a half in diameter, the front surface of which is flat and has cemented to it half of a large blue bead. The back surface is also flat except at the centre, where a projection is left to fit the hole in the lip with a broad expanded end to prevent it falling out and so shaped as to lie in contact with the gum. It is surprising how a man can face a breeze however light at 30° or 40° below zero with pieces of stone in contact with his face, yet it seems from habit the unoccupied openings would be a greater inconvenience than the labrets which fill them.

Their sight is remarkably acute, and seemed particularly so to us, who often experienced a difficulty in estimating the true distance and size of objects on the snow. Their hearing also is good, but we doubt if it possesses the same degree of acuteness. Of the other senses we have not been able to form an opinion.

The women while young are generally well-formed and good-looking, having good eyes and teeth. To a few who besides possessed something of the Circassian cast of features was attributed a certain degree of brunette beauty. Their hands and feet are small, and the former delicate in the young, but soon become rough and coarse when the household cares devolve upon them. Their movements are awkward and ungainly, and though capable of making long journeys on foot, it is almost painful to see many of them walk. Unlike the men they shuffle along commonly a little sideways with the toes turned inwards, stooping slightly forward as if carrying a burden, and their general appearance is not enhanced by the coat being made large enough to accommodate a child on the back, whilst the tight-fitting nether garment only serves to display the deformity of their

bow legs. Beyond the front view of the face they seem utterly regardless of cleanliness and, though careful in arranging the beads in their hair, they seldom use a comb either for comfort or tidiness. A sort of cleansing of the body generally is occasionally practised, but is far from deserving the name of ablution. It is but fair to state that we believe they might be easily taught habits of cleanliness, but these could be attended to with the greatest difficulty as they have no more water in the long winter than is just sufficient for their drinking and cooking. Around Michalowski, in Norton Sound, some of the women wore cotton garments next the skin, and on bath days after the people of the fort had done, they eagerly availed themselves of the opportunity when allowed to wash both themselves and their clothes.

The hair is worn parted in the middle from the back to the front and plaited on each side behind the ear into a roll, which hangs down to the bosom and is wrapped round with small beads of various colours. Length of hair generally accompanies softness of its texture and is considered a point of female beauty. The ears are with very few exceptions pierced to support, with ivory or copper hooks, four or five long strings of small beads suspended at a distance from the ends which hang free, leaving the middle part to fall loosely across the breast. Not unfrequently the ends are long enough to be each fastened back in another loop to the hair behind the ears.

Fortunately for the appearance of the countenance it is not deformed by the perforations in the lip, but instead it is marked with three tattooed lines from the margin of the lower lip to the under surface of the chin. The middle one of these is rather more than half an inch broad, with a narrower one at a little distance on either side, diverging slightly downwards. The manner in which tattooing is performed is by pinching up the skin in the direction of the line required, and passing through it at short intervals a fine needle, in the eye of which is a small thread of sinew blackened with soot, as in ordinary sewing, except that the thread is pulled through at each stich. The narrow line on each side is the result of one seam or series of stitches, but the middle one requires three or four such close together. It has been supposed that this operation is performed at a particular period, when the girl verges into womanhood; and some of the natives profess that this is the case, but inquiry does not substantiate this supposition. A single line is frequently seen in mere children, and the three in very young girls, whilst a few are not marked until they seem almost full-grown women, and have been called wives for a considerable time. The same irregularity exists with regard to the age at which the lip is perforated for labrets in boys, who, as soon as they can take a seal or kill a wolf, are entitled to have the operation performed. But in truth no rule obtains in either case; some, led by the force of example, submit to it early, and others delay it from shyness or timidity. A man is met with occasionally without holes for labrets, but a woman without the chin marks we have never seen.

The men's dress is simple and convenient, consisting of a frock

reaching nearly half way to the knee with a hood, and confined at the waist by a loose belt, having the tail of some animal attached to it behind, and breeches tying below the knee over long boots or mocassins, which also tie at the ankle. These garments are double, the inner being generally made of fawn-skin and worn with the fur inwards, and the outer of the skin of the half or full-grown animal, with the hair outwards. To make the hood sit well to the face, a triangular slip of skin is necessary to be inserted on each side of the neck, with long points extending down the breast, and these pieces being usually white, form with the darker skin of the coat a contrast which readily catches the eye. Around the face is a fringe, frequently of wolf or wolverine skin on good coats, and the skirt is hemmed with a narrow edging of a similar kind; some have also a border of white, with straps of the same colour, on the arm near the shoulder. There is commonly an ermine skin, a feather, or some such thing which acts as a charm, attached to the back. The skins of various other animals besides the deer, as the fox, musk rat, marten, dressed bird skins, &c., are also used in making coats. The breeches are also of deerskin, or sometimes dog or sealskin, occasionally ornamented with a stripe of white down the outside or front of the thigh. The boots are most frequently of the dark skin of the reindeers' legs, or this in alternate stripes with the white skin of the belly, extending from below the knee to the ankle, with soles of white dressed sealskin gathered in neatly around the toes and heels, having within a cushion of whalebone scrapings or dried grass between them and the reindeer stockings which are next the feet. They are particular in the arrangement of the skins. Thus the round spol of indurated skin on which the hair is stiffer and whiter than that around it, just below the hock of the animal, is always placed over the inside of the ankle bone in men's mocassins at Point Barrow, and over the outer in women's; but they say the reverse is the custom at Point Hope. Over these a pair of ankle boots of black sealskin, dressed only so far as to remove the hair, with soles of narwhal skin is worn on the ice. The hands are protected by deer skin mittens with the hair inwards, but for cold weather and working on the ice the thicker skin of the polar bear, with the hair outwards, is preferred, as it is warmer and less liable to injury from getting wet. The whole dress is roomy, particularly the coat which has the sleeves large enough to allow the hands to be withdrawn, one of the greatest comforts that can be imagined in cold weather. In winter, a cloak of dark and white deer skins is worn over the shoulders, held on by a thong across the throat, and gives the whole figure a very gay appearance. According as the wind is in front or on one side, the cloak can be turned as a protection against it. The usual belt is made of the smaller wing feathers of ducks, after the plumes are torn off, partly sewed and partly woven with small plaited cords of sinew, taking care to keep the glossy back surface of the feathers outwards and their ends, which form the edges of the belt, are confined by a narrow binding of skin. In some of these there is a checquered appearance, produced by alternate rows of black and white feathers, but the white tapai or belt is

certainly the gayest. The pipe bag on one side and the knife on the other, suspended to the girdle supporting the breeches, may be considered part of the usual dress. For procuring fire, the flint and steel is used in the north, and kept in a little bag hanging round the neck, and in Kotzebue Sound the pipe bag contains two pieces of dry wood, with a small bow for rotating the one rapidly while firmly pressed against the other, until fire is produced. In the absence of these, two lumps of iron pyrites are used to strike fire upon tinder, made by rubbing the down taken from the seeds of plants with charcoal. The tobacco bag or del-la-mai'-yu' is the constant companion of men, women, and even children, and is kept also at the inner belt.

In summer, as their occupations are more in boats, the dress is somewhat different. The feet and legs are encased in water-tight sealskin boots, and an outside coat of the same material or of whale gut covers the body, or these are made all in one, with a drawing string round the face. The least valuable skins are also used at this time as they soon become soiled and filthy with blubber, becoming quite unfit for a second season.

It would be impossible to enumerate the varieties of dress we witnessed at the grand summer dance when, among new skin coats, might be seen the clean white cotton shirt and the greasy and tattered Guernsey frock, besides others made up of odds and ends, such as cotton or silk handherchiefs, procured at the ship, showing that they were bound by no rule as to dress on the occasion. On the head of every dancer, however, was a band, supporting one, two, or three large eagles' feathers which, together with a streak of black lead either in a diagonal line across or down one side of the face, gave them a more savage appearance than they usually exhibit. Many of these head-bands were made of the skin of the head and neck of some animal or bird of which the nose or beak was retained to project from the middle of the forehead. The long beak of the great northern diver formed the most conspicuous of these ornaments. Another head-dress, which is looked upon with superstitious regard and only worn when engaged in whaling, consists of a band of deer skin ornamented with needle-work, from which are suspended, around the forehead and temples in the form of a fringe, the front teeth of the im'-na, a sort of deer which has been before mentioned as inhabiting the interior.

Snow shoes are so seldom used in the north, where the drifted snow presents a hard frozen surface to walk upon, that certainly not half a dozen pairs were in existence at Point Barrow at the time of our arrival, and those were of an inferior sort. Inland and near Kotzebue Sound, where trees and underwood grow, the snow remains so soft it would be impossible to travel any distance in the winter without them. The most common one is two pieces of alder, about two feet and a half long, curved towards each other at the ends, where they are bound together, and kept apart in the middle by two cross pieces, each end of which is held in a mortise. Between the cross pieces is stretched a stout thong, lengthwise and across, for the foot to rest upon, with another which first forms a loop to allow the toes to pass beneath,

then is carried round the back of the ankle to the opposite side of the foot, so as to sling the snow shoe under the joint of the great toe. As the shoe is thus suspended at a point a little before its centre, the heel end trails lightly over the snow at each step, whilst the toe is raised over any slight unevenness in the way. Some are five feet long by fourteen inches wide, rounded and turned up at the toe and pointed at the heel, neatly filled in before and behind the cross bars with a fine net work of sinew or of very small thong made from the skin of the small seal, nat'-sik.

The women's dress differs from the men's in the mocassins and breeches forming a single close fitting garment tied round the waist, as well as in being more uniformly striped, and the coat in being longer, reaching to below the knees in a rounded flap before and behind. The back of the coat and the hood are also made large enough to contain a child, whose weight is chiefly sustained by the belt. For common use, and among the poorer people, the inner one is made of bird skins, and among those who are better off of deer skin, and is plain. In winter, when out of doors, an outer coat of thick deer skin is worn, and in summer a light one of the skins procured during the summer when the animal is changing its hair. For dress occasions, one is worn, by those who can afford it, which is made of patchwork, always according to one invariable plan as to the shape and principal seams, but there is considerable variety allowed in the arrangement of the white and different shades of fawn skins of which it is made, besides a countless multitude of strips and tufts of fur sewed to the back, shoulders, and front of the garment, producing always a pleasing effect and indicating considerable industry on the part of the seamstress.

The woman's tapsi or belt is made from the skin of the wolverine's feet with the claws directed downwards and placed at regular intervals. Near Kotzebue Sound a belt of a different kind is much in use, consisting of a piece of skin of proper length having the front teeth of the reindeer adhering to the dried gum of the animal stitched to it, so that the second row of teeth overlies the sewing on the first, and so on, beginning at each end and joining at the middle. A belt of this description is about two and a half inches broad, and has from fifty to sixty rows of teeth. The other personal ornaments, besides the beads in the hair and ears, are rings of iron and copper for the wrists; and on dancing occasions this wealth is displayed in broad bands of small beads of different colours, arranged according to the taste of the wearer, attached by one end to the coat at the neck and by the other to the middle of the front skirt. Large beads seem to be used only by the men, some of whom were vain enough to display them in strings round the head or hanging in front of the coat, and we remarked that no part of the materials procured from the ship was used as clothing by the women. Buttons were the only ornaments they seemed to adopt for the belt and to fasten the beads in their hair.

Instead of a knife, the women wear at the inner belt a needle-case, which is merely a narrow strip of skin in which the needles are stuck,

with a tube of bone, ivory, or iron to slide down over them, and kept from slipping off the lower end by a knot or large bead. Their pipe is commonly smaller and lighter than the men's, and they do not carry it in a bag but in the hand or inside the coat at the back; and the flint and steel is not so general with them, as their work is seldom out of doors except in company with the men. They have a singular habit of wearing only one mitten, protecting the other hand under the flap of the coat or drawing it inside the sleeve in preference to carrying a second.

The shape of the coat seems to distinguish the sex of children as soon as they are able to walk alone, but the woman's form of mocassins is used by boys until they are well grown.

The physical constitution of both sexes is strong, and they bear exposure during the coldest weather for many hours together without appearing inconvenienced further than occasional frost bites on the cheeks. They also show great endurance of fatigue during their journeys in the summer, particularly that part in which they require to drag the family boat, laden with their summer tent and all their moveables, on a sledge over the ice.

Extreme longevity is probably not unknown among them; but, as they take no heed to number the years as they pass, they can form no guess of their own ages, invariably stating "they have many years." Judging altogether from appearances, a man whom we saw in the neighbourhood of Kotzebue Sound could not be less than eighty years of age. He had long been confined to his bed and appeared quite in his dotage. There was another at Point Barrow whose wrinkled face, silvery hair, toothless gums, and shrunk limbs indicated an age nothing short of seventy-five. This man died in the month of April, 1853, and had paid a visit to the ship only a few days before, when his intellect seemed unimpaired and his vision wonderfully acute for his time of life. There is another still alive who is said to be a few years older.

Before offering any remarks on the character of these people it should be premised that the subject is approached with great diffidence lest we should give erroneous views respecting them; for, although we have resided two years within three miles of their largest settlement, we could never wholly divest ourselves of the feeling that we were looked upon by them as foreigners, if not intruders, who were more feared than trusted. The more favourable points of their character were not, therefore, brought prominently before us; whilst, from being frequently annoyed by petty thefts, false reports, broken promises, and evasions, we perhaps too hastily concluded that thieving and lying were their natural characteristics, without attributing to them a single redeeming quality. Yet as we became better acquainted we found individuals of weight and influence among them whose conduct seemed guided by a rude inward sense of honesty and truth, and whom it would be unfair to judge by a civilized standard or to blame for yielding to temptations to them greater than we can conceive. A leaf of tobacco is a matter of small value, yet the end of it sticking

from one's pocket amid a knot of natives at Nu-wuk' would be a greater temptation there, and would more surely be stolen, than a handkerchief or a purse seen dangling from one's skirt in a London mob. And, where the parental and filial duties are so carefully performed, it would be hard to deny the existence of even a spark of generosity.

In disposition they are good humoured and cheerful, seemingly burdened by no care. Their feelings are lively but not lasting, and the temper frequently quick, but placable. Of their placable temper an instance occurred in September, 1852. An old man of some consideration at Nu-wuk' had, with his wife, been alongside the ship and, in the crowd, were refused admittance, the woman also, by some accident, had received a blow on the head from an oar. By way of retaliation, a day or two afterwards, he tried to send away our watering party from a pond near the village, and, finding our men took little heed of him, he set about persuading his countrymen to expel the strangers "for stealing the water." Captain Maguire, seeing the disturbed state of his feelings depicted in his countenance, advanced to meet him and at once presented him with a needle. The man's embarrassment was extreme. Trifling as the present was it flattered him out of more than half his anger and he dissipated the rest in a long talk, the people seating themselves in a ring and requesting the Captain and his companions to take a place in the centre, when the old man and his wife—his better half—explained the bad treatment they had received at the ship. In the mean time the boat was laden, and the distribution of a little tobacco left a momentary impression that we were angels.

Their conjugal and parental affections are strong, the latter especially whilst the children are still young; but beyond the sphere of their own family or hut they appear to have no regard. The loss of a husband, a wife, or a child, makes no permanent deep impression, unless the bereavement leaves them destitute of the comforts they have been accustomed to; indeed, it is not rare to find a woman unable to give an accurate account of her children, including the dead, yet when these afflictions are brought to mind by inquiry, the cheerful smile leaves the face, to be replaced by a look of sadness, and the tone of voice becomes doleful. Under the real or pretended influence of grief, acts of violence are sometimes committed by the men, and thefts at the ship were occasionally said to be prompted by domestic sorrows. Though thankful at times for favours they seldom offered any return, and gratitude beyond the hour is not to be looked for. Perhaps it is not too much to say that a free and disinterested gift is totally unknown among them. On making a present to a stranger it was not uncommon to see him put on a look of incredulity and repeatedly ask if it were really a gift.

They vied with each other for a long time in pilfering from the ship whilst among themselves honesty seemed to prevail; but as we came to know them better and were able to detect delinquents, our losses became fewer and we learned that thefts from each other were not in-

frequent, so that we arrived at the very unsatisfactory conclusion that it is the certainty of detection that prevents theft. Many articles, such as spears and other implements, are left exposed and run no risk, as they would certainly be recognized by many others besides the owner; but when food, oil, tobacco, or such other things as would be difficult to identify are concerned, the case is different. In the long passage leading to the winter hut many articles are kept which could be easily taken unknown to the inmates; but during the day some neighbour would be sure to see the thief, or, if the deed were done at night, his foot-marks on the snow would tell the tale. It is in the stormy, dark nights the Nu-wuk' burglar goes his rounds, trusting to the snow-drift to obliterate his footsteps. His visits are not unprovided against, for a trap is laid in most huts—not to catch the marauder but to alarm and drive him away. This is effected by placing a board with a large wooden vessel on it in such a position that both may fall on the slightest touch, thereby making sufficient noise to arouse the household, some of whom get up, readjust the trap, and retire again. We were also informed of instances as they occurred of stealing from each other seals left on the ice, and in one case a net was taken up and carried off to Cape Smyth.

It is almost natural to expect that falsehood should follow to conceal theft, and we found it here accordingly. To invent stories disparaging to others was a practice some addicted themselves to without any conceivable motive; and the women backbite each other and talk scandal very freely. Their confidence in our honesty soon became unbounded, and goods brought to the ship and not disposed of were frequently left behind; yet though they knew our engagements would be fulfilled, when a bargain was made they appeared uneasy until the payment was effected. Selfish gratification at the present moment is all they seem to live for, and no promise of a reward however great would induce them to deviate from their usual life for any continued period.

If they do not possess courage of a daring character they have given us no reason to look upon them as cowards. When the crew of Mr. Shedden's vessel, the *Nancy Dawson*, landed on the ice to shoot birds, the handful of men whose tents were in the neighbourhood advanced, bow in hand, to meet them and drive them back. Some of these men have since explained, that fearing the guns, they thought it better to oppose the landing of the strangers than trust them on shore before knowing them to be friends, adding that Mr. Martin was a good man who said they were friends and made the ship's people put away their guns. After committing a robbery at our storehouse they attempted to direct attention to the Cape Smyth people as the thieves, although the track left by dragging some sails had been followed to near Nuwúk. When this was pointed out and a threat made to send an armed force to recover the stolen property, they turned out to the number of eighty men with bows and spears and advanced within musket-shot of the ship, rather than stand a siege in their own dwellings. We have learned enough from them to believe they at first looked upon us as a contemptible few whom they could easily overcome, and certainly

would have attempted it but for fear of the firearms; but since then they have gone to the opposite extreme and invested us with greater powers than we really possess. On trifling occasions some of them have shown a degree of obstinacy which renders it probable, that if once engaged in a fight they would not readily give in, at least if there was any thing like equality of weapons, and, under any circumstances, they might be expected to defend their homes to the last extremity.

Being in the habit of making frequent journeys of four or five days without taking more than two days' provisions, they appear to rely on the kindness of others as they pass, and as this is perhaps never denied, hospitality to strangers may be esteemed a duty. We are of opinion, however, this has its limits. A man of good name would have no difficulty in procuring food and shelter while travelling through any part of his country; as where he ceased to be known by his own reputation, he would be accepted as a guest on mentioning the name of his last entertainer; and we have never entered a strange hut without inquiry being made as to what sort of food we used, and generally some of their best was set before us, or an apology made that they had nothing to offer which we would relish. But an Esquimaux never undertakes a distant journey unless he well knows the people he is going among, or he goes in company with others on whom he can depend for a welcome. In a society so large as that at Point Barrow it is impossible that different families should be at all times totally independent of each other, and the successful hunter of to-day lends to his neighbour who, when the luck turns, repays the favour, but dealings of this kind are practised no more than necessity requires. A man returned during the hunting time to the village and, his own hut being closed, he lived with a relative for four or five days, in return for which, when the season was over, that relative and some of his family spent a whole day in the other's hut, where they were entertained with reindeer flesh which was then very scarce.

For the tender solicitude with which their own infancy and childhood have been tended, in the treatment of their aged and infirm parents they make a return which redounds to their credit, for they not only give them food and clothing, sharing with them every comfort they possess, but on their longest and most fatiguing journeys make provision for their easy conveyance. In this way we witnessed among the people of fourteen summer tents and as many boats, one crippled old man, a blind and helpless old woman, two grown up women with sprained ankles, and one other old invalid, besides children of various ages, carried by their respective families, who had done the same for the two first during many successive summers. Here again the tie of kindred dictates the duty, and we fear it would go hard with the childless. When a man dies his next of kin supports his widow, or if unprovided already he may make her his wife unless he allows her to be taken by a stranger. Orphan children are provided for in the same way, and adoption is so frequent among them that it becomes almost impossible to trace relationship: this is however of no importance as the adopted takes the place of a real child, and performs his duties to-

wards his benefactors as if for his own parents. Grief is sometimes made the excuse for violence, but it is also assuaged in a nobler manner by adopting the children of the deceased, or a stranger's orphan, to whom the name of the lost one is given. In this manner Omigíalun, the principal man at Point Barrow, the same who followed and annoyed Capt. Pullen at Point Berens, adopted an Indian infant which fell into his hands by accident while grieving for his father, then recently dead, whose name the youth now bears. We have never heard of the sick or aged being left to perish, though at Icy Cape we saw a woman lying dead in a hut who had been subject to bad treatment as evidenced by the bruises on her face. Within her reach were placed food and water, which we were willing to look upon as proofs that it was not intended she should die of starvation. One instance of infanticide came within our knowledge during the last winter; but a child, they say, is only destroyed when afflicted with disease of a fatal tendency, or in scarce seasons when one or both parents die. In the case alluded to both these conditions were present. They state that children are rarely put to death at Nu-wuk', though frequently in the inland regions, as if by pointing out its greater frequency there they palliated the crime among themselves.

Having but little food of a nature adapted to supply the place of milk, it is no unusual thing to see a boy of four or five years old take the breast, and the indulgence with which children are treated is attributable in some degree to the difficulty in rearing them. We have seen a child of four years old demand a chew of tobacco from his father, and not receiving it immediately strike him a severe blow on the face with a piece of wood without giving offence. It is not improbable that such indulgence should have a permanent effect on the temper and character of the people. The children fight with and bully each other in their play, but among grown up men or women we have never seen anything approaching a quarrel, and as a general rule they are particularly careful not to say anything displeasing in each other's presence. If a man gets angry or out of temper the others, even his nearest friends, keep out of his way, trusting to his recovery in a short time. Whenever we have met them at a distance from the ship in small parties, they have proved tractable and willing to assist when required; but when the numbers were large they were mischievous bullies, threatening to use their knives on the slightest provocation, and, instead of giving assistance, would rather throw impediments in our way. We hardly think them likely to commit wanton cruelty or to shed human blood without a strong motive, yet we would be unwilling to trust to the humanity of a people whose cupidity is easily excited and who are accustomed to no restraint save their own free will. When murder is committed, as it sometimes is, it is in retaliation for injury real or fancied, and then the victim is stolen upon while asleep and overpowered by numbers, or he receives his death wound unawares from some one behind him.

In point of intelligence some exhibit considerable capacity, and in general they are observant and shrewd. As a people they are very

communicative, those of most consideration being generally most silent, and wisdom is commonly imputed to those who talk least. They possess great curiosity and are chiefly attracted by whatever might be useful to themselves. In this way a gun would be a study they seemed never to tire of, particularly the lock, and the blacksmith when working at the forge was perhaps as great an attraction as there was on board the ship. They soon began to appreciate prints and drawings, and latterly often borrowed books of plates to amuse them at home, always taking great care of them and returning them in good order. When shown the construction of a pair of bellows, a few appeared to perceive and admire the mechanism at once, whilst to many it remained quite a mystery to the end. They were totally unable to comprehend how the sounds were produced from a flute, and it was highly amusing to see one of the most intelligent among them, who fancied there was some trick practised, examine the fingers and lips of the musician to find out the deceit. Every article that fell under their notice became the subject of inquiry as to what were its uses, the material it was made from, how it was manufactured, and if it pleased them much, the name of the maker. At first they exhibited some caution in receiving information, and went slyly from one to another asking the same questions; but latterly they ceased to do so. A perfect stranger, especially if young and allowed to roam at large about the ship, would in a short time be able to name almost every one on board, but in a way hardly recognizable. One boy at the end of six months could count on his fingers as far as ten, mastering the letter *f* in four and five tolerably, but still with great effort, and learned a few other words. A number of others tried at fist to follow his example without success, and it was remarked that "pease-soup" was the only English word generally known and distinctly pronounced. The majority have a strong sense of the ludicrous, and readily observe personal peculiarities, which they will afterwards describe with great zest. Some of them are tolerable mimics, and their efforts are sure to meet with applause especially when the subject is a stranger; but among themselves they are very discreet in the exercise of this faculty. A few of the men showed some quickness in interpreting the drift of our inquiries respecting their superstitions and usages; but for the insight we gained of these we were usually indebted to the women, especially the younger ones, who besides being more communicative displayed more readiness in this respect, for the first information, which, being afterwards confirmed by the older men, served as a clue to guide further inquiry.

A man seems to have unlimited authority in his own hut, but as with few exceptions his rule is mild, the domestic and social position of the women is one of comfort and enjoyment. As there is no affected dignity or importance in the men, they do not make mere slaves and drudges of the women. On the contrary, they endure their full share of fatigue and hardship in the coldest season of the year, only calling in the assistance of the women if too wearied themselves to bring in the fruits of their own industry and patience; and at other seasons the women appear to think it a privation not to share the labours of the

men A woman's ordinary occupations are sewing, the preparation of skins for making and mending, cooking and the general care of the supplies of provisions. Occasionally in the winter she is sent out on the ice for a seal which her husband has taken, to which she is guided by his foot-marks, and in spring and summer she takes her place in the boat if required. Seniority gives precedence when there are several women in one hut, and the sway of the elder in the direction of every thing connected with her duties seems never disputed. In the superintendence of household affairs the active mother of the master of a hut, or of his wife, must be a great acquisition to his family from her experience and from the care and interest she displays in their management; and, as her natural desire is to see her children happy around her, she exerts herself to promote their well-being and harmony.

It is said by themselves, that the women are very continent before marriage as well as faithful afterwards to their husbands; and this seems to a certain extent true. In their conduct towards strangers the elder women frequently exhibit a shameless want of modesty, and the men an equally shameless indifference except for the reward of their partner's frailty. In the neighbourhood of Port Clarence this is less the case than further north, whilst on the Island of St. Lawrence it is perhaps more so than on any part of the coast.

The state of wedlock is entered at a variable time, but seldom in extreme youth unless as a convenience to the elders who desire an addition to the household. The usual case is that as soon as the young man desires a partner and is able to support one, his mother selects a girl according to her judgment or fancy, and invites her to the hut, when she first takes the part of a "kir-gak," or servant, having all the cooking and other kitchen duties to perform during the day, and returns to her own home at night. If her conduct prove satisfactory she is further invited to become a member of the family, and, this being agreed to, the old people present her with a new suit of clothes. The intimacy between the young couple appears to spring up very gradually, and a great many changes take place before a permanent choice is made. Obedience seems to be the great virtue required, and is enforced by blows, when necessary, until the man's authority is established. In the ordinary course of events, life runs smoothly enough, and is only checkered by a few lovers' quarrels or fits of sulkiness; but it occasionally happens that the husband finds his regards unrequited, and he either trusts to time to overcome her indifference, keeping a strict watch over her conduct, or he treats her with severity. The consequence of this is her return to her friends, whither he may follow and drag her back to his hut. Repeated occurrences of this kind may take place and end in permanent harmony, but if his treatment has been cruel, which it seldom is to their view, and her ralatives not interested in enforcing the union, she is taken back and protected from his further violence. We have been assured it sometimes happens that several men entertain a passion for the same woman, the result of which is a fight with bows and arrows, ending in the death of some of the aspirants, and she falls to the lot of the victor. A man

of mature years chooses a wife for himself, and fetches her home frequently to all appearance much against her will, but she manages in a wonderfully short time to get reconciled to her lot. A union once apparently settled between parties grown up is rarely dissolved, though we have seen a woman and her child residing with her relatives, having been deserted by her husband, for what reason could not be ascertained. The woman's property, consisting of her beads and other ornaments, her needle-case, knife, &c., are considered her own, and if a separation takes place, the clothes and presents are returned, and she merely takes away with her whatever she has brought. Unless she has proved an untameable shrew, she need not be apprehensive of remaining long single, as the proportion of males to females in the population is more than eight to seven, besides which, several of the leading men have each two wives.

Bigamy is evidently looked upon as a sign of wealth, and is in many instances analogous to the adoption of children. Thus if a man is a trader and well off, he may require the assistance of another woman to work up his peltry into coats for the next market, or his wife may be nursing and cannot well perform all the duties that usually devolve upon the mistress of a large establishment. Under such circumstances he may take home as an additional helpmate some elderly widow, and both parties will be benefited by the arrangement. This is however not always the motive, and no little jealousy is sometimes excited by the introduction of a younger and better looking woman to the establishment. The practice is after all not very common, as only four men out of a population of near 290 at Point Barrow had each two wives. There were four also at Cape Smyth, where the population is smaller; and several at Point Hope. At the latter place one was particularly mentioned as having no less than five wives, and although it is the only instance of polygamy we heard of, it serves to show that custom has put no limit to the number of wives a native of this country may have.

The age at which the women are married is probably in general fifteen to sixteen. They do not commonly bear children before twenty, and there is usually an interval of four years or more between the births. They relate, apparently with little hope of being believed, that some years ago a woman at Cape Smyth had two children at one birth. For one woman to have borne seven children is a rare case; and for five to live to maturity still more rare. If any one in the ship were stated to be the ninth or tenth child of one family, it excited their astonishment; and if to this it were added that seven or eight of these were still alive, they became incredulous. A couple is seldom met with more than three of a family, though inquiry may elicit the information that one or several "sleep on the earth." From this and the great care and indulgence with which those of tender years are treated it may be inferred that the greatest mortality takes place under the fifth year; but it does not appear that there is any particular form of disease to which they are, before this age, peculiarly liable; the condition of the mother however according as the season is one of

abundance or scarcity, has by their own account a material influence on the health of the offspring. During first pregnancy great solicitude has been observed on the part of the husband for his wife, although there is no reason to believe childbirth anything but easy. In the particular instance alluded to from the delicate appearance of the woman it was fancied that every precaution was taken to guard against premature labour, three cases of which came under notice in the last winter.

Previous to proceeding further with the usages and occupations of these people it will be well to give some idea of their habitations.

The winter huts at Point Barrow are not placed with any regard to order or regularity, but form a scattered and confused group of grassy mounds, each of which generally covers two separate dwellings with separate entrances; some however are single, and a few are threefold. Behind each are placed a number of tall posts of driftwood with others fastened across them to form a stage on which are kept small boats or kai-aks', skins, food, &c., above the height to which the snow may be expected to bank up in the winter, and beyond the reach of dogs. These posts show out very plainly against the horizon in the winter when every thing beneath is covered with snow, and in all seasons may be seen at a considerable distance, long before the huts themselves become visible. The entrance to each hut is from the south by a square opening at one end of the roof of a passage twenty-five feet long, and has a slab of ice or other substance of convenient shape to close it at pleasure. The passage which is at first six feet high descends gradually until about five feet below the surface of the ground, becoming low and narrow before it terminates beneath the floor of the hut. Near its middle on one side branches off a recess, ten to twelve feet long, with a conical roof open at the top, forming an apartment which serves as a cook-house, and on the other is commonly enough a similar place used as a store or clothes room. The "iglu" or dwelling-place is entered by a narrow aperture in the floor on the side next the passage, and is a single chamber of a square form, varying in size from twelve to fourteen feet from north to south by eight to ten from east to west. The roof has a double slope of unequal extent, that on the south side being the larger, with a square opening or window covered with a transparent membrane stretched into a dome-shape by two pieces of whalebone arched from corner to corner, and is generally little more than five feet high under the ridge. The smaller part of the roof has between it and the floor a bender, on which a part of the family sleep at night, and sit or lounge during the day. The walls are of stout planks, placed perpendicularly, close at the seams and carefully smoothed on the inside; the floor and sleeping bench are the same, whilst overhead are small, rounded beams, also smoothed and scraped, sustaining the weight of the earth heaped on top. As the bench and the sleeping place beneath do not in many instances exceed four feet from the wall to the cross-beam at the edge, which serves as a pillow, the occupants cannot be supposed to lie at full length; but this limited extent of the bed place gives greater space in the other

part of the hut, which is thus left nearly square, and is generally occupied by the women sewing or performing other household duties. The entrance and bedplace are at opposite ends, and on either hand is an oil-burner or fireplace, having a slender rack of wood suspended over it, on which articles of clothing are placed to dry; also a block of snow to melt and drip into a large wooden vessel. Beneath the last again are other vessels for different purposes, some of them frequently containing skins to undergo preparation for being dressed. These vessels are each made of a thin board of the breadth required, bent into the form of a hoop, and the ends sewed together neatly with strips of whalebone, the bottom being retained in its place by a score like the end of an ordinary cask. The oil-burner is the most curious if not the most important piece of furniture in the establishment. It is purchased ready made from the Eastern Esquimaux, who procure it from a more distant people. It is a flat stone of a peculiar shape, three to four feet and a half long, and four inches thick, pointed at the ends by the union of the two unequally convex sides, somewhat like the gibbous moon. The upper surface is hollowed to the depth of three quarters of an inch to contain the oil, leaving merely a thin lip all around, and several narrow ridges dividing the hollow part both lengthwise and transversely. It is placed on two horizontal pieces of wood fixed in the side of the hut, about a foot from the floor with the most convex side towards the wall, the other being that where a broad flame of any extent required is sustained from whale or seal oil by means of dry moss for wicks. When the length of one side of a lamp of this description is considered, it will readily be conceived that not only a good light but also a great deal of heat may be produced, so that the temperature of a hut is seldom below 70° of Fahrenheit, though we have hardly ever seen a flame of more than a foot in extent, and, as great care is taken to keep it trimmed, no offensive degree of smoke arises, though the olfactories are saluted on first entering by a combination of scents anything but agreeable. Ventilation is not altogether neglected, as there is near the middle of the roof a hole in which a funnel of stiff hide is inserted to carry off the vitiated air from the interior of the hut. When the place is much crowded or the temperature too high, a corner of the membrane can be raised; but we have seen it more speedily effected by the master of a house at Nuwuk', in his impatience to contribute to our comfort, by making an incision with his knife through the middle of it,—a proceeding which did not seem to be entirely approved of by his wife, to whose lot it would doubtless fall to repair it.

Such are the usual habitations on the coast of the Arctic Sea; but there are also others of a greater extent and different form, one of which, near the entrance of Hotham Inlet, Kotzebue Sound, is worth mentioning, more particularly as it bears some resemblance to one described by Sir John Richardson on the east side of the Mackenzie River. The outside did not differ in appearance from the others except in size, as indeed they were all pretty well covered with snow;

but the interior was in shape something like three sides of a cross, twenty feet by sixteen, with a roof sloping down on all sides like that of a verandah from a square framework in the centre, supported by four straight pillars, one at each corner, seven feet high and eight feet apart. The quadrangular space in the centre was covered with loose boards, which were removed when the fire was required for cooking, was bounded by logs stretching between the bases of the pillars, and rounded on the upper surface to rest the head upon during sleep, and had above it the usual square aperture answering alternately the purpose of a chimney and a window. Three sides of the house formed as many recesses five feet and a half from the logs stretching between the pillars to the walls, and were occupied at the time of our visit by six families, each family having their own lamp in the intervals between the recesses. The fourth side was only two feet deep, and left space for little more than the entrance hole in the floor and a few household utensils. The walls were only three feet high, and inclined slightly inwards, the better to support the sloping roof, which, like them and the flooring of the recesses, was made of boards nearly two feet broad, quite smooth and neatly joined. The whole building was remarkable for the regularity of the form of the interior, and for the mechanical skill displayed in the workmanship. Huts of this description may be looked upon as a combination of several, each recess representing a separate establishment, united in this form for mutual convenience, and are used where driftwood is abundant, the large cooking fire in the middle of the building imparting its warmth to all around. But the rushing down of cold air and the smoke not always ascending, proved sources of greater discomfort to us whenever we visited them than the closer atmosphere of those in which oil only is burned.

A modification of the last form, built of undressed timber and sometimes of very small dimensions, with two recesses opposite each other and raised about a foot above the middle space, is very common on the shores of Kotzebue Sound; but on the rivers where trees grow, structures of a less permanent kind are erected. Then the smaller trees are felled, cut to the length required, and split, then laid inclining inwards in a pyramidal form towards a rude square frame in the centre supported by two or more upright posts. Upon these the smaller branches of the felled trees are placed, and the whole, except the aperture at the top and a small opening on one side, is covered with earth or only snow. The entrance is formed by a low porch having a black bear skin hanging in front, leading to a hole close to the ground, through which an unpractised person can hardly creep, further protected from the breeze by a flap of deer skin on the inside. In the hilly districts near the source of the Spafareif River this sort of snow covered hut was in use, and the inland tribes on the Nuna-tak are described as living in dwellings of a similar kind constructed of small wood, probably built afresh every year and not always in the same locality. A stranger approaching a village of this description, if the numerous foot-marks happened to be obliterated by a recent drift or

fall of snow, might readily pass by unconscious of its existence, unless he happened to catch a glimpse of the black bear skin doors which are all turned in one direction.

Snow or ice huts are seldom used except for short intervals, and they are then made very small, consisting of two chambers, the outer one of which serves as a cook house and is entered from above by an opening closed at pleasure by a slab of snow. The communication between this and the inner one is by a passage close to the floor no larger than necessary for one person to creep through. The roof of the inner apartment is about five feet high with a window facing the south, having beneath it a small lamp and rack for dying clothes, and on one side the snow is raised two feet from the ground and covered with boards on which the skins are laid to form the bed.

In fixed settlements like those of Point Barrow or Cape Smyth there are other buildings which seem public though nominally the property of some of the more wealthy men. In the former of these places there are two still in existence, and in the latter three. The largest is at Nu-wuk′ and is eighteen feet by fourteen, built of planks stuck upright in the ground, and the crevices filled up with moss. The roof is similar to that of the other huts, only higher, and there is no sleeping bench within but a low seat all round the four walls. It has the usual subterranean passage for entrance but the window in the roof is often used as a door. Unlike the other huts, they are placed on the highest ground and are readily distinguished by not being built around or covered with earth. They are altogether constructed with little care and evidently for only occasional use. A house of this description is called a kar-ri-gi, and used by the men to assemble in for the purpose of dancing, in which the women join, for working, conversing, and idling, whilst the boys are unconsciously learning the customs and inbibing the sentiments of their elders.

In summer they live in conical shaped tents of deer or seal skins, according as they are inland or coast people. Four or five poles from twelve to thirteen feet long, slung together by a stout thong passing through holes in their tops, are spread out to the proper size, and within them, at a mark on each about six feet from the ground, a large hoop is fastened. Smaller poles are then placed between the others in a circle on the ground and leaning against the hoop to complete the frame of the tent. The skins are in two parts, each having a long corner sewed into a sort of pocket to fit the top of the long poles, over which one is placed above the other from opposite sides so as to surround the whole frame work and allow the edges of one set of skins to overlap those of the other and be secured by a few thongs. A large flap is sometimes cut in one side to form a window, fitted with a transparent membrane, over which the flap of skin may be replaced as a blind during sleeping time. A tent of this kind is called a tu′-pak, and makes a very comfortable summer abode, one side of which can be kept open to any extent according to the weather; it is easily transported, and may be set up or taken down in an incredibly short time.

Commencing with the first new moon after the freezing over of Elson Bay, which took place on the 24th of September, 1852, and on the 16th of September, 1853, the Point Barrow people divide the year into four seasons, which they call O'-ki-ak, including October, November, and December; O'-ki-ok, January, February, and March; O-pen-rak'-sak, April, May, and part of June; and O-pen-rak', the remaining part of June, together with July, August, and September. The successive moons, to the number of twelve, are also named by them evidently in reference to their own occupations, to the phenomena observable in the season itself, or in animals, such as their migrations, &c., though we have been able to make out the precise meaning of only a few of them. These vary a little in different localities, but the setting in of the winter being taken as the beginning of the year in all parts of the country, and the summer moons being but little noticed, no confusion seems to result. Taking them as they occurred in the last season, 1853–54, each tad'-kak or moon was given us as follows:—

I. 1853, Oct. 2nd, *Shud'-le-wing.*—Sewing.

II. 1853, Nov. 1st, *Shud'-le-wing ai-pa,*—Sewing.

III. 1853, Nov. 30th, *Kai-wig'-win,*—Rejoicing.

IV. 1853, Dec. 30th, *Au-lak'-to-win,*—Departing (to hunt the reindeer).

V. 1854, Jan. 28th, *Ir'-ra shu'-ga-run sha-ke-nat'-si-a,*—Great cold (&) new sun.

VI. 1854, Feb. 27th, *E-sek-si-la'-wing.*

VII. 1854, March 28th, *Kat-tet-a'-wak,*—Returning for whale (from hunting ground).

VIII. 1854, April 27th, *Ka-wait-piv'-i-en,*—Birds arrive.

IX. 1844, May 26th, *Ka-wai-a-niv'-i-en,*—Birds hatched.

X. 1854, June 25th, *Ka-wai'-lan pa-yan-ra'-wi-en,*—(Young) birds fledged.

XI. 1854, July 25th, *A-mi-rak'-si-win.*

XII. 1854, August 23rd, *It-ko-wak'-to-win.*

As the new moon of September falls on the 21st of the month, it will require an early setting in of the winter to make that the first moon of the next year.

For denoting time they also have expressions equivalent to yesterday, to-day, to-morrow, morning, afternoon, evening, &c., but these are not by any means precise; and in speaking of events a year or more past they use two terms, ai-pa'-ne, which seems properly to mean two years ago (ai'-pa, two,) but may be as readily applied to twenty, and al-ra'-ne, in the olden time, which is exceedingly indefinite. They have frequently declared that they keep no account of the years as they roll, and "never number them, as they do not write like us," so that it is next to impossible to get anything like exact dates from them. In describing the direction of any distant place they are equally vague, using the term a-wa'-ne, westward, or along the coast towards Icy Cape or Point Hope; ka-wa'-ne, eastward, or towards the Colvile

or Mackenzie Rivers; pa-ne, south, or landward; and u-na'-ne north, or seaward.

The seasons, as mentioned above, seem to guide them almost instinctively in their different occupations; and it will not, perhaps, be amiss to enumerate the principal ones which employ their time throughout the year.

In the month of September they have almost all assembled at the winter huts, amongst which they pitch their sealskin tents, living in them in preference to the yet damp underground ig lu's, and are constantly on the look-out for whales, killing also a few walruses, bears, and seals, until the winter has fairly set in and the sea become shut up with ice, which generally takes place about the middle of October. During this time most of the women remain in comparative idleness at home, "as it is not good for them to sew while the men are out in the boats;" but so soon as these are laid up for the winter, the sewing, together with cleaning the skins commences, and is most industriously carried on for two months following. The men are now also engaged in setting nets under the ice for seals, in catching small fish with hook and line through holes in the ice, or in preparing implements used at other seasons. As mid-winter approaches the new dresses are completed, and about ten days at this season are spent in enjoyments, chiefly dancing in the kar'-ri gi, every one appearing in his or her best attire. This time of the year being one in which hunting or fishing cannot well be attended to, and no indoor work remaining to be performed, is, perhaps, sufficient reason why it should be chosen for festivities in the high latitude of Point Barrow, where the sun is not visible for about seventy days; but it may not equally explain the prevalence of the same custom about the same period in Kotzebue Sound, lat. 66°, where the reindeer might be successfully pursued throughout the winter, the people then collecting from many miles around to hold a festival in the neighbourhood of Cape Kruzenstern. The amusements being concluded, a few set out early in January, but it is later when the larger parties take their departure, for the land in search of deer, scattering themselves over the flat ground at a variable distance of three to eight or ten days' journey from the village, and hollowing out dwellings in the deep snow-drift under the banks of the rivers, through the ice of which they make holes for catching fish by nets and for obtaining a supply of water. This occupies the majority of the people until April, the few who remain at home receiving supplies from time to time besides spearing a few seals by watching for them as they come to breathe through the cracks in the ice, or, if it is not in a favourable state for this near the shore, they make snow houses to live in among the grounded masses in the offing. Having brought home the spoils of the chase, in the end of April they commence preparing their boats for launching, and the implements used in capturing the whale which gives employment to the men. The women are now also busily engaged in making water-tight sealskin boots and other articles of dress appropriate for summer wear. Towards the end of May, birds, chiefly eider and king ducks, engage

much attention from the whole population as they pass over the village northward in rapidly succeeding flights of one to two hundred birds, alternately male and female. The whales having disappeared and the birds passed, a short interval is allowed to prepare dresses for another festival which takes place in the end of June and occupies six or eight days, when the dancing is performed in the open air. Early in July more than one-third of the community take their departure in a body to the eastward to make the long journey to the Colvile River and to Barter Point, many of the others following in small parties to scatter themselves over the land in search of deer, and over the lakes and rivers for birds and fish. About one-fourth of the population remains at the village, catching abundance of small seals, but chiefly looking-out for those of a larger size and walruses, until the whales re-appear in the end of August; soon after which most of the travellers return from their wanderings to commence another year.

At midsummer, when the sun has been some time above the horizon, the snow becomes soft and the rivers begin to flow, so that travelling or the pursuit of game is too fatiguing to be successfully carried on; this season, therefore, like mid-winter, becomes necessarily one of comparative idleness or is only spent in amusements.

Such is a brief sketch of the ordinary annual routine of the occupations of the Esquimaux of Point Barrow, but it is to be remarked that unusual success or the reverse in hunting or fishing, more especially as regards the whale, must always modify it in a great degree. Thus, in 1852, no less than seventeen whales were said to have been taken, sufficient to afford the poorest and most improvident abundance of food and fuel for the winter; and in the succeeding spring, out of their superabundance of deer a very considerable number was brought to the ship for barter; whilst in 1853 only seven whales, and those mostly small ones, were killed, giving rise to such want of the necessaries of life in the last winter, that many families were obliged to use the decayed flesh and blubber of a dead whale which had been stranded on Cooper Island, about twenty-five miles distant, more than two years before, and had remained up to this time neglected. But even this resource failed them, and many, as has been before-mentioned, perished of famine. In the former year at mid-winter feasting and dancing were constant for nearly a fortnight, and during October, November, and December, the number of seals offered for sale at the *Plover* was very great; but in the latter they had none of these amusements, at least in public, as they had not oil enough to spare for warming and lighting up the dance huts, and up to July only a few scraps of seal were brought to the ship. The want of oil also prevented some of the most wealthy men from going to hunt the deer in the winter, and, consequently, none but a few pounds of venison were brought to the ship for barter, the supply being hardly adequate to their own wants.

From some of the more intelligent men it appears that they consider the last season one of uncommon privation, and that of 1852–53 was one of unusual abundance. Tracing back the years on the fingers,

with some patience, it could be made out that in 1851–52 whales abounded; in 1850–51 the narwhal supplied the place of whales giving them plenty of food and skins for covering their boats; 1848–49 was one of scarcity, as was also 1843–44. This, so far as it may be depended on, makes three successive fifth years to be seasons of unusual hardship. In 1837, Mr. T. Simpson remarked the number of fresh graves on Point Barrow, but no satisfactory account of the season preceding that could be obtained, and it was too remote to be recalled with anything approaching certainty by even those who remembered that gentleman's visit.

The summer journeys to the eastward are, in regard to the expedition of more interest than any other part of their proceedings, as during them they have already had intercourse with the *Enterprise* and *Investigator*, of which they have informed us, as will be seen by the map; and it is in their future journeys in the same direction we may hope for their being able to obtain further intelligence of those ships or their crews.

Having cleared out most of the furniture from the ig-lu, and filled up the window with pieces of timber and other lumber, placed on their ends so as also to obstruct the entrance hole in the floor, the um'-i-ak or large boat is put upon a sledge, u'-ni-ek, where it is secured by a few cords or thongs, and in it are stowed the summer tent, with all its furniture, the baggage of the whole family, the children and old people, together with the kai-a'ks or canoes, and all their fittings, belonging to the men and boys of the party, making a very considerable weight to drag. On a low sledge, ka-mo'-tik, of a stouter structure are generally carried three sealskins filled with oil for barter. The party consists on the average of six persons, four of whom are generally all who can drag, and are distributed, three to the large sledge and one to the ka-mo'-tik. If they possess dogs these are distributed also to assist where most required, and there appears to be as much care taken as possible to adapt the load to the strength of each individual. The ice at this season is much decayed and uneven from the formation of pools on its surface, and the labour of dragging a heavy load on a sledge is very great, but, fortunately for them, it seldom lasts more than four or five days, during which they appear to travel at the rate of ten miles a day Fourteen parties, with as many boats, (the aggregate number of souls being seventy-four,) passed the ship in this way on the 3rd of July last, which is four days earlier than in the preceding summer. On the fourth day they arrive at Dease Inlet, which, from the rivers flowing into it, is then a sheet of water, and the mode of transport is reversed, the sledge being now carried in the u'-mi-ak and the small boats towed. In favourable seasons the journey may be continued by paddling or tracking the boat along the shore, between which and the ice there is generally a narrow lane of water, until they arrive at Smith Bay. Here the laborious part of their journey is sure to end; the sledges are left behind and, to make room in the large boat for the oil skins, the men get into their kai-a'ks. They enter a river which conducts them to a lake or rather series of

lakes and descend another stream, which joins the sea in Harrison Bay, within a day's journey and a half of the Colvile. Whilst passing these streams and lakes they are enabled to supply themselves abundantly with fish of large size by nets; a few birds are also taken and occasionally a deer. About the eleventh day they encamp on a small island within half a day's journey of the bartering place, and the different parties probably wait for each other, then to enter the river in company.

The Colvile River is described as having four mouths, the western of which is very shallow, but the second is a good deep channel and is, therefore, followed until they get into the undivided stream; on the left or west bank of which they see the tents of their friends the Nu-na-tang'-meun. Six, eight, or ten days, for precise numbers could not be obtained, are spent in bartering, dancing, and revelry on a flat piece of ground, on which the tents of the two parties are ranged opposite each other, between two slight eminences about a bow shot apart. The scene is looked forward to by every one with pleasant anticipations, and is spoken of as one of such great excitement that they hardly sleep during the time it lasts.

About the 26th of July this friendly meeting is dissolved, the Nu-na-tang'-meun ascending the Colvile, homewards, and the others descending its eastern mouth to pursue their journey to O-lik'-to, Point Berens. In consequence of their occupying a great deal of time in hunting, to provide supplies for the remainder of the journey, they spend four or five days in this short distance, which does not exceed twenty miles. Proceeding from Point Berens, they travel four sleeps, as marked in red ink on the chart, to a place called Ting-o-wai'-ak (Bouldu Island, of Franklin,) when the tents are pitched, and the women and children left. Three boats are then selected and additional benches placed in each for the accommodation of its crew, now increased to fifteen, including one or two women. The fifth sleep is within a short distance of Barter Point, from which they start prepared for a hostile or a friendly meeting as the case may be, but it is uniformly the latter, at least of late years. The conduct of the Point Barrow people in their intercourse with those of the Mackenzie, or rather Demarcation Point, seems to be very wary, as if they constantly kept in mind that they were the weaker party, and in the country of strangers. They describe themselves as taking up a position opposite the place of barter on a small island, to which they can retreat on any alarm, and cautiously advance from it making signs of friendship. They say that great distrust was formerly manifested on both sides by the way in which goods were snatched and concealed when a bargain was made, but in later years more women go and they have dancing and amusements, though they never remain long enough to sleep there. They state that on leaving Barter Point the wind is always easterly and, making sail in their boats, they can go to sleep. On the first day they pick up the women and children, with their tents, and return to Point Berens on the second. They now cross Harrison Bay, in a direct line before the breeze, to Cape Halkett about the 10th

of August, some taking the route through the rivers by which they had gone eastward and others proceeding along the sea coast. Should the previous whaling season have been successful they spend the time until September in fishing and catching deer; but should the opposite have been the case, they make no delay beyond what is necessary for procuring supplies to bring them back to Nu-wu'k, in order to make up in the autumn for the deficiency of the summer.

The traffic, which is the main object of this yearly journey, has been already alluded to, but some more details of it may not prove uninteresting. At the Colvile the Nu-na-tang'-meun offer the goods procured at Se-su'-a-ling or Kotzebue Sound from the Asiatics, Kokhlit' en'-yu-in, iu the previous summer, consisting of iron and copper kettles, women's knives (o-lu'), double edged knives (pan'-na), tobacco, beads, and tin for making pipes; and from their own countrymen on the Ko'-wak River, stones for making labrets and whet-stones, or these ready made, arrow-heads, and plumbago. Besides these are enumerated deer and fawn skins, and coats made of them, the skin, teeth and horns of the im'-na (argali?), black fox, marten, and ermine skins, and feathers for arrows and head-dresses. In exchange for these the Point Barrow people (Nu-wung'-meun) give the goods procured to the eastward the year before and their own sea produce, namely, whale or seal oil, whalebone, walrus tusks, stout thong made from walrus hide, sealskins, &c., and proceed with their new stock to Point Barter. Here they offer it to the Kang'-ma-li en'-yu-in, who may be called, for distinction, Western Mackenzie Esquimaux, and receive in return, wolverine, wolf, imna, and narwhal skins (kil-lel'-lu-a), thong of deer skin, oil burners, English knives, small white beads, and, latterly, guns and ammunition. In the course of the winter occasional trade takes place in these with the people of Point Hope, but most of the knives, beads, oil burners, and wolverine skins are taken to the Colvile the following year, and, in the next after, make their appearance at Kotzebue Sound and on the coast of Asia.

From what we know positively of the trade thus far, we are inclined to believe there is a tolerably regular yearly communication between each Esquimaux tribe and their neighbours of the same race on either side. It seems highly probable the pan'-na or double-edged knife described by Sir W. E. Parry as in use among the tribe he met at Winter Island may have been of Siberian origin, from being of the same form and identical in name with that brought by the Asiatics to Hotham Inlet; where they receive in return oil burners or stone lamps, which we have often seen in their tents in 1848–9, of a shape corresponding exactly with the drawing in that gentleman's *Journal of his Second Voyage*; they bear also a similar name, kod'-lan, and are said to be brought from a very distant eastern country. Supposing a knife of this kind, made in Siberia, to be carried at the usual rate, we compute it would not arrive at Winter Island before the sixth year, and, having been exchanged the year before for a stone lamp, this might come into the hands of the Asiatics on the ninth. The knife would remain the first winter in the possession of the Reindeer

Tchuktchi (or Tsan'-chu); the second, with the inland Esquimaux, Nu-na-tang'-meun; the third, at Demarcation Point, with the Kang'-mu-li-meun; the fourth, with the East Mackenzie, or the Cape Bathurst tribes; and on the fifth, possibly, fall into the hands of the people who make the lamps. The lamp, returning the same way, would remain the sixth winter at Cape Bathurst; the seventh, at Demarcation Point; the eighth, at Point Barrow; the ninth, in the interior; and be received by the Asiatics on the following summer.

For a very large portion of our information we have been indebted to a man called Erk-sin'-ra, who has sustained a most excellent character throughout the whole time the *Plover* remained at Point Barrow. He drew the coast line eastward as far as he knew it, giving the names of many places, some of which he described so minutely as to be undeniably identified with those mentioned in Sir J. Franklin's journal and laid down in his chart. Erk-sin'-ra's coast line has been drawn in red parallel to that copied from the Admiralty chart, and a dotted line marks each place where the two were made out clearly to correspond. What seemed to us most singular was, that whilst his description of the coast agreed so minutely in many particulars with the narrative and chart of Messrs. Dease and Simpson, he denied the existence of the Pelly Mountains, and maintained most positively that there are no hills on the west side of the Colvile visible from the sea, and at length said, "we never saw them but perhaps you might with your long spy-glasses." He was the head man of the first party Commander Pullen met at Point Berens on the 11th of August, 1849, and gave O-lik'-to as the name of the place where the post was erected. By a letter, dated H.M.S. *Investigator*, 8th of August, 1850, received from a native of Point Barrow, to whom it had been given at Point Drew, that ship must have passed Point Berens on the 9th or 10th of August, when she also was seen by Erk-sin'-ra. As he was, on both these occasions, on his return from the bartering place, the first week in August may be confidently assumed as the usual time of the two tribes meeting at Barter Point.

Among the few remarkable features of this dreary coast is a large stone about four sleeps from Point Barrow, near Point Tangent, and gives the name of Black Rock Point to the projecting land off which it lies. It is mentioned by Mr. T. Simpson as the only stone of large size he met with on this part of his journey. The natives assert it is a "fire stone" and fell from the sky within the memory of people now living. No one saw it fall, but one woman, about sixty years of age, said she travelled that way yearly, as a girl, when there was no stone there, and that in returning one summer her people were much surprised to see it, and believed it had fallen from the sky. Should it prove a meteoric stone the story of its age might be true enough, but at present it is doubtful. It is said to enlarge and present a full rounded appearance at times when deer are plentiful in the neighbourhood, as it feeds upon them, killing and devouring a great many at a time! No doubt those animals are instinctively guided in their migrations by particular states of the atmosphere, and as the tides are

much influenced by the winds, it is not impossible that they should most abound in that locality where the tide is low, giving an apparent increase to the size of the stone.

We were anxious to get the history of the Old Huts marked by Sir J. Franklin in long. 146° 20′ W., but could ascertain distinctly no more than that they were the remains of an ancient Kang′-ma-li settlement. In connection with this, our informant gave an account of the modern origin of the trade at Barter Point, agreeing with that given by Sir J. Franklin, to the effect that it was established within the memory of people recently dead; whilst their intercourse with the inland people by the Colvile is of ancient date. But from their having traditions of the Eastern people relating to a remote period, we think it probable that it was only renewed in recent times, having been previously kept up by a tribe inhabiting the "Old Huts," whose parties visited the Colvile on the west, and met the Mackenzie people on the east of their own country. From the well known hostility of the Red Indians to the Esquimaux, it may be conjectured that the settlement was destroyed by them and the inhabitants put to death, and that after some time had elapsed, the people of Point Barrow would be induced to extend their journeys eastward further and further in search of those whose goods they had been accustomed to receive, and at length meeting with other people none of whom they had ever before seen, the establishment of a regular trade, as at present existing at Barter Point, would be the result.

Point Hope is generally visited by parties in the winter, who perform the journey in fifteen to twenty days, returning to Nu-wuk at the end of two moons. From that cape therefore to a little beyond Barter Point, a distance of about 600 miles, is the extent of coast with which the Point Barrow people are actually acquainted, and their personal knowledge of the interior may be said to extend to fifty miles. But besides this they also know by report the names of more distant countries and their inhabitants; thus the people they trade with at Barter Point are called Káng-ma-li én-yu-in, whose winter huts are probably at Demarcation Point; among them they have occasionally seen a few Ko-páng-meun, Great River (Mackenzie) people, whom they distinguish by having a tattooed band across the face. Beyond the Mackenzie is a country called Kit-te-gá-ru, and further still but very distant one inhabited by the people who make the stone-lamps before spoken of. So far they speak with confidence, and then relate the story of a singular race of men living somewhere in that direction who have two faces, one in front and the other at the back of the head. In each face is one large eye in the centre of the forehead, and a large mouth armed with formidable teeth. Their dogs, which are their constant companions, are similarly provided with a single eye in each. This fable seems to refer to the tribe of Indians who are said by their neighbours to see the arrows of their enemies behind them.

Of the Indians they know but little personally, having only seen a few on rare occasions; but they appear to know them well by report both from the Káng-ma-li-meum and Nu-na-tang′-meum. Under the

general term It'-ka-lyi they describe them as a dangerous people, well armed with guns, who reside in the mountainous districts far away to the south and east of the Colvile. The inland Esquimaux also call them Kó-yu-kan, and divide them into three sections or tribes, two of which they know, and say they have different modes of dancing. One is called It'-ka-lyi, and inhabits the It'-ka-ling River east of the Colvile; the second, It-kal-yá-ru-in, whose country is farther south; and the third, whom they have never seen, but only heard of as the people who barter wolverine skins, knives, guns, and ammunition to the Esquimaux at Herschel Island for Russian kettles, beads, &c., together with whalebone and other sea produce. These three tribes they further say are all dressed alike, and are fierce and warlike, but not cannibals like other Indians they have heard of. They are without doubt the Mountain Indians to whom Sir J. Franklin makes frequent allusion in his narrative of his journey westward from the Mackenzie River, a tribe who have had but little intercourse with the Hudson Bay Company; and Mr. T. Simpson, travelling the same coast in 1837, also mentions them as but little known. As the name Kó-yu-kan by which they are known at Point Barrow is the same as that given to the tribe in whose treacherous attack on the Russian post at Darabin Lieut. Barnard lost his life in 1851, and as some of their coats and other portions of dress, offered for sale at the *Plover* in 1852, were of the same make and material as the suit in the possession of Mr. Edward Adams of the *Enterprise*, the companion of Lieut. Barnard, there can be little doubt they are one and the same people. If, as seems, probable, they are also the same who destroyed the Hudson Bay post in 1839, in lat. 58°, they occupy a great extent of country between the Colvile and the Mackenzie Rivers, and range from near Sitka to the Arctic Sea. It is at all times desirable that great caution should be used in drawing inferences from mere sounds in an unwritten language which is but partially known, yet it seems worthy of remark that the Esquimaux word Kok, a river, if prefixed to the name Yu-kon, will bear a strong resemblance to the name Kó-yu-kan, given by them to the Indians inhabiting the country through which the You-can flows. They also know by report the people of Cape Prince of Wales, King'-a-meun, and the Kokh-lit' en'-yu-in, Asiatics, who come to Kotzebue Sound yearly.

Some traditions they have besides which refer to a land named Ig'-lu, far away to the north or N.E. of Point Barrow. The story is that several men, who were carried away in the olden time by the ice breaking under the influence of a southerly wind, after many sleeps arrived at a hilly country inhabited by a people like themselves, who spoke the same language. They were well received, and had whale's flesh given them to eat. Some of these wanderers found their way back to Point Barrow and told the tale of their adventures. After some time, during a spring when there was no movement in the sea ice, three men set out to visit this unknown country, taking provisions on their backs; and having performed their journey without mishap, brought home confirmation of the previous accounts. Nothing further

could be learnt concerning this northern expedition except that each man wore out three pairs of mocassin soles in the journey; and since then there has been no communication with the Ig'-lun nú-no, but they believe some others who have been carried away on the ice may have reached it in safety.

We could never find any who remembered having seen Europeans before Mr. Simpson's visit in 1837, but had heard of them as Ka-blú-nan from their eastern friends; more recently they heard a good deal of them from the inland tribes as Tan-ning or Tan'-gin. This probably refers to the Russians, who have regular bath days at their posts, and is derived from tan-níkh-lu-go, to wash or cleanse the person. They also apply other names to us, apparently of their own invention, one is E-mákh-lin, sea men; (this is the name of the largest of the Diomede Islands;) another is, Sha-ke-na-tá-na-meun, people from beneath the sun; (en'-yu-in a-tá-ne Sha-ké-nik;) but the most common one is Nel-lu-ang'-meun, Unknown people (nel-lu-á-ga, I do not know).

To themselves they apply the words en-yu-im, people, the plural of e-nyúk, a person, of any nation, prefixing when necessary the name of this nu-ne, or country; as, nu-wúng-meun, that is, nu-wúk en'-yu-in, noo-wóok or Point Barrow people; Ing-ga-lánda-meun, Englishmen. Lately those met with in Grantley Harbour and Port Clarence, have adopted the epithet Es-ki-mó.

In addition to the notice of the phases of the moon, they possess sufficient knowledge of the stars to point out their position in the heavens at particular seasons, and we believe use them as guides sometimes in travelling. They look upon them as fiery bodies, as proved in their estimation by the shooting stars, which they look upon as portions thrown off by the fixed ones. They form them into groups and give them names, many of which they explain. The star Aldebaran with the cluster of the Hyades and other small ones around are called Pa-chúkh-lu-rin, "the sharing out" of food, the chief star representing a Polar bear just killed and the others the hunters around preparing to cut up their prize and give each hunter his portion. The three stars in Orion's belt are three men who were carried away on the ice to the southward in the dark winter. They were for a long time covered with snow, but at length perceiving an opening above them, they ascended farther and farther until they became fixed among the stars. Another group is called the "house building," and represents a few people engaged in constructing an ig-lu, or winter hut. But perhaps their most complete myth refers to the sun and moon, who they say are sister and brother. Given as we received it, it runs as follows:—

"A long time ago, in a country far away to the eastward called Ping'-ó, the people held a winter festival, when one of the women, tired of dancing, left the company and retired to rest in her own hut. Before she had gone to sleep she perceived some one enter who blew out the light and lay down beside her. Being desirous to know who her stealthy visitor was, she smeered her hands with soot from the

lamp within her reach and secretly blackened his body that she might know him again among the dancers. After he had gone she returned to the dance-house, and peeping in, saw to her horror that the man whose person she had marked was her own brother. She retired in great grief to the open air, but soon returning to the dance-house, she went into the middle of the assembly, and with a woman's knife (o-lú) cut off her left breast, which she gave her brother, saying,—'All this it is good that you should eat.'* They then went out and both ascended slowly towards the heavens in a circular path, he with his dog going first and she following, and when nearly out of sight separated; the man, by name Nel-lu-kat'-si-a Tád-kak, to become the moon, and his sister, Sigh-rá-a-na, to become the sun, still dripping with her own gore, as may be seen occasionally in cloudy weather when she looks red and angry." The moon is considered cold and covered with snow, on the white surface of which may be traced at the full the figure of the man perpetually travelling with his dog, whilst the lady sun enjoys the warmth of an eternal summer.

In some of their pursuits necessity compels the men of different establishments to combine their strength, as in taking the whale; and in such circumstances some must take the lead. It would seem an easy step from this to the permanent ascendency of individuals over the others, and some have accordingly considerable weight in the community; but there is nothing among them resembling acknowledged authority or chieftainship. A man who has a boat out in the whaliug season engages a crew for the time; but while in the boat he does not appear to have any control over them, and asks their opinion as to where they should direct their course, which however they generally leave him to determine as well as to keep the principal look out for whales. The chief men are called O mé liks (wealthy), and have acquired their position by being more thrifty and intelligent, better traders and usually better hunters, as well as physically stronger and more daring. At the winter and summer festivals, when the people draw together for enjoyments, proficiency in music witb general knowledge of the customs and superstitions of their tribe, give to the most intelligent a further ascendency over the multitude, and this sort of ascendency once established is retained without much effort. As they combine to form a boat's crew to pnrsue a common prey, so will they unite to repel a common enemy; but it is only when danger is common they will so unite. Their habits of life leaving them perfectly free from the control of others and making them dependent solely on their own individual exertions for a livelihood, they are bound together as a society only by ties of relationship and a few superstitious observances, and have no laws or rules excepting what custom has established in reference to the spoils of the chase. It cannot be doubted that their oméliks have considerable influence, more especially over their numerous relations and family connections, and may use some art to maintain

* This is not given as a literal translation but we believe it conveys the meaning. The Esquimaux words are, "ta-máng-ma mam-mang-mang-ángma nigh'-e-ro."

and extend it; yet O-mig'-a-lun, the most influential man at Nu-wúk, the same who headed the party against Commander Pullen at Point Berens, after informing us that a lad of eighteen had deceived us and got food by telling a false tale of distress, would not for some time repeat his statement in the presence of the youth.

Invisible spirits (*sing.* turn'-gak, *plural* turn'-gain) people the earth, the air, and the sea, and to them they apply similar notions of equality, attributing to none superior power, nor have they even a special name for any that we could learn. These turngain are very numerous, some good, some bad; they are sometimes seen and then usually resemble the upper half of a man, but are, likewise, of every conceivable form. Their belief in ghosts seemed proved by the circumstance that two young girls who left the ship in the twilight of a short winter's day turned back in breathless haste on seeing a sledge set up on end near the path to the village. They told the story of themselves next day, saying they were frightened, having mistaken the sledge, which was not there in the day time when they had passed, for a turn'-gak. They are concerned in the production of all the evils of life, and whatever seems inexplicable is said to be caused by one of them. One causes a bad wind to blow so that the ice becomes unsafe; another packs the ice so close on the surface of the sea that the whales are smothered; and a third strikes a man dead in the open air without leaving any mark on his body; or a fourth draws him by the feet into the bowels of the earth: these are evil genii, and the good ones are little better, as they are very liable to get offended and turn their backs on suffering humanity, leaving it at the mercy of the worse disposed. Their dances and ceremonies are all intended to please, to cajole, or to frighten these spirits. The most curious ceremony that came under observation was performed at the village in the course of the last winter, when food had become very scarce in consequence of the ice remaining very close from a long continuance of north-westerly winds. On the sea beach, close to one of the dance-houses, a small space was cleared and a fire of wood made, round which the men formed a ring and chaunted for some time without dancing or the usual accompaniment of the tamburin. One of the old men then stepped towards the fire and, in a coaxing voice, tried to persuade the evil genius, from whose baleful influence the people were suffering, to come under the fire to warm himself. When he was supposed to have arrived, a vessel of water, to which each man present had contributed, was thrown upon the fire by the old man, and immediately a number of arrows sped from the bows of the others into the earth where the fire had been, in the full belief that no turn'-gak would stop at a place where he received such bad treatment, but would depart to some other region from which, on being detected, he would be driven away in a similar manner. To render the effect still greater, three guns were fired in different directions to alarm the spirits of the air and make them change the wind. For the same object, they several times requested the ship's guns, eighteen pounders, to be fired against the wind.

When our poor friend O-mis-yu-a'-a-run, commonly called the Water Chief, from having accused us of stealing the water from the village, was carried away, with two others, on the ice to near Cape Lisburn, in the beginning of the winter, his wife had a thin thong of sealskin stretched in four or five turns round the walls of the iglu, and anxiously watched it night and day until she heard of her husband's fate. They believe that so long as the person watched for is alive and moves about his turn-gak causes the cord to vibrate, and when at length it hangs slack and vibrates no longer, he is supposed to be dead. Having heard something of the hourly observations of the movements of a magnet suspended by a thread in the observatory, the old dame sent Erk-sin'-ra to see if its movements had any connection with her husband's case.

Thunder is a rare occurrence at Point Barrow but not altogether unknown to its inhabitants, and they say the sound of it is caused by a man spirit who dwells with his family in a tent far away to the south. This Esquimaux representative of Jupiter Tonans is an ill-natured fellow who sleeps most of his time, and when he wakes up he calls to his children to go out and make thunder and lightning by shaking inflated sealskins and waving torches, which they do with great glee until he goes to sleep again.

They do not entertain any clear idea of a future state of existence, nor can they, apparently, imagine that a person altogether dies. Although death is a subject they dislike to talk of, we have heard the sentiments of several upon this and the nature of the soul. About the last they differ a good deal, but they all agree in looking upon death as the greatest of human evils, and would invariably "rather bear the ills they have than fly to others that they know not of." The soul is a turn-gak, they say, seated in the breast, or rather in the lungs, and seems closely allied to the breath; from it emanate all thoughts which as they rise the tongue gives utterance to. Even as to its unity they hold different notions, for one person told us a man had four turngain in his breast, and another that wherever a man went there was in the ground beneath him his "familiar spirit," which moved as he moved and was only severed from him in death. However this may be, in death the body sleeps and the spirit descends into the earth to associate with those which have gone before, and subsists on bad food, such as roots, stones, and mosquitoes.

In order not to offend the spirits of the departed their bodies are wrapped in skins and laid on the earth beside others already there, with the head to the east at Point Barrow, but for this direction there is no general rule. As his clothes and other portions of property he habitually used, including the sledge on which he was carried, would bring ill luck to any one else who took them, they are left with the body in a torn or broken state, and the family to which he belonged keep within the hut for five days, not daring to work lest the spirits should be offended; and instances can be readily adduced where they believe death to have happened to persons who infringed the custom of mourning five days. Diseases are also considered to be

turngaks, and so hurtful do they think the touch of a corpse that it is unwholesome to smoke from the same pipe or drink out of the same cup with any one who was the wife, mother, or other near relative of a deceased person; this, they say, is because these relatives, from tending the sick person, become tainted by his breath and another by using the same pipe or cup might acquire the disease.

JOURNAL OF PROCEEDINGS OF H.M.S. "ENTERPRISE" IN THE ARCTIC SEA.

H.M.S. *Enterprise* was commissioned at Woolwich on the 14th of December, 1849. On the 10th of January, 1850, moved down to Greenhithe, and was visited by the Lords of the Admiralty. On the 13th passed through the Downs, and arrived at Plymouth on the 15th, whence, after receiving preserved meats from Ireland, she sailed on the 20th, the *Investigator* in company. On the 5th of March the Equator was crossed, in long. 23° W., and the land made at the entrance to the Straits of Magellan on the 6th of April. The ship anchored in Possession Bay on the 10th, and found H.M. steam vessel *Gorgon* and the *Nancy Dawson* here. On the following day the First Narrows were passed, and on the 13th arrived at the Chilian settlement, Point Arenas, where four bullocks were obtained. Pursuing her route through the Straits, anchored in St. Nicholas Bay on the 15th, and in Fortescue Bay on the 17th. The *Gorgon*, with *Investigator* in tow, arrived the same afternoon, and on the 19th proceeded with both vessels. On entering the Pacific Ocean the following morning a heavy swell was met, which carried away the *Investigator's* towropes. The *Gorgon*, after towing the *Enterprise* into an offing, returned to the *Investigator*, and finally parted company on the 23rd. Crossed the Equator on the 7th of June, in long. 120° W., and on the 24th arrived at Honolulu, and found H.M.S. *Swift*. Having filled up provisions we sailed June 30th. Called at Oncehow Island for yams, but calms prevailing did not pass Aleutian Islands before July 29th, St. Lawrence August 11th, Cape Lisburn 13th, Wainwright Inlet 15th. Falling in with ice we followed pack edge as far as 70° 26′ N., and 153° 05′ W., when it trended south-westerly. The pack was examined westward, and in 73° 23′ N., and 164° W. our progress north or east was impossible. The topsails were reefed August 27th, being the first occasion we had to do so since leaving 32° S., having run over 11,303 miles in 116 days. On the 31st we came back to Point Hope, and found *Investigator* passed Cape Lisburn July 31st.

Herald and *Plover* were gone to Port Clarence. On arriving there, Sept. 1st, we found the latter in the inner harbour; on trying to go in next day we grounded, got off the same evening, but on a second trial did not succeed in hauling off until one hundred tons of provisions, &c, were removed, which *Herald's* arrival enabled us to do. Leaving Port Clarence on the 14th, we reached Point Hope on 20th, and Icy Cape on 22nd, when ther. fell to 16°, and ice made on the bulwarks and sponsings rendering her very uneasy in a strong breeze which prevailed for three days, when we returned to Cape Lisburn, and the bad weather continuing took refuge under Point Hope, where we remained under canvas till 30th, and then bore up for Port Clarence, arriving on the 2nd of October. Leaving *Plover* there to winter, we sailed for Norton Sound on the 8th. Anchored off Michailowski on the 12th, and landed there a party of three, provisioned until May, commanded by Lieut. Barnard.

On leaving the Sound we picked up an Oomiak, blown of from Cape Prince of Wales, in which were one man, two women, and a child; they were landed near Sledge Island. Returning south we passed Oonemak Straits 21st, and arrived at Sitka Nov. 2nd. Here we were very kindly and hospitably received by the Governor and all belonging to the settlement, and communicated with Hudson Bay Company, by means of *Beaver* steam vessel. Leaving Sitka Nov. 14th much bad weather was experienced until we reached 40th degree of latitude, and being short of water entered Hanalae Bay, Attooi, on Dec. 22nd. While here the rollers set in three times with great violence, breaking outside the ship, and on one occasion turning a whale boat over and carrying her away from the stern. On the 29th W. Luxford, Quarter Master, who had gone to bed perfectly well, was found dead in his hammock.

We sailed from Hanalae Bay Jan. 1st; saw Almaguan 29th, passed the Bashee Channel 9th, and arrived at Hongkong Feb. 15th, having run over a distance of 35,225 miles since leaving England on the 20th of the preceding January, being 343 days at sea and 48 in harbour. Completing provisions and stores we sailed from Hongkong April 2nd; reached Bonin Island 28th, where a supply of vegetables and turtle were procured. Sailed again May 6th. Entered Behring Sea 23rd, and fell in with the whaling fleet at the edge of the ice, in lat. 60° N., long. 179° W., on the 31st. Taking the pack we pushed through the ice; saw Cape Behring June 11th; got into land water under Cape Tchutskoi 22nd. In crossing over to the American continent were again beset and carried north of the Diomede Islands, arriving in Port Clarence July 3rd. Here we communicated with *Plover*, and the melancholy news of Lieut. Barnard's death was received. Sailing on the 10th, Point Hope was passed on 15th, Icy Cape 18th, and on the 20th, when off the Seahorse Islands, were caught in the pack and carried round Point Barrow on the 25th, but reached open water near Point Tangent on 31st. Then pursuing our course between the American continent and the ice, we passed Point Manning August 8th. The ice now affording us more sea room, but being much pestered by under currents, which prevented the ship steering, did not reach the Pelly Islands before the 20th, when two more islets were discovered E.N.E. of them. Cape Parry was seen on the 26th, and the same evening land to the north. On closing it a strait was entered on the 29th, and on an island in it a boat and some provisions deposited by the *Investigator* were found, which vessel it appeared had wintered in the pack four miles N.E. of the depot. Captain M'Clure named the western shore Baring Land, the eastern Prince Albert, the islands Princess Royal, and the strait Prince of Wales. A travelling party from her had reached the north end of the strait, in lat. 73° 31′ N., and long. 114° 14′ W. in October last. Pursuing our course we reached north end of the strait on 30th, when our progress easterly was blocked by field ice. Returning through the Prince of Wales Strait, we rounded Cape Erebus (the south point of Baring Land) on Sept 2nd, and tracing the coast line north found a cask with information from *Investigator*, dated August 18th, 1851, in lat. 72° N., long. 125° 45′ W. Continuing on to the northward provisions were deposited on an islet in lat. 72° 55′ N., long. 125° 10′ W., but finding no place sufficiently protected for winter quarters we returned to the entrance of the Prince of Wales Strait, and wintered in a sound on Prince Albert Land, in lat. 71° 35′ N., long. 117° 35′ W. Shortly after our arrival a few natives came on board. They remained about the neighbourhood until November, and returned again in May, at which period the game became plentiful, but the winter proving mild we obtained a few hares and ptarmigan as early as January. In April three travelling parties left. One tracing Prince Albert Land southerly, found the coast trend to the eastward, in lat. 70° 39′ N., in which direction it was followed to long. 112° 35′ W., whence the southern shore was seen, but no land to the eastward. Here a large party of natives were met, and on an islet in

70° 34′ N., and 115° 20′ W., a notice from *Investigator's* travelling party last year was found. This party returned on May 30th, having been absent forty-eight days.

The other two parties passed through the Prince of Wales Strait together; then one followed the coast of Prince Albert Land, which was found to trend southerly, eventually reaching lat. 72° 44′ N., long. 118° 45′ W., and returned to the ship after fifty-two days' absence. The other struck across for Melville Island, and coming upon rough ice, impassable for the sleigh, left it and the tent in lat. 73° 41′ N., long. 115° 15′ W., and, carrying their provisions on their backs, reached Cape Possession, whence some of the party travelled along the coast until they were within four miles of Point Hearne. They returned to the tent and sleigh after an absence of eleven days, but some of the crew, suffering from frost bites, did not reach the ship until June 28th, being absent seventy-four days.

The ship swung to her cable on the 19th of July, but the ice did not admit of our putting to sea until August 5th, and then we were detained in the vicinity until the first week in September. Following the coast line of Prince Albert Land southerly and easterly, its junction with Victoria and Wollaston was ascertained. We then entered the Dolphin and Union Strait, reached Cambridge Bay 26th of September, where our second winter was passed. The natives here were more numerous, and paid us visits during the winter, having more game and fish to spare than any seen last year. The season proved very severe, mean temperature of January being — 38°. In the spring a cache was formed on an islet (Simpson Rock) in lat. 69° 02′ N., long. 105° 08′ W., Mount Pelly bearing N. 15° E. (true) 11·5 miles, and two sleighs left to explore the east coast of Victoria Land on April 12th. The coast was found to trend to the southward of east until long. 102° W. was reached, when it turned up northerly. In 68° 50′ N. we came upon old ice, rendering the road impassable for sleighs, and compelling us to keep close to the coast line. A cairn, in which was a notice deposited by Chief Factor Rae in 1851, in lat. 70° 02′ N., long. 101° 18′ W., gave us the first information that the ground we were upon had been already examined. Eight miles to the north the land took a westerly trend, and was also seen in a N.E. direction. On reaching the latter, which proved to be an island, and very difficult to approach, owing to the ice hummocks, no land, except to the southward, was visible, and the road being impracticable for sleighs we returned, building a cairn in lat. 70° 26′ N., long. 100° 45′ W. The coast was then followed westerly as far as 70° 13′ N., and 101° 50′ W., and the party returned to the ship after an absence of forty-nine days.

The game became plentiful in the early part of June, and after the middle of July an abundance of excellent fish were obtained by the seine. The ice began to move on the 25th, and enabled us to put to sea on the 5th of August. Meeting with no obstruction from it until we reached the Copper Mine River, where the pack detained us seven days, and again off Cape Dalhousy, from whence to 140° W. we had a pretty clear sea. Here we were again beset, and carried back by a westerly wind as far as Point Kay. Effecting our escape on September 9th we reached Point Manning, where the ice again proved too close to admit of our progress, but by taking advantage of occasional openings we reached Camden Bay on the 14th, beyond which we were unable to get, and were finally frozen in on the 26th, in lat. 70° 08′ N., long. 145° 89′ W., where this notice was printed.

[The foregoing is an extract from the "North Polar Almanack," *printed on board H.M.S. Enterprise;* and may be considered, therefore, as an authentic account of her proceedings. We have thus the best possible proof of the safety of this excellent officer and his crew.—Ed.]

The Arctic Expedition.—Safety of Captain Collinson.

The San Francisco *Herald* of Sept. 30th has the following interesting information relating to the missing ship *Enterprise*, which was sent to the Arctic Ocean for the relief of Sir John Franklin. The *Herald* says:—

H.B.M. ship *Rattlesnake*, Comm. Henry Trollope, arrived in our bay on Monday morning, having left Port Clarence, Arctic Ocean, August 23rd, at 8h. p.m. This ship wintered at Port Clarence the last winter, and as soon as the ice broke up, endeavoured to reach Herald Island, cruising as near, or nearer, the edge of the ice than safety justified, from Point Barrow on the American side, to Serdze Kamen on the Asiatic side of the Arctic Sea Neither this vessel nor the *Enterprise* brings any news of the missing whaleship *Monongahela*, of New Bedford. Capt. Trollope states that on the 21st of May some Indians referred to a vessel with three masts (which they indicated by holding up three fingers, and speaking the word which in their language signifies a vessel, which he understood) having gone up to the northward. The captain gave no credence to what they said, not knowing of the missing whaleman, and made no inquiry further. It is barely possible they might have referred to the *Monongahela*. Capt. Trollope expresses much regret that he had not been aware of this ship being carried into the ice, that he might have made more particular inquiry.

The most important news brought by the *Rattlesnake* is the arrival at Port Clarence, on the 21st of August, of H.B.M. ship *Enterprise*, Capt. Collinson, from his long expedition into the Arctic, in the search of Sir John Franklin. It will be recollected that this vessel sailed from England in the same season, and at about the same time as the *Investigator*, (Capt. M'Clure,) that arrived on the Atlantic side of the continent a year since, having navigated the north-west passage. No news having been received of the *Enterprise*, almost as much anxiety was felt for her safety, and that of her officers and crew, as for the expedition she was sent in search of; so much as to induce the English government to station for her relief and assistance the *Rattlesnake*, at Port Clarence, and the *Plover*, at Point Barrow, during the last winter, and they were both arranging for their succeeding winter quarters at the time of her arrival; at the ending of which season the government had given orders to abandon the search for them.

The *Enterprise* went into the Arctic in the summer of 1851, and passed through the Prince of Wales Straits, but finding the ice impracticable for her advance, she wintered the winter of 1851–2 in lat. 71° 35′ N., long, 117° 35′ W. After making every exertion to obtain the object of her voyage, the winter of 1852–3 was passed in Cambridge Bay, Wollaston Land, 69° N., 105° 30′ W. Still proceeding on her voyage, the winter of 1853–4 found her in Camden Bay, 70° 8′ N., 145° 20′ W.

The ice released the vessel July 15th, 1854, when she commenced her return passage, but did not reach Point Barrow until August 9th, having baffling southerly winds and calms. Immediately on arrival at Fort Clarence, on the 21st August, finding the *Plover* had left for Point Barrow a few days previous, for the purpose of assisting and relieving her, as soon as her supplies could be put on board from the *Rattlesnake*, at 3h. p.m. on the 22nd she started to overtake the *Plover*, and communicate with and recall her, which duty performed she would immediately proceed to Hongkong and the *Plover* to Valparaiso, where the latter will meet the *Rattlesnake*, which leaves this port to-day.

During the three years the *Enterprise* has been in the frozen sea she has lost but three men—May 15th, 1853, William Driver, ship's cook; November 24th, 1853, William Greenway, able seaman; June 29th, 1854, William Cheeseman,

private, marines. The commander, officers and crew, fifty-nine in number, were in excellent health. We regret to state that no information was obtained of the fate of Sir John Franklin. The *Enterprise* found traces of the *Investigator's* passage in many places, and went within ninety miles of Winter Harbour, but not being able to proceed farther on account of the ice, went up Wollaston Strait, and there fell in with the traces of Dr. Rae's searches. It will be recollected that Dr. R. was in command of an expedition sent out by the Hudson Bay Company.

In the spring of 1852 travelling parties were despatched over the ice, one of which reached Melville Island after great hardship. The natives met with during the voyage were of a peaceable and kind disposition, ready at all times to be of assistance in any manner in their power.

List of Officers of H.B.M. relief ship *Rattlesnake*:—Commander, Henry Trollope; Lieutenants, acting, F. C. Handfield, P. R. Sharpe, Thos. Boudice; Surgeon (Assistant), Thomas B. Forster; Paymaster, Mr. Sparke; Clerk, Mr. Gilpin; Second Master, Mr. Nixon.

The British sloop of war *Trincomalee* had also arrived at San Francisco in thirty-three days from Port Clarence, Behring Straits. The San Francisco *Herald* says:—

The *Trincomalee* arrived at Port Clarence, situated at the entrance of Behring Straits, on the southern side of Cape Prince of Wales, on the 25th of June, 1854, having passed through the Pass of the Four Mountains, one of which, bearing S.S.E., is a volcano. The snow caps these islands, which all assume a conical form to within about forty feet of the water, the mean height of the four being about fifteen hundred feet. This Pass is recommended, there being less current than in Amoutka or Segounan. The object of the *Trincomalee's* voyage was to deliver stores to the Arctic squadron. The *Rattlesnake* has built a store to receive the provisions which must be left at Port Clarence for H.M. discovery ship *Investigator*. As the *Trincomalee* bore orders for both the *Rattlesnake* and the *Plover* to return in the summer of 1855, we may therefore conclude that should not Capt. Collinson's vessel, or any of her crew, fall back on either Point Barrow, where the *Plover* winters, or be heard of at Port Clarence, no further search will be made on the Pacific side beyond this season.

An excursion was undertaken into the interior from Port Clarence by some officers of the *Trincomalee*, who succeeded in entering the River Agæpuc, in boats. The scenery is very tame, consisting of moorland; not a bush or tree to be seen for miles. The highest tree seen by the party was after leaving their boats, which stood about fifteen feet. Ptarmigan, wild duck, and hares are very numerous. To arrive at the river there are a series of lakes, running twenty miles from Port Clarence, to be passed through.

Situated on the Agæpuc are some "Ice cliffs," containing mammoth remains, some of which are in possession of the officers of the *Rattlesnake*.

The *Trincomalee* fell in with the ice off Norton Sound, on the 24th of June. It had cleared from Port Clarence a fortnight before her arrival. The Straits at that time were clear throughout. The *Rattlesnake* was frozen in the previous year about the middle of November. Our informant says that Port Clarence appeared a better place in winter than Grantley Harbour, the pressure of the ice being found less in the former place. The mosquitoes are more numerous there than even in any part of Central America; a slight air carries them off, but during a calm day it is impossible to walk without a veil encircling the hat. Our informant states that he inhaled mouthfulls. Salmon, salmon peal, and trout are taken in large quantities there.

The natives are extremely docile, and very intelligent; but, as is the case with the Esquimaux generally, very lazy. The only wood they can procure is that drifted from—no one knows where—out of which, by management of

walrus tusks and whalebone, they contrive admirable spears and bows and arrows, for killing the seal and bear, of which animals their winter stock of food is formed. During the latter part of the winter they are reduced to a state of semi-starvation, and then are even content to eat the hides of animals, in which fare their dogs, a noble looking breed, have a share. One mode they have of catching the bear, is by a piece of frozen blubber, in which is doubled a piece of whalebone; the animal greedily swallows it, the blubber thaws, the whalebone siretches, and the brute dies in agony.

Since the above was in type we have had an interview with an officer late of H.B.M. ship *Plover*, sent to the assistance of the northern discovery ships, and have obtained from him the following additional information:—

Their ship wintered at Point Barrow, in the Arctic, during the winter of 1853 and 1854. While lying there a party from the ship made an excursion as far as Point Behring, a few miles to the eastward of the River Colvile, where they fell in with a party of Indians, but not understanding their language could not make inquiry regarding the *Enterprise*, Capt. Collinson, K.B., of whom the *Plover* was in search, or of any wrecked ships. They were frozen in at Point Barrow September 23rd, 1853, and were entirely freed from the ice July 21st, 1854, arriving at Port Clarence August 1st. About the 26th of July, off Point Hope, spoke ship *Gideon Howland*, Bryant, of New Bedford, eleven months out, (had taken no oil in the Arctic,) who gave them information of the probability of the European war, and also the fact of Capt. M'Clure's discovery of the north-west passage. There were but few whales in the Arctic. Off Port Clarence was boarded from the ship *William Rotch*, Morslander, of Fairhaven, which vessel had lost anchor and taken one whale in the Arctic. The *Plover*, after having received on board her stores from the *Trincomalee*, left Port Clarence for Point Barrow, where she will pass the winter of 1854–55.

Our informant thinks that if any vessel had been cast away near the shores of America, they should have obtained some knowledge of the fact in their interview with the natives, who had evidently travelled from the point where shipwrecked persons would probably be, and he is of opinion that if the missing whaler is ever heard from, it will be on the Asiatic coast.

Finding Position by Double Altitudes.

Bombay, September 26th, 1854.

Sir,—Having seen in your number for June a letter from Mr. John Riddle, animadverting on my former communication for finding the position by double altitudes, in reply I beg to state that I had never seen or heard of any such having been made by him, and had been in the constant habit of using the method for nearly twelve months previous, and that it was at the suggestion of some commanders of ships that I had shown it to that I was induced to write to you. My reason for not sending a demonstration was, not that I had *forgotten*, but that throughout my experience I have found but a very small proportion of the nautical community understand the formulæ of trigonometrical investigation. Indeed those books that contain them are mostly thrown aside as too abstruse, and such works as Norie's and other plain navigation books preferred. I am also perfectly aware that it matters little whether the latitude chosen be greater or less, but by always taking it least the number of cases is reduced by more than one half. But perhaps the most useful application of the problem is its adaptation to the altitudes of two stars observed at the same time, using their difference of right ascension as the interval; or with one observer, applying the short interval between the observations to the difference of

right ascension, subtracting when the western star is observed first, and adding when the eastern. I have often gone solely by this problem while navigating the most dangerous seas. As Mr. Riddle has sent you a demonstration, it is useless my sending one; indeed, to any mathematician it is too obvious to need one. The only wonder is, that the proposition was not made years before. Mr. J. R. is perfectly right in his surmise; I was a pupil of his respected father's many years ago, when Mr. J. R. was also studying. I am rather surprised that Mr. Riddle should have written in that strain, for if nautical men had to wait till they ascertained if any proposition had been advanced before, we should have to keep our experience to ourselves for years, instead of giving the advantage to the world.

I am, Sir, your most obedient servant,

G. T. FITZMAURICE.

To the Editor of the Nautical Magazine.

THE LATE COMMANDER EVANS.

9, Carlton Place, Clifton, Bristol, 20th Nov., 1854.

SIR,—I enclose you a slight memoir of the services, &c., of my late revered friend, Commander Evans.

Commander John Evans *(a)* entered the naval service at the beginning of the year 1803, on board H.M.S. *Leander*, bearing the flag of Sir J. T. Duckworth, on the Jamaica station, and continued to serve in different ships and vessels, and principally in the West India and North American Stations, until the year 1813, when, from confirmed liver complaint, he became unfit for active service, and was invalided and sent to England.

During this comparatively brief period of active service as Midshipman and Lieutenant, to which latter rank he was promoted in November, 1811, (having been "acting" for two years previously,) he distinguished himself as a most active, intelligent, and zealous young officer, gaining for himself the good will and high opinion of his various commanders, especially of those most excellent officers the late Captains Henry Whitby, S. H. Inglefield, and Frederick Hickey, to all of whom he most strongly recommended himself by his great zeal and ability, and the strictest attention to all the duties of his profession. By the complaint above alluded to, contracted in the service of his country, and which most unfortunately for his country and himself incapacitated him from further active service, he scarcely ever afterwards enjoyed a week's good health, and often suffered in a deplorable manner for weeks together. All his prospects of advancement in his profession, to which he was most ardently attached, were blighted by this disease, but still desirous of being useful, he composed and published two works on Hydrography, &c., and wrote many valuable papers relating to the service and the sciences in the *Naval Chronicle*, the *United Service Journal*, and the *Nautical Magazine*. In addition to these labours of the pen, which he continued with unabated zeal until the increased acuteness of his bodily sufferings put a stop to all exertion, he devoted a portion of his time to the study of natural history, for which, in its various branches, he had always a strong predilection; and also occupied himself in sketching and drawing, in both of which arts he was no mean adept, excelling particularly in delineations of headlands and in sea views.

A pen, Sir, guided by far more eloquence than mine, would fail to do justice to the merits and many excellencies of character of my late lamented friend; one of the most noble-minded, disinterested, warm-hearted, honourable, gene-

rous, kind, and sincere men who ever lived in this world, or prepared himself by good works, and the constant exercise of Christian duties, virtues, and charities, for "another and a better." Through a long series of the severest trials —under affliction, disease, and bodily sufferings, often of the most agonizing description, he submitted himself at all times with the most perfect patience and resignation to the will of God and the dispensations of his providence. In dropping a tear of sorrow for a departed friend over his grave, I have, therefore, the consolation to believe that, through the mercy of God and the merits of the blessed Redeemer, he is gone to reap the reward of a life so well spent here, to a higher and brighter sphere, and that he has passed through tribulation to eternal glory and happiness.

Peace and honour to his memory.

Believe me, Sir, your's ever very sincerely,

CHARLES MALLARD.

To the Editor of the Nautical Magazine.

OFFICIAL DESPATCHES FROM THE CRIMEA.

Admiralty, Nov. 5, 1854.

The following despatches from Vice-Admiral Dundas have this day been received at the Admiralty:—

Britannia, off the Katscha, Oct. 13th, 1854.

SIR,—I beg you will acquaint the Lords Commissioners of the Admiralty that the allied armies are employed in erecting batteries to the south of Sebastopol, but I hear are much retarded by the rocky nature of the ground. The Russian fire of shot and shell by night and day has produced little or no effect. The naval and marine battalions are healthy, and there is less sickness in the army.

Sir Edmund Lyons, in the *Agamemnon*, with the *Diamond*, and a squadron of steamers, is at Balaklava, assisting the troops. A French squadron, under Vice-Admiral Bruat, is anchored between the lighthouse and the harbour, in communication with the left of the French army. A division of steam-vessels watches the mouth of the port constantly, where four or five Russian steam-vessels always have their steam up, and the large sailing vessels are with Admiral Hamelin and myself anchored off the Katscha River, the weather hitherto having permitted our remaining in those positions.

The *Sidon* and *Inflexible*, with *Cacique* and *Caton*, are still in Odessa Bay, to prevent any communication by sea with the Crimea, and I have sent a transport to them with coals and fresh provisions, which I have drawn from Sinope.

On the 11th an Austrian vessel, laden with hay for the commissariat, got within range of the batteries, and was deserted by her crew at the second shot; she ran on shore about 1,500 yards south of the harbour mouth, and was got off that evening and towed to Balaklava. I enclose the report of Capt. Jones of the *Sampson*, who, with Capt. Stewart, of the *Firebrand*, and Mr. Boxer, second master in charge of the *Beagle*, assisted by the French launches of the inshore squadron, got the Austrian to sea from under the batteries in a very successful and creditable manner. The *Firebrand* has four shots in her hull, but fortunately no casualties.

I learnt from Capt. King, of the *Leander*, of the approach to Eupatoria of a large Russian force near the town. I have sent the *Firebrand* and *Vesuvius* to assist in the defence, should it be attacked, and shall send two other vessels to-day.

The French and Turkish troops sent for from Varna and Constantinople by

the *Simom*, *Vulcan*, *Cyclops*, and our transports are hourly expected; they have been kept back and detained by the late strong north-east gales.

I have, &c.,

J. W. D. DUNDAS, Vice-Admiral.

To the Secretary of the Admiralty, &c.

Britannia, off the Katscha, Oct. 18th, 1854.

SIR,—I beg you will acquaint the Lords Commissioners of the Admiralty that the siege batteries of the allied armies opened fire upon the Russian works, south of Sebastopol, about half-past six o'clock yesterday morning, with great effect and small loss.

In consequence of the most urgent request of Lord Raglan and General Canrobert, it was agreed by the Admirals of the allied fleets that the whole of the ships should assist the land attack by engaging the sea batteries north and south of the harbour, on a line across the port, as shown in the accompanying plan, but various circumstances rendered a change in the position of the ships necessary and unavoidable.

The *Agamemnon*, *Sanspareil*, *Sampson*, *Tribune*, *Terrible*, *Sphinx*, and *Lynx*, and *Albion*, *London*, and *Arethusa*, towed by the *Firebrand*, *Niger*, and *Triton*, engaged Fort Constantine and the batteries to the northward; while the *Queen*, *Britannia*, *Trafulgar*, *Vengeance*, *Rodney*, *Bellerophon*, with *Vesuvius*, *Furious*, *Retribution*, *Highflyer*, *Spitfire*, *Spiteful*, and *Cyclops*, lashed on the port side of the several ships, gradually took up their positions, as nearly as possible as marked on the plan.

The action lasted from about half-past one to half-past six, p.m., when being dark the ships hauled off.

The loss sustained by the Russians, and the damage done to Fort Constantine and batteries, cannot of course as yet be correctly ascertained.

An action of this duration, against such formidable and well-armed works, could not be maintained without serious injury, and I have to regret the loss of 44 killed and 266 wounded, as detailed in the accompanying lists. The ships, masts, yards, and rigging are more or less damaged, principally by shells and hot shot. The *Albion* has suffered much in hull and masts; the *Rodney* in her masts, she having tailed on the reef, from which she was got off by the great exertions of Comm. Kynaston, of the *Spiteful*, whose crew and vessel were necessarily exposed in performing this action; but with the exception of the *Albion* and *Arethusa*, which ships I send to Constantinople to be repaired, I hope to be able to make my squadron serviceable in twenty-four hours. Foreseeing from the nature of the attack that we should be likely to lose spars, I left the spare topmasts and yards on board Her Majesty's ship *Vulcan* at this anchorage where I had placed her with all the sick and prisoners.

I have now the pleasure of recording my very great satisfaction with the ability and zeal displayed by Rear-Admirals Sir Edmund Lyons and she Hon. Montagu Stopford, and all the captains under my command, as well as my sincere thanks to them, and to the officers, seamen, and marines employed, for their unremitting exertions and the rapidity of their fire, in the absence of a large number of the crews of each ship, who were landed to assist in working the siege batteries, &c., on shore, and to this circumstance I attribute the small loss of killed and wounded.

The gallant and skilful conduct of our French allies in this action was witnessed by me with admiration, and I hear with regret that they have also suffered considerable loss.

I beg to express my gratitude at the manner in which Ahmed Pacha, the Turkish Admiral, did his duty.—I have, &c.,

J. W. D. DUNDAS, Vice-Admiral.

To the Secretary of the Admiralty, &c.

Admiralty, Midnight, Nov. 6. 1854.

A despatch, of which the following is a copy, has this night been received at the Admiralty:—

Britannia, off the Katscha, Oct. 23, 1854.

SIR,—I beg to acquaint you, for the information of the Lords Commissioners of the Admiralty, that since my letter of the 18th inst. the siege batteries have continued their fire against the Russian works, which appear to have suffered much, and the fire slackened, although it is still considerable.

The naval brigade are doing good service, and, up to the 20th, had a loss of 12 killed and 53 wounded, as per annexed list. By the desire of Lord Raglan, I have reinforced them by 410 officers and seamen, and placed Lord John Hay in the *Wasp*, under the orders of Capt. Lushington.

Capt. Brock, at Eupatoria, supported by the *Leander* and *Megæra*, has maintained his position well, although threatened and attacked by heavy bodies of cavalry, with guns; we have drawn large supplies from there, but, as the Russians are destroying all the villages, I fear they will in future become very scanty and uncertain.

Since the action of the 17th, the enemy have been working incessantly in repairing their batteries, and in constructing new works on the north side of the harbour, commanding the approaches by sea and land.

I have sent the *Albion* and *Arethusa* to Constantinople to repair; the other ships of the fleet have fished their masts, &c., and are ready for service.

The *Lynx*, *Sphinx*, *Stromboli*, and *Viper* have arrived.

The weather hitherto has been very favourable, and the crews of the ships are generally healthy.

The English and French steam division still continue in the Bay of Odessa, actively employed in preventing communication with the Crimea.

I have, &c.,

J. W. D. DUNDAS, Vice-Admiral.

To the Secretary of the Admiralty, &c.

THE "BELLEROPHON" IN ACTION.

The following is an extract of a letter received by the friends of an officer of the *Bellerophon*:—

We got our top-gallant masts, studding sail booms down, bound our yards up, and made everything ready. We were towed by the *Cyclops*. She was lashed alongside of us—the port side, as were all the steamers. The fleets were well away by eleven o'clock. The French led the way, then the Turks, and the English last. At one o'clock we cleared for action (our starboard guns). The French and Turks anchored off the south forts, but they were not half near enough. It was a splendid sight to see as we were going in the ship and forts firing; a tremendous fire was kept up. I was looking out of the bow port, with Granville, when we heard a sharp report close to us; the pieces of the shell fell within ten yards of us. We anchored within about 1,200 yards of Fort Constantine, one of the heavy entrance forts (the *Agamemnon* was ahead of us). We had hardly commenced firing, when Admiral Lyons sent his flag-lieutenant on board to ask Lord George to come to his assistance, as he had four forts bearing on him. We of course immediately wayed, and steamed in to within 800 yards of the Wasp Fort and some mud batteries on the top of the hill. We were the closest ship in. The fire we kept up was splendid, the men were so cool. I do not believe that one of our shots was thrown away—not one fired till he got his object exactly on. We soon silenced Wasp Fort, and then turned

our attention to the mud batteries, which had got our range to a T. The *Agamemnon* made the signal, "Well done *Bellerophon*," and then went out and left us. So we had three forts playing on us; I can tell you it got rather hotter than I liked. The shells were coming against us like hail; one came through and burst over the second gun in my quarters. I secured a piece immediately after it burst. A few minutes afterwards we caught fire forward on the lower deck, so we had to cease firing and extinguish the fire, which was done in about ten minutes. I could not see a yard before me, the smoke was so thick. It got so hot at last, that Lord George gave the order to ship the cables. Whilst the men were over the port side shipping the cables, a shell and shot came in forward. It must have cleared two guns' crews away had they been at their guns. When we shipped the cable we found that the anchor had never been on the ground, so we had been drifting in towards the forts all the while, and, what was worse than all, we had got a shoal ahead and astern, so the steamer could not go ahead. Luckily the *Spitfire* was within hail, so she towed our head short round, and we got out. We were the last ship, and we hauled out at seven o'clock. Two shells had burst on the main deck, and one on the upper deck, which I am sorry to say killed poor little Forster. No doubt you remember him. He was standing under the poop, the port side, when the shell came in and burst close to him; he was as black as a coal. A piece of his skull was knocked out; he also had severe wounds on his face, and luckily he died twenty-four hours afterwards, but was not sensible. We anchored in our old diggins, with our side and rigging beautifully cut up. We had five men killed and sixteen wounded, besides several bruises with splinters. The *Albion* was the worst cut up. She had a narrow escape; a shell burst in the handing room of her magazine. She has gone down to Constantinople to be docked. She had a lieutenant killed, and three officers wounded, and ten men killed. We are about the fourth worst ship. The *Britannia*, *Trafalgar*, *Queen*, *Vengeance*, *London*, and *Rodney* are hardly touched. Our sides are awfully ripped up. We had the first gun on the lower deck disabled, and two ports nearly knocked into one. Our wheel was knocked away. I think we are hulled about fifteen or twenty times. Our main topmast was shot through. The total loss in the English fleet is 45 killed and 256 wounded. I do not know the loss of the French. The Turks had only one man wounded. Fort Constantine was nearly silenced; it is cracked right down, and has been since propped up with spars.

A French officer was taken prisoner on shore the other day; he was taken into Sebastopol, and in the confusion managed to escape. He says that there were 5,000 men killed; the wounded were innumerable. They were obliged to drive the Russians to their guns at the point of the bayonet, and they had the gallows rigged, and were hanging them by the dozen. The town was in an awful state. There is a report that the Poles will turn on the Russians as soon as our troops assault it, which is not unlikely.—*Daily News.*

THE "ALBION" BEFORE FORT CONSTANTINE.

Extract of a letter off Sebastopol, Oct. 18th, H.M.S. *Albion*:—

It is a very difficult and laborious task to get the guns up the heights, as the enemy is continually firing, night and day. Day after day we have been waiting impatiently for the army to begin, as that was to be the signal for our attacking the forts. Yesterday morning the allies opened a tremendous cannonade on the inner forts, and down went the fleet, each ship having its allotted post for the battle. Ours was the Waif battery, which is to the north of Fort

Constantine; it mounts about twelve guns, and is on very high ground. The French line-of-battle ship (screw) *Napoleon*, with the *Agamemnon*, began the fight. We had to pass Fort Constantine, and in so doing got within range of their guns, so we had the Waif battery and Fort Constantine, with about 100 guns, bearing on us, through some mistake of the steamer who towed us. The Admiral had been misinformed, or we should not have been within two fires. However, we opened on Fort Constantine, which they returned, but it was too much for us; we were on fire in three places, and the enemy poured in grape and canister in quick succession. We are fearfully knocked about, and report says we go to Constantinople to repair damages. The other ships kept up their fire till dark, when they all hauled off. I think the *Arethusa* and ourselves have suffered most. If the Russians had managed their guns well, they could have sunk us easily. The forts were so high we could not depress the guns on the lower deck sufficient to reach them, being so close under their battery.

Loss of the United States Mail Steamer "Arctic," and upwards of Three Hundred Lives.

Accounts have been received at Lloyds of the *Arctic* steamer, bound from Liverpool to New York, having been in contact, during a thick fog, September 26th, about sixty-five miles N.E.b.E. of Cape Race, with the French steamer *Vesta*, from St. Peter to Granville. The latter had 140 passengers on board, fourteen of whom and part of the crew took to the boats, and had not been heard of, and one man was killed during the collision. The *Vesta* reached St. John on the morning of the 30th of September. The *Arctic* had 185 first-class passengers, 75 second-class, and a crew of 130.

The following is the statement of Mr. Baahlam, the second officer of the ship, copied from the *St. John* (Newfoundland) *Public Ledger*, of the 3rd October:—

St. John, Tuesday, October 3rd.

On Wednesday, at noon, Cape Race bearing S.W.b.W., sixty-five miles distant, while running in a very thick fog, were struck on the starboard bow, about sixty feet abaft the cutwater, by an iron steamer, which made three large holes in the ship, two below the water, one of which was about 5½ feet in length, 1 or 1½ feet in depth, leaving the whole cutwater and stem of the iron steamer clean through the *Arctic's* side. So dense was the fog that the vessel could not be seen a minute before the collision.

The wheel was put hard to starboard, the engine stopped instantly, and backed at full speed until clear of the other steamer, which occupied a couple of minutes. The French steamer seemed to be sinking, bow first. Captain Luce immediately gave orders to clear away the quarter boats, which was done, and Mr. Gourley, chief officer, left the ship in charge of the starboard boat; and in lowering the port boat the Captain exclaimed, "Hoist up that boat again, Mr. Baahlaam," and beckoned me to go to him. Upon doing so, he ordered me to go over the bow to ascertain, if possible, what damage had

been done. I then found the holes above-mentioned. Upon informing him of the facts, he ordered the ship's head to be kept for the land, which bore N.W.b.W. By this time we had lost sight of the officer's boat and the other steamer, which we supposed had sunk. We had not been on our course more than four or five minutes before we ran over a boat and crew belonging to the other vessel, all of whom perished, with the exception of one who caught hold of a rope hanging over the bow.

Directly the boat was seen, orders were given to stop the engine; which the chief engineer said could not be done, as the ship was fast sinking. In about thirty minutes all the lower fires were out, and at the least there were six feet of water in the ship fore and aft. By this time the confusion amongst the passengers was very great, but they used all efforts to assist the crew in keeping the pumps going and in lightening the ship forward, for the purpose of endeavouring to get at the leak from inside, which was found to be useless, and numbers of them got into the boats, which were still hanging to the davits. In forty-five minutes after the collision I came up from the forehold, and informed the Captain that the water was on a level with the lower deck beams, and that it was impossible to get at the leak. I then asked him what he thought would be likely to be the fate of the ship, when he stated his belief to me that there was no hope of saving her. He then told me to see to my boats.

On going to those on the port side I found them completely filled with men and women, and no possibility of getting near them. I immediately went to the starboard side, and ordered two of the crew to lower the guard-boat, and asked the Captain what his intentions were, who replied that the ship's fate should be his. I then asked him if he would not allow his son to go with me, as I intended to take a boat; but he returned me the answer that he should share his fate. I then jumped into the boat, and was ordered by the Captain to take away the tackle falls, and drop under the stern. I did so, at which time about twenty persons, as I supposed, jumped overboard, of whom seventeen or eighteen were picked up. Fell in with another boat which had been lowered from the other side, and lightened her of part of her complement, leaving nineteen in her, and twenty-six in my own boat.

The last sight we had of the ship her yards were level with the water, and the surface of the sea strewed with human beings who had fallen or jumped overboard, to whom, however, it was impossible for us to lend any assistance, and we soon lost sight of all, as the fog continued to be very dense.

I then asked the boats' crews whether they were willing to be governed by me, which was unanimously approved, and I was put in complete command of both boats. We were then about sixty miles S.E. of Cape Race. Deeming it my duty, for the safety of all, to take the nearest course for the land, and after pulling forty-two hours, with nothing to guide us but the run of the sea, which I took to be heaving from the southward; and in a thick fog, which lasted all the time, we reached Broad Cove, some twelve miles north of Cape Race.

We then proceeded by land to Renews, which we reached on Friday last. I there obtained and took charge of a small schooner, which was hired by the purser and myself, and proceeded immediately in search of the wreck or her boats. We cruised round until yesterday in a strong gale of wind from N.E., but could find no trace of ship or boats. I sent word to Captain Leitch, of the *City of Philadelphia* steamer, acquainting him with the catastrophe, who I am informed, sent off two vessels which he had employed about his own ship. Mr. Allan Goodridge, of Renews, also sent away a vessel on Saturday evening, but she has not yet returned. It is with the greatest regret I have to report no trace of the *Arctic* or her other boats could be found; but as there were very many other vessels in the neighbourhood where

the disaster occurred, it is not improbable that many lives may have been saved. No doubt, however, is left on my mind as to the loss of the steamer *Arctic*.

The French merchant screw-steamer *Vesta*, from St. Peter, bound to Granville, arrived at St. John, Newfoundland, on the morning of the 30th Sept., with loss of foremast and bows completely shattered to pieces, having been in collision with the Collins' paddle steamer *Arctic*, from Liverpool to New York, about 54 miles S.E. of Cape Race.

It appears that the *Vesta* left St. Peter on the Tuesday previous, and on the following day, at noon, in the neighbourhood of the Virgin Rocks, in an exceedingly dense fog, steaming eight knots, came into collision with a large steamer, which was recognised as the *Arctic*, of New York, whose speed is stated to have been not less than twelve knots. The *Vesta* appeared to be sinking, but immediately rose again, but no hope was entertained of her ultimate safety, the passengers and crew looking upon the *Arctic* as their only chance of saving their lives. One man was killed, and others severely wounded. Two boats were put over the side, the first of which was sunk, and the second was immediately boarded by two of the crew and several of the passengers, who not heeding the order of the captain to return on board, abandoned the vessel. The fog continuing very thick, they lost sight of the *Arctic* altogether, still hoping, however, that she would not desert them.

A cry of distress was now heard, which was attributed to some men of the *Vesta*, who, it appears, had jumped overboard to get on board the *Arctic*. Providentially, the bulkhead in the forecastle was not started, which the captain (Duchesne) noticed as affording a chance of safety. He immediately, with the utmost promptitude, gave orders for lightening the vessel by the head, which was as readily obeyed by throwing overboard all the fish, cargo, luggage of the passengers, &c., which was in the fore part of the vessel, and which raised her bows considerably. This elevation, with the firmness of the bulkhead, contributed much to stop the heavy rush of water. About 150 mattrasses, palliasses, and other effects of the crew and passengers, were now placed abaft the safety partition, over which were thrown sails, backed by boards and planks, the whole being secured by cables well and firmly wrapped round all.

The foremast which had received some damage, was cut away, and contributed considerably to raise the head still more. This occupied two days. They then ran under small steam, for the nearest port (St. John), which they entered on the 30th, most providentially before the rising of a severe gale which blew on that day. Upon mustering the hands, thirteen were missed. The *Vesta* had on board 147 passengers and a crew of 50 men. The conduct of Captain Duchesne is much applauded, and the condition of the vessel, as she now appears, elicits the admiration of all who visit her. Indeed, nothing but the most indomitable energy, unwavering perseverance, and most superior seamanship could have succeeded in bring the vessel into port. The unfortunate men have been taken into the hospitable keeping of Mr. Toussaint (through whose kindness we have been enabled to gather the foregoing account), who spares no pains to provide for their comfort.

Nothing further was known of the *Arctic* until the evening of Saturday, when the news reached that she had suffered considerably from the shock, and had been abandoned by the passengers and crew. On Sunday some of those who had taken to the boats arrived at St. John, from Renews. From one of the passengers we have gathered the following information respecting the collision :—

It appears that on the Wednesday, about noon, as the passengers were at lunch in the cabin, a violent shock was felt, and upon rushing upon deck, a

steamer was very indistinctly seen, through a dense fog, broad off the starboard bow, which turns out to be the *Vesta*, above-mentioned.

At first no danger was apprehended on board the *Arctic*, and the chief officer was sent with a boat to the rescue of the crew of the *Vesta*. It was soon discovered, however, that there was little hope of saving the *Arctic*, and the lady, daughter, and son of Mr. E. K. Collins, with several ladies, were put on board a boat, in the act of lowering which one of the tackles gave way, and all, except one lady, who clung to a sailor holding fast to the boat, were precipitated into the sea and lost. Another party of ladies and a few gentlemen were put on board another boat, with some provisions, but not having been manned by sailors, there is little chance of their speedily reaching the land.

The ship could not be stopped to lower the boats, the pumps being attached to the engine for the purpose of keeping the vessel clear of the water, which was rushing furiously into her from an injury done on the fore side of the starboard wheel. She was then headed for Cape Race; but after having gone some fifteen miles, the water had so far gained as to extinguish the fires, and the wheels consequently ceased to work, at which time the boats saved left the ship. Capt. Luce had no hopes of saving the vessel or his own life, and on some one wishing to take his little son into the boat, declined.

A large boat, capable of containing fifty persons, was on deck, but there not being sufficient hands on board, and being very heavy to launch, it is supposed she would be filled with persons, in the hope that she might float off when the ship sank. It is conjectured that three life-boats are yet floating, which will be likely to live out the gale of Saturday.

The purser, Mr. Geib, it appears, chartered a small craft at Renews to visit the scene of the disaster, and ascertain, if possible, whether there are any more boats out, so that we may shortly learn of the safety or otherwise of other parties.

The *Arctic* had on board 400 persons, about 185 of whom were first-class passengers, 75 second-class, and 130 crew. The general impression of those saved is, that the steamer soon went down.—*Daily News.*

Rates of Freight.

We regret that we cannot report any improvement generally in Freights, and even at the low quotations annexed little business is doing.

We appear to be suffering from the reaction consequent upon all artificially high rates, and it will take a little time before these fluctuations cease, and the stream subsides into its natural channel.

Coal freights to all parts of the world are very much depressed, hence the return rates keep up, and Grain freights from the Chinchas still rule high; indeed they may be said to be the best thing in the market. We can still place ships to the United Kingdom at 100s. and to the Mauritius at 85s. per ton, delivered.

The extraordinary reaction in the price of grain, which we believe will not be of long duration, has given a temporary fillip to the import trade in corn, and freights are rather on the advance from the Mediterranean ports. There has also been a demand for Rice, and 105s. per ton has been freely given for first-class ships running out in ballast to Akyab, and we can still place a few more at these rates.

Government Emigration Charters may be quoted at £17 to £18 per head, and the East India Company's tenders for goods to Bombay and Calcutta have been done respectively at 16s. to 17s. per ton.

The rates for ships on the berth are as follows, viz. :—To Australia, 80s. per register ton (N.M.) for first-class British ship; Rio de Janeiro, 50s.; River Plate, 55s.; Cape of Gooe Hope, 30s.; Calcutta, 85s.; Bombay, 82s. 6d.; Sincapore, 35s.; Valparaiso, 50s.; Lima, 50s.; St. Buena Ventura and Panama, 70s.; and San Francisco, 95s.

A demand for Transports for the seat of war unfortunately still continues, and until something very decisive takes place that may lead to views of peace, we do not anticipate a legitimate demand for ships, and a return to that confidence in commercial relations so essential to the well being of the shipping interest at large.

NAUTICAL NOTICES.

COAST OF NORWAY.—*Duration of Lights.*—[No. 187.]—The Norwegian Naval Department has given notice that the following Lights will henceforward be displayed on the 1st day of October every year, instead of the 21st day of December, as hitherto, and will continue so to be lighted throughout the Winter months, until the 1st day of April following, viz. :—

Vigholms, in 59° 8′ 40″ N., 5° 17′ 20″ E.; Fjeldo, in 59° 5′ 25″ N., 5° 35′ 0″ E.; Bucknesund, in 59° 13′ 15″ N., 5° 29′ 0″ E.; Eyletta, in 59° 25′ 40″ N., 5° 8′ 0″ E.; Esprær, in 59° 35′ 5″ N., 5° 10′ 5″ E.

These changes affect Admiralty Chart No. 2,281.

GULF OF BOTHNIA.—*Beacons on the East and West Finn Grounds, and on the Grundkalle Ground.*—[No. 188.]—The Swedish Government has given notice that a beacon buoy, with a white pole 12 feet high, surmounted by a Red Ball, has recently been placed, in 5½ fathoms, at half a mile to the eastward of the shallowest spot (12 feet) of the West Finn Ground.

Also a similar beacon buoy, but with a red pole and White Ball, has been placed, in 6½ fathoms, at three cables' lengths to the eastward of the shallowest part (7 feet) of the East Finn Ground.

These shoals lie E.S.E. and W.N.W. of each other, distant 11½ nautic miles. From the East Finn Ground the Orskars Revolving Light bears S.b.W. ½ W., distant 25 miles, but the light is not visible as far as the shoal.

A beacon buoy, having a pole 15 feet high, with a small flag or streamer on the top, has also been placed in 9 fathoms depth, at three cables' lengths to the eastward of the shoalest spot (6 feet) of the Grnndkalle Ground, in the South Quarken, at about 11 miles north of Understen Lighthouse. To avoid this dangerous and extensive bank, keep Understen Fixed Light bearing S.b.W., until Orskars Revolving Light bears W.b.N. ½ N.

ADRIATIC.—*Fixed Light on Punta d'Ostro, at the Entrance of the Gulf of Cattaro.*—[No. 189.]—Her Majesty's Government has been officially informed, that on the 21st of September a Fixed Light was established in the Lighthouse erected on the southern part of Punta d'Ostro, at the entrance of the Gulf of Cattaro, in lat. 42° 23′ 28″ N., and long. 18° 32′ 19″ E.

The height of the light is 263 feet above the level of high water, and in clear weather may be seen from a vessel's deck, 12 feet above the sea, at the distance of 22 miles.

This notice affects the following Admiralty charts :—Mediterranean, General chart, No. 2,158; Adriatic, General chart, No. 1,440; Gulf of Cattaro, No. 1,463.

COAST OF FRIESLAND.—*Fixed Lights on Schiermonnik-oog Island.*—[No. 190.]—With reference to the notice No. 181, respecting the two Fixed Lights on Schiermonnik-oog, Her Majesty's Government has been further officially informed, that the above lights were established there on the 1st of September last. The Light-towers, which are circular, and erected on the sand hills, stand N.W.b.N. and S.E.b.S., 1,102 yards from each other. The southernmost, or high light, is 147 feet above the sea, and is visible on any bearing from W.S.W., round to the southward by north; but the northernmost, or low light, standing 139 feet above high water, can only be seen from W.S.W. round by south to E.S.E. These lights are visible from a vessel's deck, 12 feet above the sea, at the distance of 16 miles.

Their positions, according to the same information, are:—Southern, or Low Light, lat. 53° 28′ 56″ N., long. 6° 9′ 49″ W.; Northern, or High Light, lat. 53° 29′ 14″ N., long. 6° 9′ 3″ W.

These changes affect Chart No. 2,248, and *Danish Pilot* p. 522.

BALTIC.—LITTLE BELT.—*Harbour Light of Assens.*—[No. 191]—The Danish Government has given notice, that the new Harbour Fixed Light at Assens, on the Island of Fyen, in the Little Belt, was exhibited on the 1st October last.

The Light-tower is painted white, and stands on the Northern Mole, at 47 feet from its outer end.

The light is a fixed bright light, at an elevation of 20 feet above the level of the sea, and is visible at 8 miles distance.

This notice affects Admiralty charts Nos. 2,114 and 2,116; *Danish Pilot*, p. 289; and *Baltic Lighthouse List*, No. 99.

BLACK SEA.—*Light on Cape Khersonese, Krimea.*—[No. 192.]—The Commander-in-Chief in the Black Sea has officially notified to the Admiralty, that the Light on Cape Khersonese, in the Krimea, near the entrance of the Harbour of Sebastopol. which had been discontinued for some time, was again lighted on the 3rd October.

CAUTION WHEN APPROACHING THE NEW MOLE HEAD AT GIBRALTAR.—*Danger Buoy.*—[No. 193]—Notice is hereby given, that the New Mole at Gibraltar is in progress of extension to the northward, and that a Red beacon buoy has been laid down about a cable's length off the Mole Head, in order to mark the limits of the advancing work under water.

It will therefore be highly dangerous for any vessel to pass between that buoy and the Mole Head.

PORTSMOUTH.—*Light on Southsea Castle.*—[No. 194.]—Notice is hereby given, that the Light on Southsea Castle, having been raised 20 feet, will, on the 7th November and thenceforth be displayed at an elevation of 51 feet above the level of high water.

It will show a Green Light to the westward, and a red light to the eastward, as before, no alteration in these particulars having been made; the bearing of the line of division between them being about N.E.b.N. and S.W.b.S., or in the direction nearly of the Spit buoy.

THE "CALEDONIAN."—There seems to be rough weather at the Sandheads. More than one ship is reported to have encountered danger, others are afraid to venture out, while some again are detained both in and out for want of pilots, and have to weather it out as best they can. The commander of the barque *Ellen*, just come in, reports, "the ship *Caledonian* was lost last Tuesday, within two cables of me, at 6h. 40m., p.m., and I should say a great number of her people must have perished." The same commander likewise

reports the loss of the schooner *Island Queen*, in Torres Straits, on the 24th July. All hands, however, were saved, part of them were taken on board the steamer *Anne*, and the rest were brought on to Calcutta by the *Ellen*. Two days before the *Island Queen* was lost, she passed a reef, of which her commander gives the following account:—"July 22nd, 1854.—Noon, lat obs. 16° 40′ S., long. chro. 148° 6′ E. (sights a.m. aad p.m.) Course steered, N.W. 10 miles, 1h. 30m. p.m. Breakers reported ahead; tacked and stood to the southward, finding ourselves in the bight of a crescent-shaped reef lying about S.W. and N.E. the S.W. end. Bearing W.N.W. kept to the southward till 3h. p.m., having run about eight miles, body of the reef bearing north, tacked and stood to E.N.E.; 5h. p.m. cleared the N.E. end, bearing N.N.W., kept away to north. The above may be the Bougainville Reef, or another, marked breakers, but if so must be much misplaced, as their bearing on my chart are, Bougainville Reef N. ¼ W., distance 60 miles. The position of the above-named reef is lat. 16° 36′ S., long. 138° E., breakers S.S.E., distance 47 miles, and when we sighted it extended to the eastward as far as the eye could reach." *Note.*—The reef opens to the eastward.—*Hurkaru*, Sept. 16th.

Sunken Rocks *in Endeavour Strait.*—Two very dangerous sunken rocks not laid down in the charts, but both easily distinguished by the discoloured water and strong ripples, were passed in Endeavour Strait, one about three miles off the south end of the Entrance Islands, and the other four miles from the west end of Port Lihonberg, by the *Jemima Pereira*, Craig, arrived. [The foregoing appears in the *Shipping Gazette* of the 20th Nov., dated Ampanan, 26th August. But the rocks in question do appear to be in the chart of Endeavour Strait published by the Admiralty,—Ed.]

Rear-Admiral Bruce.—We have great pleasure in publishing the following address forwarded to Rear-Admiral Bruce:—"The Captains and Officers late in command of vessels on the West Coast of Africa, request your acceptance of the accompanying piece of plate, as a token of their grateful sense of your uniform kindness and consideration to themselves, the officers and ships' companies under their command, during the period they had the pleasure of serving under you." Reply:—"Ballyscullen House, County Derry, Nov. 1, 1854. Gentlemen,—I have received with much gratification, and with honest pride, the address you have presented to me, together with the beautiful and appropriate testimonial which accompanies it; but I want words to express in becoming terms the feelings by which I am animated at this spontaneous acknowledgement on your part, the most valuable that in my professional career could have been awarded me. The Commander-in-Chief of a squadron of Her Majesty's ships cannot fail to be placed in positions fraught with responsibility and anxious care; in my case, however, peculiar as the duties were, they proved to me comparatively easy, from the circumstance of their being shared with me by men of enlightened minds and of the highest sense of personal honour, who showed their devotion to the public service by never allowing of a difficulty, and, whenever it was possible, by anticipating the views and designs of their Commander-in-Chief for the fulfilment of those duties. This testimonial will be to my children an object of grateful admiration; and it will be to them—in the future as at present—a signal token of the liberal and exalted sentiments that so extensively influence our glorious profession.—I remain, your sincere and faithful friend, H. W. Bruce. To the Captains, Commanders, and Lieutenants commanding Cruisers on the West Coast of Africa, &c."—[It is gratifying to record such acts as these: there is good sense, good feeling on all sides.—Ed.]

The Fitz Roy Dock at Sydney.

We congratulate our Australian friends on the prospect afforded them at Sydney. The importance of docks there it would be difficult to overrate. We find the following in a Sydney paper:—

In our last summary of news for the Madras steam-ship, May 25th, we invited the attention of our distant friends to our published reports of the progress making in the construction of a Dry Dock of considerable magnitude at Waterview Bay, in the Harbour of Port Jackson; and also to the contracts entered into by the Australasian Steam Navigation Company for having a large patent slip laid down at Pyrmont, the machinery for which had already arrived from England. We are gratified to be enabled to state that these important works are both in active progress, and that both may be expected to be opened early in 1855.

To another great work of the same character we have the agreeable duty to request the attention of the maritime and commercial interests of all nations.

On the 5th June, amidst a large assemblage, the ceremony of laying the first stone of the Sill of the Fitz Roy Dry Dock, at Cockatoo Island, was performed by his Excellency the Governor General. A very large party, comprising the leading families of our official, military, and naval circles, was assembled to receive Sir Charles. His Excellency made a minute inspection of the works, which were then, and continue to be, in so forward a state of progress that it is confidently stated in the course of seven or eight months a ship, of the dimensions of the *Great Britain*, can be docked and repaired there. The dimensions of the dock are 316 feet in length, 76 feet in breadth, with a clear opening of 60 feet at the piers. Over the sill, at an average tide, will be 20 clear feet; so that a vessel drawing 20 feet will be enabled to float into the dock. From the dock a tunnel is in rapid progress, which runs to the well of the engine-house, where the water will be pumped up by two engines, each of twenty horse power. From the position of the dock there is every facility to extend its length 200 feet. The excavations may be said to be within the eve of completion, and the massive blocks of stone intended for the linings of the rock work of the dock are all ready. They present admirable specimens of masonry, the first stone of the sill weighing 3½ tons.

His Excellency, having inspected every department of the establishment, proceeded with the ceremony of laying the first stone. In a small cavity under this mass was placed a case, on which was engraved the following inscription:—

"This stone, the first of the sill of the Fitz Roy Dock, was laid by His Excellency Sir Charles Augustus Fitz Roy, Knight-Companion of the Royal Hanoverian Guelphic Order, Governor-General of all Her Majesty's Australian Possessions, Vice-Admiral of the same, and Captain-General and Governor-in-Chief of the territory of New South Wales and its dependencies, &c. &c. &c., on the 5th of June, A.D. 1854, and in the 17th year of Her Majesty Queen Victoria, the Hon. Maj-Gen. Sir Robert Nickle, K.H., Commanding the Forces, the Hon. Campbell D. Riddell, Acting Colonial Secretary, the Hon. John Hubert Plunkett, Attorney-General, the Hon. F. L. S. Merewether, Colonial Treasurer, the Hon. Sir Charles Nicholson, Speaker of the Legislative Council of New South Wales. The level of this bed of stone is fifty-two feet below the original surface of the island on this spot.

Gother Kerr Mann, Civil Engineer."

In the case were deposited the various gold, silver, and copper coins of the realm, and a copy of the *Sydney Morning Herald* of the day's date.

Captain Gother Mann explained the progress of the works advancing, as he hoped, so near their completion. The elaborate plans were exhibited by Mr. James Henry Thomas, the resident engineer; and the Governor-General then addressed the assembly. His Excellency said that it was with the highest feelings of gratification he had attended to assist in a ceremony which involved so many valuable interests connected with the mercantile and maritime interests, not only of New South Wales, but of every country having commercial relations in these seas. He had the greater satisfaction in attending on the occasion, because, (as had been well observed by Capt. Mann in the course of the inspection of the works,) the laying of the first stone of the sill of the Fitz Roy Dock was not, as in the case of an edifice, the beginning of a beginning;—it was the beginning of an end.

After the ceremony, Mr. Ormsby, the Superintendent of the Islands invited his Excellency and the numerous visitors to a sumptuous luncheon at his quarters.

A recent visit to the Island has assured us that the anticipations expressed on the above occasion as to the speedy completion of the Fitzroy Dock, will be realized. We may observe, that the stones to form the flooring of the dock, are cut so as to form an inverted arch, the sides of the dock forming abutments. The foundations of the engine house and boilers are now completed. In every respect the forward state of the works reflects high credit on the officers engaged.

Sydney Morning Herald.

NEW BOOKS.

THE DANISH PILOT.—*By Admiral Zahrtmann, Grand Cross of Dannebroge, &c., &c.* Potter, Poultry.

SAILING DIRECTIONS FOR THE BALTIC SEA AND THE GULF OF FINLAND. —*By Admiral Gustaf Klint, of the Swedish Royal Navy.* Potter, Poultry.

THE NORWAY PILOT. PART I. FROM THE NAZE TO THE KATTEGAT.—*Translated from the Works of Admirals Lowenorn and Klint, of the Royal Danish and Swedish Navies, &c.* Potter, Poultry.

At length Hydrography is looking up. At length navigation is extricating itself by its own zeal and importance from the clog of neglect, that drag on the progress of improvement in everything that is worth improving. In the course of the past year new and most important charts have been issuing in one continued stream from the Hydrographic Office, that emporium of all hydrographic knowledge, as it should be, of the first maritime state of the world:—and here before us are the three above works, one to be had at the cost of eighteen pence, another at the cost of one shilling, and the other at the cost of four shillings and sixpence, including in all above eight hundred pages (for the mere song of seven shillings) of the most authentic and well digested information that the seaman can possibly desire of coasts which he is frequenting as his duty calls him. Verily if ships, in these days, are to lose themselves it must not be said it is for want of that information being made accessible to them that we do possess. And, speaking of information, they are even tempted to use it by that enticing luxury, a good index. This is all as it should be. A government is thus indeed acting a paternal part, when it

cares for its fleets and places not only the fruits of its own culling but those of other governments within their reach, and is extending a fostering care over those fleets which will be well repaid in the produce of trade.

Referring to these works singly, the first may be considered, probably, the the first of its class that ever issued from the press; remarkable, it may be said, for the soundness and fullness of its information and the classic seaman-like language in which it is conveyed. It will stand as a sample of the intelligence and good judgment of all concerned in its production. It is illustrated by those important additions for seamen, in which the example set us by our French neighbours has been imitated.

The "Baltic Directions," a translation of Klint's, appear not to enter so minutely into pilot waters as the former; but, considering the nature of much of the Baltic shores, it would be next to impossible to instruct the mariner with the same local knowledge that the pilot possesses. As a general Sailing Directory it is invaluable.

The "Norway Pilot" has greater pretensions to inform the seaman on these subjects. It is well that it should do so for it is the opening to the two former, an introduction to those narrow seas as well as their ports from the Naze to Christiania.

It is with good reason then, that we say Hydrography is looking up at last; more especially when we know what is preparing for the seaman of the same kind of information;—information, be it observed, not interlarded with poetical quotations, of no service to the mariner, but giving him, in the most accessible form, the real good solid information which he does want,—information for which he has long been in vain looking and which he now knows, when he gets it, that he can depend upon! This is what the seaman does want, and in these works we promise him he will find it.

A modest but useful little glossary precedes each of these volumes, containing expressions in the language of the countries (the coasts of which they describe) that are most needed for communicating with pilots. Indeed, while we heartily congratulate the seaman on obtaining these along with the beautiful charts which belong to them, we trust that the same presiding spirit which has produced them, as successive editions wear out, will preserve them completed from time to time with those additions of new information which is continually turning up, and thereby maintain that high and important place which they inherit.

A seaman on board H.B.M.S. *Encounter* having lost an arm by an accident while firing a salute in honour of the 4th of July, the officers and crews of the U.S.S. *Susquehanna* and *Vandalia* sent him a bill of exchange for £283, which was acknowledged with suitable letters between the United States and British Commanders. We find the foregoing quoted from the *Boston Post* of November 4th, and gladly preserve the record of such a noble act.

LARGE ORDNANCE.—Just now, when the size of our Ordnance forms such a frequent subject of discussion, it may not be uninteresting to give our readers some idea of the brass guns in which the native princes of India used to rejoice. The gun at Moorshedabad is seventeen feet long, with a bore of eighteen inches; that of Dacca twenty-two feet long, with a bore of fifteen inches; it weighed twenty-one tons, and threw shot of four hundred weight. The great gun at Agra is a brass fifteen hundred pounder, twenty-three inches bore; it weighs eleven tons, and is worth £5,000 as old metal. While two out of half a dozen of large guns at Beejapoor throw shot of half a ton, and a ton and a quarter respectively.

New Charts.

Published by the Hydrographic Office, Admiralty, and Sold by J. D. Potter, 31, *Poultry, and* 11, *King Street, Tower Hill.*

Ireland, Loughs Corrib and Mask, Comdr. Beechey, R.N., 1846	-	2	0
Baltic Sea, Gulf of Riga Entrance, corrected 1854	-	2	0
" " Norway Directions from the Naze to the Kattegat	-	1	0
Polar Sea, Arctic Sea Discoveries, corrected to 1854	-	1	6
" " Erebus Bay, Commander Pullen, R.N., 1854	-	1	0
Black Sea, Balaklava, Captain Spratt, R.N., 1854	-	1	0
East Indies, Borneo, Sheet 8, corrected to 1854	-	2	0
North America, West Coast, California Gulf, 2 Sheets	each	1	6
" " Port Simpson, lithographed, Messrs. Inskip, Gordon, and Knox, R.N., 1853	-	0	6

Edward Dunsterville, Master, R.N.

Hydrographic Office, Admiralty, November 22nd, 1854.

Errata.

Proceedings of H.M.S. *Sphinx, Nautical Magazine*, vol. xx.

Page 566, line 10, *for* moved *read* moored.
.. 567, .. 15, *for* Bedang *read* Redang.
.. 568, .. 26, *for* G. *read* Y.
.. 624, .. 21, *for* Chronometer on mean time *read* Chronomer slow on mean time.
.. 624, .. 23, *for* 1st *read* 18th.
.. 626, .. 13, *for* 6 45 12 40 *read* 6 45 12 20.
.. 627, .. 36, *for* at *read* it.
.. 628, .. 23, *for* 4, 6d. *read* 46d.

Vol. xxiii.

.. 478, .. 32, *for* Three *read* there.
.. 479, .. 46, *for* Baron Island *read* Barn Island.
.. 480, .. 7, *for* typhonnoidal *read* typhonoidal.
.. 481, .. 1, *for* liftest *read* liftedst.
.. 520, .. 46, *for* Shinpoo *read* Sheipoo; and also in other places.
.. 521, .. 3, *for* Kwangoe *read* Kwansee.
.. 524, .. last, *for* Wanhew *read* Wan-chew.
.. 588, .. 6, *for* within the walls *read* without the walls.
.. 592, .. 36, *for* Shonidong *read* Shouidong.
.. 592, .. 36, *for* Herzadah *read* Henzadah.
.. 593, .. 36, *for* which *read* while.
.. 595, *for* the Italian quotation as it stands *read*

E non é alcun fra tanti
..... O feritor maggiore
O piu bel di maniere e di sembianti,
O piu eccelso ed intrepido di core.

LONDON: WALTER SPIERS, PRINTER, 42, GREAT PRESCOT STREET.

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