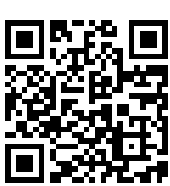


Magazine

THE

NAUTICAL MAGAZINE.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle

FOR 1865.

A JOURNAL OF PAPERS

ON SUBJECTS CONNECTED WITH

MARITIME AFFAIRS.

London:
SIMPKIN, MARSHALL AND CO., STATIONER'S HALL COURT
AND
J. D. POTTER, 31, POULTRY, AND 11, KING STREET,
TOWER HILL.

LONDON:

WALTER SPIERS, PRINTER, GREAT PRESCOT STREET.

CONTENTS OF VOLUME FOR 1865.

ENLARGED SERIES.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

JANUARY, 1865.

The Late Gales and Refuge Harbours on our Eastern Coast.

The approach of winter in our climate, like the approaching change of monsoons abroad, brings with it a contest of its elements; the natural result of which, here as well as there, is shipwreck and distress in our much boasted mercantile fleet. Fine-weather ships, as too many of them are, no sooner does a capful of wind, as Robinson Crusoe's historian terms it, ruffle the face of our surrounding seas, than the miserable, ill manned, ill found, and overladen portion of that fleet succumb to it, and are thrown on sands or on the strand, or founder in deep water, helpless, unheeded, and soon forgotten! They are mere casualties. They may or may not consign many living souls to eternity year by year. But these too, the memory of these, though festering sores in some kindred bosoms,—these too go by with the stream of time, and their memory, uncared for by the majority of the public, is soon lost in the same oblivion as the unworthy ship in which they suffered. Great Britain is a maritime nation, and dearly does her population pay for the high sounding but illusory title which she enjoys as Mistress of the Seas.

The great loss of life and property by wrecks of British ships is too notorious to admit of doubt. The official register of the Board of Trade sets all doubt on the subject at rest. Wreck and loss of life and property go on year after year with the same unerring certainty and as surely as the sun rises and sets. The last is insured, and in most cases again realized: but what of the former? Not only is

there no insurance here, but even the only chance is denied by which in many, very many cases this, and property too, it might be saved.

The chance denied of saving life from wrecks—impossible! it will be said, in a Christian country! It cannot be! Let the novice who in the innocence of ignorance imagines such a thing impossible turn to the page of history and learn the degrading fact—degrading to the Christian soul—that we (at least some of us) do all we can to impede the construction of harbours on coasts where the calamities of wreck are most common—where nature has denied a refuge from the storm, and where we—

"Short sighted atoms of a day,"

say there shall not be one.

Is this exaggeration? Not a word of it. We will put it to the test and acknowledge the disgraceful fact, as we will prove it by undeniable records.

The readers of the *Nautical* will perhaps remember how warmly we took up the subject of a harbour of refuge that was proposed by an engineer (Mr. W. A. Brooks) to be formed at Redcar. And why did we do so? Simply for the sake of saving the lives of our unprotected seamen—and uninsured, we might add, in comparison with the property that was annually lost with them. Now this subject came before parliament, and a committee of inquiry sat on it, from whose proceedings we will make an extract or two in support of what we have advanced. And the first shall be from the evidence of Captain Hewett, a naval officer of long experience in the North Sea, and than whom no better seaman ever navigated that sea.

Of the selection of Redcar as the site of the proposed harbour Captain Hewett thus gives his deliberate opinion. First, he considers that a refuge harbour on the East coast for the *protection* of lives is actually necessary; and when asked where should such a harbour be, and if his opinion referred to making a new harbour altogether, here is his answer:—"My ideas referred immediately to Redcar when the question was put, but it is impossible to improve the condition of any of the harbours on the eastern coast except by going to a tremendous expense." Perhaps the Sunderland Bar operations have found out this with their 6½ feet bar at low water, and the sea they have gained with their increase of depth. But immediately after the above question the following is put to Captain Hewett,—"If it were decided by the legislature to lay out a large sum of money in refuge harbours between, we will say, the River Tyne and the Port of London, where would it be most conveniently situated?" Now, this was a question direct to the point, one that would thoroughly test the propriety of the selection that had been made, and what does Captain Hewett's experience reply? He says emphatically, in words that should be remembered by those who have suffered the loss of relatives on that terrific coast in easterly gales,—"*I know of no other place than* REDCAR *throughout the whole coast.* . . . REDCAR *is the only place that nature seems to have provided for that purpose.*"

Now, this opinion of Captain Hewett is supported by that of Admiral Fleeming, and there is abundance of testimony to the same effect in the pages of the evidence of that report. Lieutenant Bisson says he is obliged to run for the Forth in N.E. gales and for the Humber in S.E. gales, but were a harbour formed at Redcar it would be just where it is wanted; which want would seem to have been anticipated by nature.

On such grounds as these did we advocate the formation of that harbour, and great was our disgust and disappointment on finding the whole proposal thrown to the winds. Year after year has gone on adding the valuable lives of our countrymen to those which were to be numbered among the dead as so many sacrifices to interested opposition.

Now, let us turn to another page of this report and see what we can find further about Redcar. Surely we expected it would be warmly taken up by every friend to humanity, and are not they abundant among our countrymen? We soon found the delusion. Humanity, indeed!—A fig for your humanity, say the worshippers of Mammon; we want something more tangible than humanity!

In the pages of this same report we find two shipowners under the examination of another shipowner, and one cannot but see the artful manner in which the first adverse opinion is elicited from them to the formation of the proposed harbour at Redcar. They are deliberately asked,—at least one was asked the question and the other agrees in the answer,—"I wish to ask you whether, *as a shipowner, you would consider it worth your while* to be subject to increased taxation for the sake of any increased protection to your property by the establishment or the improvement of harbours?" Never was question more craftily put,—worth while to increase protection to property! property which is already sufficiently protected by the insurance office! What other answer could such a question produce than that which followed,—Oh, no, "Decidedly not," was that answer, in which both these shipowners concurred. They were both decidedly of that opinion, and no wonder.

Then asks Admiral Sir Edward Codrington,—"Are we then to infer that if such a harbour [as Redcar is meant] were offered to you without payment towards its construction or maintenance you would prefer that there should not be such a harbour." These gentlemen reply to this in the affirmative; they had rather there were no such harbour!

But when pressed home by the same officer there is some relenting,—Was it suggested by the possibility of themselves being in one of their own vessels under the circumstances?—for the next question elicits another sentiment. "You have stated that you would rather keep the sea in a gale of wind or snowstorm [if you could, should have been added] than run for any harbour on the coast; I ask you, If you knew there was a safe deep-water harbour, with good landmarks for going into it, whether you would not prefer going into that port on such an occasion [a gale, of course] to keeping the sea." The

answer to this home question, even by the shipowners, is—"If I was satisfied there was such a harbour, I think I would."

The meaning of which is that rather than contribute to the formation of such a harbour, their ships might be dashed to pieces on the rocks, crews, passengers, and all, but if such a harbour cost them nothing they might adopt it in stress of weather. So much for the tender mercies of shipowners towards their own ships or any one on board. So much for humanity!

Then Mr. A. Chapman appears in the evidence and, aware, no doubt, of the miserable harbours of the Tees, the Tyne, Whitby, Scarborough, and Bridlington, asks,—"If you were caught with a gale of wind to the East, and had carried sail as long as you possibly could, till your ship had drifted towards Redcar, would you prefer putting her on shore to putting her in this harbour?" To assert downright that a man would lose his ship (even protected by the insurance office) instead of placing her in a safe harbour under his lee would be a barefaced statement indeed, and the answer therefore is "No." She ought not, of course, under such circumstances to be lost. Of course "that harbour" would be preferred, and these gentlemen were forced to admit that they would, after all, be glad of such a harbour; and yet they oppose it with all their strength, virtually saying "there shall not be one." Have we not said so?

How often have we dwelt on the horrors of on-shore gales on our miserable eastern coast in the early pages of this work—on scenes that have been the subject of inquiry by the parliament; and those scenes have been repeated year after year and things are now just as they were then as far as any advance towards a deep water harbour is concerned. Our first advocacy of Redcar extends as far back as 1833,* in support of a plan proposed by Mr. Brooks; which gentleman we find still urging the public attention to it in the columns of the *Shipping and Mercantile Gazette.*

Mr. Brooks refers to the miserable wreck of the *Stanley* inside of the bar of the Tyne, which she managed to get over; and by her wreck, owing to a northerly set on a bed of rocks half a mile inside of the entrance—which, being a long ship, she was unable to avoid—a scene of suffering, loss of life, and miserable, disgraceful disaster took place which is enough to shame Englishmen in this advanced age. It is presumed that by deepening the bar and carrying the entrance piers into deep water a refuge harbour can be made of the Tyne. Such a refuge it will afford perhaps as lost the unfortunate *Stanley* and her hapless passengers,—a refuge against the whole fury of the sea for 300 miles; which will run over their piers, undermine and wash away their foundations, and, with its opening of about half a mile directly into the river, admit so much run of the wave as will do the same again, if not worse, when the easterly gales blow in earnest. We look on the idea of making the Tyne a refuge harbour as purely chimerical. Captain Hewett said it would take a great

* See *Nautical Magazine*, 1833, page 95.

deal of money! No doubt it will, and we will add—which will be swallowed up by the waves. The *Stanley* has proved that the Tyne is no refuge harbour, and Time will prove that it never can be. Probably a worse method could not have been adopted to make it one than the present arrangement of its piers, leaving its entrance and first reach open to the fury of the North Sea, with a fetch of hundreds of miles for its waves, to which it pretends to bid defiance.

But we must hear Mr. Brooks, who knows quite enough of the Tyne, and will moreover tell us something more about his original plan, perhaps, of Redcar, and will therefore make room for him; although we promise our readers that we cannot lose sight of the *Stanley's* disaster, and all that was going forward on that dreadful night of her loss,—which if we cannot get into this number shall be preserved for our next.

6, *Great College Street, Westminster, November 30th*, 1864.

Sir,—The recent casualties on the N.E. coast have raised the inquiry—can nothing be done to mitigate such calamities? The reply is, that much might and ought to have been done by the legislature many years ago by the erection of the *bona fide* refuge harbours recommended by the Select Committee on Shipwrecks, by two Select Committees on Refuge Harbours, as well as by the more recent Royal Commission on the same subject. The meritorious exertions of the latter appear, however, to have been swamped, and their report set aside by the combination against it of the powerful interests of the shallow rival harbours of the Tyne, Wear, and Tees, in favour of those "wreck traps" at low water during a short gale—the best of them, the Tyne, being evidently unable to give safe access at low water to a ship like the *Stanley*, of Aberdeen, of the moderate draught of only ten feet; and yet this is the port which heartless individuals have dared to parade as "the Tyne a harbour of refuge!" May the remembrance of the agonising shrieks of the fourteen females drowned in that fatal gale of the night of the 24th inst. have the effect of rousing into action the better feelings of the authorities of the Tyne, Wear, and Tees, and prevent them again arraying their sordid local interests against the benevolent intentions of the legislature to provide efficient harbours of refuge!

When the Royal Commission on Refuge Harbours opened, in 1858, on the north-eastern coast, deputations from the Tees and Wear met in the Tyne Commissioners' office to plan how best they could stifle the clamour for real refuge harbours, and divert the public interest in favour of their own shallow ports. In the southward progress of the Royal Commission it was followed by the Chairman of the Tyne Improvement Commission to canvass for evidence in favour of the Tyne; but in the record in the blue book of the Royal Commission, we see little favour expressed for the Tyne, Wear, or Tees, except by parties who, while they evinced great anxiety for forwarding the interests of their respective ports, showed little sympathy for those for whom

refuge was required in the gales which, sweeping along the coast, carry death to the mariner, and misery to the wife and orphan.

With but few exceptions, the demand from those whose lives are really perilled on the coast in question was always given in favour of a deep-water harbour at either Hartlepool or Redcar, both of which places were deemed suitable by the Royal Commission to greatly diminish the present annual loss of life and property. *Bona fide* harbours of refuge are of as paramount as lifeboats are of secondary importance upon iron-bound coasts like those of Northumberland, Durham, and Yorkshire, when visited by on-shore gales. Vain is the attempt, in too many instances, to breast the mass of water which breaks on the shore during an on-shore gale. The lifeboat becomes swamped, and her oars shattered by even the billow which had previously been broken on approaching shallow water; and, as we see by the account of the efforts made by the crews of the lifeboats of the Tyne, their efforts are useless, although excited by the cries of agonised spectators on the shore, added to the shrieks of those who are momentarily expecting to be swallowed up in the raging surf.

There is no experienced mariner who is not well assured that it is useless to attempt to force a lifeboat against the lofty breakers produced by a heavy on-shore gale. On such occasions a lifeboat can only reach a stranded vessel when her seaward progress is aided by a strong ebb tide, or when she finds some shelter to windward of her course to sea. I have witnessed many wrecks, and on one occasion—that of a ship on the Coatham Sands, in Tees Bay—the lifeboat of Redcar was dragged for miles over the heavy sands, and launched into the Tees to get to sea by the help of the ebbing tide, and then approach the wreck from the seaward side of her, thus judiciously making her course to the wreck on the advancing waves until the lifeboat could round under the lee of the wreck, instead of endeavouring to force a passage to her through broken water. In the latter case I have seen the lifeboat submerged by the waves breaking into her, part of the crew lost, and all bruised, oars broken, and the boat dashed heavily on the beach.

Far be it from me to say anything to discourage the use of lifeboats. In many cases they have proved to be invaluable, and have saved hundreds of lives. It is not the use, but the abuse, of those means, when they do but add to the horrors of the tempest by the sacrifice of the lives of their noble-hearted crews, that I unhesitatingly condemn. I have witnessed the piteous sight of gallant men drowned out of their lifeboats while trying to save the lives of others, when no human means were really capable of affording relief, except a deep-water refuge harbour to leeward of the ship. In this last gale two men were lost out of the *Constance* lifeboat; and on a previous occasion no less than seventeen pilots, forming the daring crew of a South Shields lifeboat, were at once swept into eternity while trying to rescue the crew of a ship wrecked on the Herd Sand. Thirty-two years have elapsed since I projected that deep-water harbour at Redcar which has been petitioned for by hundreds of masters of ships pur-

suing their dangerous calling from the northern coal ports; and it was long indeed before I could believe that shipowners could be found to oppose any object which had in view the safety of the lives of the men employed by them. I say it with pity, I say it with regret, that men do exist who are so lost to generous feelings that they arrogate to themselves credit for successfully opposing the formation of harbours of refuge. Some even have dared to state on oath that "they would discharge any master who should venture to run for a refuge harbour."

The Tyne is a good commercial harbour, and, compared to many on the north-eastern and eastern coast, is comparatively easy to take, and few will be found to deny that it is now very much improved. Having been engineer to the Tyne from 1842 to the end of 1858, it may be also presumed that I must be thoroughly acquainted with that port, and that, therefore, I ought to be able to judge whether, under the circumstances attending the loss of the steamship *Stanley* and so many of her passengers and crew, all reasonable care had been taken to prevent those deplorable results.

The master of the *Stanley* complains that the Shields harbour lights were not exhibited; and as we know that reports have been circulated with reference to a greatly increased depth of water on the bar of the Tyne, and that the *Stanley* had a draught of only about ten feet water, there was certainly no want of prudence in her master running for the Tyne to save his deck cargo of cattle from being washed overboard. Enormous dredging operations have been executed on the bar of the Tyne by my successor; and on my last visit to the Tyne, in the spring of this year, I carefully sounded on the bar, and found ten feet six inches at low water of spring tides over that portion of the bar situated to the northward of the leading lights. At the time of my taking these soundings the most powerful dredging machine ever constructed was at work cutting a channel which was to have twenty feet depth at low water, in the very line of "the lights in one." I found, however, that the northern spit of the Herd Sand had so advanced to the northward as to have rendered the leading lights useless, and hence the dredging operation necessary in order to again render the leading lights available.

It had, it appears, become imperative either to shift the low light more to the northward, by erecting a temporary light, so as to light the existing track of deepest water, or else to war against nature by means of powerful dredging operations, to open out a deep track or channel to suit the lead of the existing lighthouses. An inquest should be held to determine what has been the result of the selection made by the Tyne Harbour authorities. Has the dredging been only a Sysiphean labour? and were the lights left unexhibited because nature had proved too powerful for the engineer's operating? In the alternative of the dredging operations having succeeded in maintaining a deep-water channel, the demand may be authoritatively made—why were the lights not exhibited? The blame must fall somewhere. If the lights still led over the margin of the Herd Sand, it appears

reasonable that a temporary light should have been erected to the northward of the low light, so as to conduct ships in the track of deepest water.*

For the present I shall reserve my professional opinion on the cause of this progression northward of the Herd Sand. It is enough for me to say, that I am dissatisfied with the alterations which have been recently made in my original design for the Tyne Piers, by the vain attempt to get thirty feet at low water on the bar of the Tyne. As Engineer of the Tyne in 1858, I was required by the Chairman of the Tyne Improvement Commissioners (Mr. Joseph Cowen) to support their view—that is, of the majority of the commissioners—that the Tyne could be converted into a harbour of refuge, having thirty feet at low water of spring tides; and I was further told that I should be discharged if I refused to do so. I did not choose to either stultify myself, or give a dishonest professional opinion; and all knew that for many years I had been convinced, and had published my belief, that the best situation for a deep-water harbour was to be found at the bottom of the deep bight formed by the coasts of Northumberland, Durham, and Yorkshire.

I knew from the physical features of the Tyne that it would be impossible to gain more than sixteen feet at low water, and that even that depth would require an enormous outlay. A third-rate port like the Tyne could not be changed into a Thames or a Humber. I firmly repelled the attempt to coerce my honest professional opinion, and was discharged in consequence from the appointment I had held for nearly sixteen years. During the last six years immense sums have been lavished on the mouth of the Tyne, but these cruel wrecks prove that it is not right to designate "the Tyne a harbour of refuge."

I humbly trust that parliament, in its wisdom, will, on a future occasion, look solely to the protection of the lives of crews and passengers. Shipowners can insure their ships, but we do not hear of their insuring the lives of the seamen they employ. Their interests being, for the most part, localised, they are but indifferent judges in the question of the proper situations for the formation of harbours of refuge, which is truly one, not of local but of national importance.

The Report of the Royal Commission on Refuge Harbours gave a preference to the site of Hartlepool over Redcar, simply because of the existence of a great trade at Hartlepool, from which it was hoped that assistance would be derived to aid in the construction of the proposed refuge harbour at that place. But the same report states—"A harbour equally good in every respect, with a greater depth of water, and possibly greater facilities for its execution, could be formed at Redcar."

That useful commission did not, however, overstate the pretensions of Redcar, for the report might have said with truth, when comparing it with Hartlepool, that a harbour might be made at Redcar of double

* In respect of the lights not being shown, it is stated that they are not lighted on the ebb in heavy gales, as being considered dangerous.—ED. *N. M.*

the area of deep water, at half the cost, and in one-third the time necessary for the construction of one at Hartlepool. Again, during S.E. gales, vessels running for Redcar would be in comparatively a smooth sea. The commission were misled in their belief that Hartlepool could raise its share of the necessary funds; and it was observed to me by an honourable member that Redcar, as the terminus of the Stockton and Darlington Branch of the North-Eastern Railway, and as the port of the great Cleveland iron district, had far greater claims of expectation of commercial prosperity than Hartlepool.

I regret that I have to express my firm conviction that successful efforts for the preservation of the lives of our gallant seamen of the north-eastern coast cannot judiciously be left to the members who represent the several ports on its shores. The onus of the neglected state of the north-east coast—the apparent apathy to the preservation of life—rests upon the Government, and has so rested since the Redcar Harbour Bill was brought into the House of Commons in 1839. In that year the Board of Trade opposed the reading of the Redcar Harbour Bill, on account of a clause containing the provision of a passing toll, although its construction was advocated by the then First Naval Lord of the Admiralty and the late Admiral Sir Edward Codrington. The latter said, "Don't blame us for bringing in this bill, but blame yourselves (meaning the Government), for your neglect of your duty;" and, just before the division which took place, the late Mr. Joseph Hume rose up in his place, and in fact apologised for the opposition by saying, "I trust it will be thoroughly understood that those who now oppose this bill for the formation of Redcar Harbour do so solely because they consider it ought to be executed by the Government at the national expense."

The late Mr. Aaron Chapman was one of the opponents of the bill, on account of the clause imposing a passing toll, although a toll was at that time levied for Whitby, the port he represented; and yet Whitby had, and still has, only one foot on its bar at low water. A fearful loss of life occurred shortly after, and which made me say to Mr. Chapman, "Had you but thrown your weight into the scale on that division in favour of the refuge harbour, instead of against it, how many lives would have been spared, and how many tears prevented from flowing!" I need hardly add that that good man expressed his deep regret to me that he had so acted, and his intention of repairing the injury he had, with others, done, on the first opportunity.

The great nursery for British seamen is in the navigation of the northern and eastern coast, and nothing can justify its neglect for even a single session of Parliament. Who will, however, venture to deny that the protection of life—the safety of our mariners—has been treated as if it were a subject of very secondary consideration, except by a few warm-hearted members who have given it due attention?

I am, &c.,
W. A. Brooks, M.I.C.E.

A Word or Two about the Cape and its Society.*

A book of holiday travel or vacation excursions is not a common place affair nor an every day publication, and might be compared to a bunch of flowers in which some from their peculiar attractions of elegance in form and colour win the most admiration. We have here accounts of travel from Palestine to the Cape, from India to the Rocky Mountains,—a series of narratives abounding in more or less interest from scenes and the mode of their narrative. The mode after all of treating on a subject, comes round to the same expression which we hear every day, there is a method in everything,—the proper, most approved, right and most attractive way is the best for telling a story. We will snatch one in illustration from the work before us, tolerably fresh from the pen of Lady Duff Gordon. But ladies see nothing nautical unless they are actually embarked. We will therefore see her from the tropics safely landed in Cape Town, and hear what she says of that half English, half Dutch, and half—excuse the blunder —half motley population. Entertaining, sprightly, and cheerful as most ladies we shall find her no doubt.

Let us premise, however, one or two nautical facts which she could not report, as not in being when the lady was there two years ago. For instance, what could she know of harbour works in their latest reported condition. Nevertheless they are going on.

The Table Bay harbour works are being vigorously pushed forward under the superintendence of the resident engineer, Mr. Andrews. The progress of the undertaking is marked and satisfactory, and a very clear opinion can now be formed of the appearance of the docks and breakwater when completed. The staging for the outer arm has been advanced into about thirty feet of water, and the transverse arm forming one side of the entrance to the outer basin is carried about one half of its total length. With the large number of hands employed (about 800) a very large quantity of material is daily excavated and thrown into the sea. It is worthy of notice that portions of the coffer dam for the entrance to the docks have already arrived, and the remainder will shortly follow.

Then, again, those blessings for seamen in the shape of lighthouses. There is something in this way, too, just turned out of hand, as our last number testifies. But here is more about these same beacon stars.

The lighthouses which have been in course of erection at the entrance to Table Bay are near completion, and an announcement has been made that the light on Robben Island and the more powerful burners at Mouille and Sea Point will come into use on the 1st of January next. The plain and specific instructions for vessels entering

* *Vacation Tourists' Notes of Travel in* 1862–3. Edited by Francis Galton, Author of the Art of Travel, &c. Macmillan & Co., London and Cambridge, 1864.

Table Bay at night, which have been prepared by Lieutenant Skead and published by the government, are ample for the guidance of the most perfect stranger, and mariners will not, after the end of the present year, be able to complain of any difficulty or danger in making the anchorage after nightfall. The erection of a lighthouse on Robben Island has been advocated for many years, and now that the work has been done, and mariners are about to reap the advantages of the outlay, we trust that fewer shipping disasters will have to be recorded by us. Of course, if masters of vessels will insist upon hugging a lee shore as closely as possible, or will wilfully close their eyes to the instructions issued for their information, no blame will attach itself to the port or the port authorities, should any accident occur.

It is to be hoped they will know better, and if they follow the hints which we gave in our last number they will be wise, and if they do not get lost will perhaps avoid having to get on the patent slip. And as ladies can have but little to do with patent slips, we will record a fact about it for the information of commanders in general.

On Saturday, the 15th of October, the ship *Avalanche* was taken on the Table Bay patent slip in the presence of numerous spectators, amongst whom were many professional and nautical men, who spoke in the highest terms of the slip.—the *Avalanche* being a vessel of 900 tons register, weighing at the time, including cargo, stores, water, &c., about 1,400 tons. There was not the least strain visible whilst slipping her. It was very gratifying to hear the opinions of several well informed nautical men, who spoke very highly of the capabilities of the slip, and the good management displayed, comparing it with the best laid slips in Europe, thereby showing that South Africa is now beginning to be aware of what is required to meet the many casualties which occur so frequently off our storm bound coast. This must reflect the greatest credit on the energetic proprietors.

And most cordially do we wish them success with their patent slip, a commodity which cannot but prove beneficial to the cause of navigation and we have no doubt a mine of gold to its proprietors. But with this nautical preface we will turn to the interesting letters of Lady Duff Gordon.

I am disappointed in the tropics as to warmth. Our thermometer stood at 82° one day only, under the vertical sun, North of the line at 74°, and at sea it feels 10° lower than it is. I have never been hot except for two days 4° N. of the line, and now it is cold, but very invigorating. All day long it looks and feels like early morning; the sky is pale blue, with light broken clouds; the sea an inconceivably pure opaque blue—*lapis lazuli*, but far brighter. I saw a lovely dolphin three days ago; his body, five feet long, (some said more,) is of a fiery blue green, and his huge tail golden bronze. I was glad he scorned the bait and escaped the hook, he was so beautiful. This is the sea from which Venus rose in her youthful glory. All is young fresh, serene, beautiful, and cheerful.

We have not seen a sail for weeks, but the life at sea makes amends for anything to my mind. I am never tired of the calms, and I enjoy a stiff gale like a Mother Carey's chicken, so long as I can be on deck or in the captain's cabin. Between decks it is very close and suffocating in rough weather, as all is shut up. We shall be still three weeks before we reach the Cape; and now the sun sets with a sudden plunge before six, and the evenings are growing too cold again for me to go on deck after dinner. As long as I could I spent fourteen hours out of the twenty-four in my quiet corner by the wheel, basking in the tropical sun. Never again will I believe in the tales of a burning sun; the vertical sun just kept me warm—no more. In two days we shall be bitterly cold again.

Immediately after writing the above it began to blow a gale, (favourable, indeed, but more furious than the captain had ever known in these seas,) about lat. 34° S. and long. 25°. For three days under close reefed (four reefs) topsails, before a sea. The gale in the Bay of Biscay was a little shaking up in a puddle (a dirty one) compared to that glorious South Atlantic in all its majestic fury. The intense blue waves crowned with fantastic crests of bright emeralds, and with the spray blowing about like wild dishevelled hair, came after us to swallow us up at a mouthful, but took us up on their backs, and hurried us along as if our ship were a cork. Then the gale slackened, and we had a dead calm; during which the waves banged us about frightfully, and our masts were in much jeopardy. Then a foul wind, S.E., increased into a gale, lasting five days, during which orders were given in dumb show, as no one's voice could be heard; through it we fought and laboured and dipped under water, and I only had my dry corner by the wheel, where the kind pleasant little third officer lashed me tight. It was far more formidable than the first gale, but not so beautiful, and we made so much leeway that we lost ten days, and only arrived here yesterday. I recommend a fortnight's heavy gale in the South Atlantic as a cure for a *blasé* state of mind. It cannot be described; the sound, the sense of being hurled along without the smallest regard to "this side uppermost," the beauty of the whole scene, and the occasional crack and bear away of sails and spars; the officers trying to "sing out," quite in vain; the boatswain's whistle scarcely audible. I remained near the wheel every day for as long as I could bear it, and was enchanted.

Then the mortal perils of eating and drinking, moving, sitting, lying, standing can't be done, even by the sailors, without holding on. The night of the gale, my cot twice touched the beams of the ship above me. I asked the captain if I had dreamt it, but he said it was quite possible; he had never seen a ship so completely on her beam ends come up all right; masts and yards all sound.

There is a middy about half M.'s size, a very tiny ten-year-older, who has been my delight; he is so completely the "officer and the gentleman," my maternal entrails turned like old Alvarez; when that baby boy lay out on the very end of the cross-jack yard to reef, in the gale; it was quite voluntary, and the other new comers all declined.

I always called him "Mr. ——, Sir," and asked his leave gravely, or, on occasions, his protection and assistance; and his little dignity was lovely. He is polite to the ladies, and slightly distant to the passenger-boys, bigger than himself, whom he orders off dangerous places: "Children come out of that; you'll be overboard."

A few days before landing, I caught a bad cold, and kept my bed. I caught this cold by "sleeping with a damp man in my cabin," as some one said. During the last gale, the cabin opposite mine was completely swamped, and I found the Irish soldier servant of a little officer of eighteen in despair; the poor lad had got ague, and eight inches of water in his bed and two feet in his cabin. I looked in and said, "He can't stay there,—carry him into my cabin, and lay him in the bunk;" which he did, with tears running down his honest old face. So we got the boy into S.'s bed and cured his ague and fever, caught under canvass in Romney Marsh. Meantime S. had to sleep in a chair and undress in the boy's wet cabin. As a token of gratitude, he sent me a poodle pup, born on board, very handsome. The artillery officers were generally well behaved; the men deserters and ruffians, sent out as drivers. We have had five courts martial and two floggings in eight weeks among seventy men. They were pampered with food and porter and would not pull a rope, or get up at six to air their quarters. The sailors are an excellent set of men. When we parted, the first lieutenant said to me, "Weel, ye've a wonderful idea of discipline for a leddy, I will say. You've never been reported but once, and that was on sick leave, for your light and all in order."

Cape Town, September 18th.—We anchored yesterday morning, Captain J. and the post captain came off with a most kind letter from Sir Baldwin Walker, his gig, and a boat and crew for S. and the baggage. So I was whipped over the ship's side in a chair, and have come to a boarding house where the Js. live. I was tired and dizzy and landsick, and lay down and went to sleep. After an hour or so I woke hearing a little *guzonaillement*, like that of chimney swallows. On opening my eyes I beheld four demons, "sons of the obedient Jinn," each bearing an article of furniture and holding converse over me in the language of Niphelecotrygia. Why has no one ever mentioned the curious little soft voices of these coolies? You can't hear them with the naked ear three feet off. The most hideous demon (whose complexion had not only the colour, but the precise metallic lustre of an ill blackleaded stove) at last chirruped a wish for orders, which I gave. I asked the pert, active cockney housemaid what I ought to pay them, as being a stranger they might overcharge me. Her scorn was sublime. "Them nasty blacks never asks more than their regular charge." So I asked the blacklead demon, who demanded "two shilling each horse in wagon," and a dollar each "coolie man." He then glided with fiendish noiselessness about the room, arranged the furniture to his own taste, and finally said, "Poor missus sick," then more chirruping among themselves, and finally a fearful gesture of incantation, accompanied by "God bless poor missus. Soon well now." The wrath of the cockney housemaid became majestic. "There, ma'am,

you see how saucy they have grown. A nasty black heathen Mahomedan a blessing of a white Christian!"

These men are the Auverghats of Africa. I was assured that bankers trust them with large sums in gold, which they carry some hundred and twenty miles, by unknown tracks, for a small gratuity. The pretty graceful Malays are no honester than ourselves, but are excellent workmen.

To-morrow my linen will go to a ravine in the giant mountain at my back, and there be scoured in a clear spring by brown women, bleached on the mountain top, and carried back all those long miles on their heads, as it went up.

My landlady is Dutch; the waiter is an Africander, half Dutch half Malay, very handsome, and exactly like a French gentleman, and as civil.

Enter Africander lad with a nosegay; only one flower that I know, heliotrope. The vegetation is lovely; the freshness of spring and the richness of summer. The leaves on the trees are in all the beauty of spring. Mrs. R. brought me a plate of oranges, "just gathered," as soon as I entered the house, and oh! how good they were; better even than the Maltese. They are going out and *dear* now—two a penny, large and delicious. I am wild to get out and see the glorious scenery and the hideous people. To-ray had been a cold south-wester, and I have not been out. My windows look North and East, so I get all the sun and warmth. The beauty of Table Bay is astounding. Fancy the Undercliff in the Isle of Wight magnified a hundredfold, with clouds floating half way up the mountain. The Hottentot mountains in the distance have a fantastic jagged outline, which hardly looks real. The town is like those in the South of Europe, flat roofs and all unfinished; roads are simply non-existent. At the doors sat brown women with black hair that shone like metal, very handsome; they are Malays, and their men wear conical hats a top of turbans, and are the chief artizans. At the end of the pier sat a Mozambique woman in white drapery and the most majestic attitude, like a Roman matron; her features large, strong, and harsh; and her skin blacker than night.

I have got a couple of Cape pigeons (the storm-bird of the South Atlantic) for J.'s hat. They followed us several thousand miles, and were hooked for their pains. The albatros did not come within hail.

The little Maltese goat gave a pint of milk night and morning, and was a great comfort to the cow. She did not like the land nor the grass at first, and is to be thrown out of milk now. She is much admired and petted by the young Africander. My room is at least eighteen feet high, and contains exactly a bedstead, one straw mattrass, one rickety table, one wash-table, two chairs, and broken looking-glass, no carpet, and a hiatus of three inches between the floor and the door, but all very clean; and excellent food. I have not made a bargain yet, but I dare say I shall stay here.

Friday.—I have just received your letter, where it has been hiding, I can't conceive. To-day is cold and foggy, like a baddish day in

June with you; no colder, if so cold, still, I do not venture out, the fog rolls so heavily over the mountains. Well, I must send off this yarn, which is as interminable as the "sinnet" and "foxes" which I twisted with the mids.

Cape Town.—I came on shore on a very fine day, but the weather changed, and we had a fortnight of cold and damp and S.W. wind, (equivalent to our East wind,) such as the "oldest inhabitant" never experienced, and I have had as bad an attack of bronchitis as ever I remember, having been in bed till yesterday. I had a very good doctor, half Italian half Dane, born at the Cape of Good Hope and educated at Edinburgh, named Chiappini. He has a son studying medicine in London, whose mother is Dutch; such is the mixture of blood here.

Yesterday the wind went to the S.E.; the sun shone out, and the weather was lovely at once. The mountain threw off his cloak of cloud, and all was bright and warm. I got up and sat in the verandah over the stoep (a kind of terrace in front of every house here). They brought me a tortoise as big as half a crown and as lively as a cricket to look at, and a chameleon like a fairy dragon—a green fellow, five inches long, with no claws on his feet, but suckers, like a fly—the most engaging little beast. He sat on my finger and caught flies with great delight and dexterity, and I longed to send him to M. To-day, I went a long drive with Captain and Mrs. J.; we went to Rondebosch and Wynberg,—lovely country; rather like Hertfordshire; red earth and oak trees. Miles of the road were like Gainsborough Lane (near Esher) on a large scale, and looked quite English; only here and there a hedge of prickly pears, or the big white aruns in the ditches, told a different tale; and the scarlet geraniums and myrtles growing wild, puzzled me.

And then came rattling along a light, rough, but well poised cart, with an Arab screw driven by a Malay, in a green hat on his kerchiefed head, and his wife, with her neat dress, glossy black hair, and great gold earrings. They were coming with fish, which he had just caught at Kulk Bay, and was going to sell for the dinners of the Cape Town folk. You pass neat villas, with pretty gardens and stoeps, gay with flowers, and at the doors of several, neat Malay girls are lounging. They are the best servants here, for the emigrants mostly drink. Then you see a group of children at play, some as black as coals, some brown and very pretty. A little black girl, about R.'s age, has carefully tied what little petticoat she has in a tight coil round her waist, and displays the most darling little legs and behind, which it would be a real pleasure to slap; it is so shiny and round, and she runs and stands so strongly and gracefully.

Here comes another Malay, with a pair of baskets hanging from a stick across his shoulder, like those in Chinese pictures, which his hat also resembles. Another cart full of working men, with a Malay driver, and inside are jumbled some red haired, rosy cheeked English navvies, with the ugliest Mozambiques, blacker than Erebus, and with faces all knobs and corners, like a crusty loaf. As we drive home we

see a span of sixteen noble oxen in the market-place, and on the ground squats the Hottentot driver. His face no words can describe; his cheek bones are up under his hat, and his meagre pointed chin half way down to his waist; his eyes have the dull look of a viper's, and his skin is dirty and sallow, but not darker than a dirty European's.

Capetown is rather pretty, but beyond words untidy and out of repair. As it is neither drained nor paved, it won't do in hot weather; and I shall migrate "up country" to a Dutch village. Mrs. J., who is Dutch herself, tells me that one might board in a Dutch farmhouse very cheaply and with great comfort (of course eating with the family), and that they will drive you about the country and tend your horses for nothing, if you are friendly, and don't treat with *Engalsche hoog —moedigheid.*

October 19th.—The packet came in last night, but just in time to save the fine of £50 per diem, and I got your welcome letter this morning. I have been coughing all this time, but I hope I shall improve. I came out at the very worst time of the year, and the weather has been (of course) "unprecedently" bad and changeable. But when it is fine it is quite celestial; so clear, so dry, so light. Then comes a cloud over Table Mountain, like the sugar on a wedding cake, which tumbles down in splendid waterfalls, and vanishes unaccountably half way; and then you run in and shut doors and windows, for it portends a "south-easter," *i.e.*, a hurricane, and Capetown disappears in impenetrable clouds of dust. But this wind coming off the hills and fields of ice, is the Cape doctor, and keeps away cholera, fever of every sort, and all malignant or infectious diseases. Most of them are unknown here. Never was there so healthy a place, but the remedy is of the heroic nature, and very disagreeable. The stones rattle against the windows, and omnibuses are blown over on the Rondebosch road.

A few days ago I drove to Mr. K.'s farm. Imagine St. George's Hill (near Walton-on-Thames) and the most beautiful bits of it sloping gently up to Table Mountain, with its gray precipices, and intersected with Scotch burns, which water it all the year round, as they come from the living rock; and sprinkled with oranges, pomegranites, and camellias in abundance. You drive through a mile or two as described, and arrive at a square, planted with rows of fine oaks close together; at the upper end stands the house, all on the ground floor, but on a high stoep: rooms eighteen feet high; the old slave quarters on each side; stables, &c., opposite; the square as big as Belgrave Square, and the buildings in the old French style.

We then went to Newlands, a still more beautiful place. Immense trenching and draining going on,—the foreman a Caffre, black as ink, six feet three inches high, and broad in proportion, with a staid, dignified air, and Englishmen working under him! At the streamlets there are the inevitable groups of Malay women washing clothes, and brown babies sprawling about. Yesterday I should have bought a black woman for her beauty, had it been still possible. She was carrying an immense weight on her head, and was far gone with child,

but such stupendous physical perfection I never even imagined. Her jet black face was like the Sphynx, with the same mysterious smile; her shape and walk were goddess-like, and the lustre of her skin, teeth, and eyes, showed the fulness of health,—Caffre, of course. I walked after her, as far as her swift pace would let me, in envy and admiration of such stately humanity.

The ordinary blacks, or Mozambiques, as they call them, are hideous. Malay here seems equivalent to Mohammedan. They were originally Malays, but now they include every shade, from the blackest nigger to the most blooming English woman. Yes, indeed, the emigrant girls have been known to turn "Malays," and get thereby husbands who know not billiards and brandy—the two diseases of Capetown. They risked a plurality of wives and professed Islam, but they got fine clothes and industrious husbands. They wear a very pretty dress, and all have a great air of independence and self-respect; and the real Malays are very handsome. I am going to see one of the Mollahs soon, and look at their schools and mosque, which, to the distraction of the Scotch, they call their "kerk."

I asked a Malay if he would drive me in his cart with the six or eight mules, which he agreed to do for thirty shillings and his dinner (*i.e.*, a share of my dinner) on the road. When I asked how long it would take? he said, "Allah is great," which means, I found, that it depended on the state of the beach, the only road for half the way.

The sun, moon, and stars are different beings from those we look upon. Not only are they so large and bright, but you *see* that the moon and stars are *balls*, and that the sky is endless beyond them. On the other hand, the clear, dry air dwarfs Table Mountain, as you seem to see every detail of it to the very top.

Capetown is very picturesque. The old Dutch buildings are very handsome and peculiar, but are falling to decay and dirt in the hands of their present possessors. The few Dutch ladies I have seen are very pleasing. They are gentle and simple and naturally well bred. Some of the Malay women are very handsome, and the little children are darlings. A little parti-coloured group of every shade from ebony to golden hair and blue eyes, were at play in the street yesterday, and the majority were pretty, especially the half castes. Most of the Caffres I have seen look like the perfection of human physical nature, and seem to have no diseases. Two days ago I saw a Hottentot girl of seventeen, a housemaid here. You would be enchanted by her superfluity of flesh; the face was very queer and ugly, and yet pleasing, from the sweet smile and the rosy cheeks which please one much in contrast to all the pale, yellow faces—handsome as some of them are.

I wish I could send the six chameleons which a good natured person brought me in his hat, and a green lizard in his pocket. The chameleons are charming, so monkey-like and so *caressante*. They sit on my breakfast tray and catch flies, and hang in a bunch by their tails, and reach out after my hand.

I have had a very kind letter from Lady Walker, and shall go and stay with them at Simons Bay as soon as I feel up to the twenty-two

miles along the beaches and bad roads in the mail cart with three horses. The teams of mules (I beg pardon, spans,) would delight you —eight, ten, twelve, even sixteen sleek, handsome beasts; and, oh! such oxen; noble beasts, with humps; and hump is very good to eat too.

October 21st.—The mail goes out to-morrow, so I must finish this letter. I feel better to-day than I have yet felt, in spite of the south-easter.

THE TRADE OF TIEN-TSIN.—*Report of Mr. Acting-Consul Gibson.*

The roads of this district are probably among the best of the empire, but they are nevertheless badly constructed. In fact, the high road between Tien-tsin and Peking is, after all, only a wide track. The soil is soon cut up by the sharp-wheeled native carts, and after a few hours' rain the road becomes all but impassable. Very little rain fell in 1860, but on one or two occasions during the campaign of that year, the Peking road was absolutely impassable for infantry and artillery, and virtually so for cavalry. Deep ruts are formed in wet weather, which hardening in the sun produce inequalities very formidable to the legs and feet of draught animals. Altogether the road between Tien-tsin and Peking is many degrees worse than the worst public road I have ever seen in the North of England. Yet this is the best road in the empire! The other so-called roads in this neighbourhood are simply narrow inconvenient tracks. Scientific road-making, like every other branch of civil engineering, is an art totally unknown in this district.

The Grand Canal joins the Peiho at Tien-tsin, and is still navigable for many miles beyond the southern limits of this province. As a work of practical utility the Grand Canal is entitled to high praise. Centuries have elapsed since this great work was completed, but with the exception of a short distance in the neighbourhood of the turbulent Yellow River, the canal throughout its whole extent is still in good working order. That such is the case, however, depends much more on the nature of the country through which the canal is conducted, than upon any efforts which have been made, recently at least, for its conservation. Wherever the wearing processes of nature have discovered a flaw in the construction of the work, the destructive influences in operation are permitted to carry all before them, unobstructed by any conservative agency.

Bridges, some of them substantial granite structures reared not unscientifically, massive embankments which once constructed might easily have been preserved in excellent order, are everywhere hurrying on to destruction for want of proper superintendence. Excessive steepness characterises most of the bridges I have seen on the Grand

Canal. They are generally also very narrow. The best bridge I have seen in this district is some twenty miles to the North of Peking, at a town called Sha-ho, on the road to the Nan-kou or Southern Pass. This bridge is of stately dimensions, constructed of granite beautifully hewn. Its arches, seventeen in number, are almost perfectly level, and the roadway is roomy and neatly paved. This work remains in good condition.

The Great Wall has been often described. People who have only seen this monstrous misapplication of human labour at the passes have little idea of the paltry character of its general construction. Away from the neighbourhood of the passes, the proper Great Wall is simply a huge rubble fence, about 16 feet high by 12 feet in width at the bottom, sloping up to 2 or 3 feet at the top. The wall would keep black cattle out of China indifferently well, but it never could keep, and never has kept, the Tartars out. It therefore deserves the censure which every work deserves which fails in securing the end for the attainment of which it was brought into existence. Nevertheless, the wall is venerable, even in its meanness; standing alone on its stern granite hills, grey with the hoar of twenty centuries. Its age touches our sympathies, and blinds our eyes to its essential paltriness and inutility.

No railways or telegraphs exist in this district. A scheme propounded by a gentleman residing at Tien-tsin for constructing a telegraph from Canton to Peking viâ Shanghae is on foot, but the unsettled condition of the country constitutes a serious obstacle to the achievement of the undertaking. The line of telegraph would cost between £80,000 and £100,000. Its importance when constructed can hardly be over estimated.

The shipping returns for 1862 exhibit a slight increase in the number of British vessels engaged in the Tien-tsin trade, as compared with the number employed in 1861. The number of sundry vessels, including under that denomination all vessels sailing under German or other Continental colours, has decreased this year by more than one half. The subjoined table will fully illustrate the truth of these remarks:—

Shipping in 1862.			*Shipping in* 1861.	
Flag.	*No.*	*Tons.*	*No.*	*Tons.*
British . . .	45	11,451	39	10,671
American . .	17	5,458	18	4,436
Sundry . . .	24	4,652	54	11,454
Total . .	86	21,561	111	26,561

The decrease which the returns exhibit in the number of Continental vessels visiting Tien-tsin in 1862 as compared with the number en-

tered in 1861, is accounted for—first, by the paucity of light British vessels available last year for the traffic between this port and the South of China: and secondly, by the employment largely this year of small steamers. In the season of 1861, there was but a limited numner of small British vessels procurable in China for the Tien-tsin trade. The consequence was, that British merchants had recourse largely to Continental shipping, the large British vessels at their command being altogether unsuitable for this trade. The increase of small steamers in 1862 connected with the Tien-tsin trade is, however, the principal cause of the decrease of Continental shipping. These small steamers, nearly all of which hoist British colours, are undoubtedly by far the most convenient class of vessels for the traffic of this port.

The city of Tien-tsin stands about sixty-five miles from the village of Taku, upon a river which, owing to its insignificant depth of water and tortuous course, is extremely difficult of navigation. At the mouth of this river (Peiho) there is a bar which renders it unsafe for vessels drawing more than 11 feet 6 inches of water to enter the Taku anchorage; while outside in the gulf the weather is often so boisterous and the swell so high, that vessels cannot discharge their cargo for several days together. The convenience, therefore, of a class of vessels able not only to clear the bar but to carry their cargoes right up this sixty-five miles of river navigation, to the very gates of the merchants' godowns, is very great. Two such vessels have run regularly this year between Tien-tsin and Shanghae, and several others have made occasional trips at moderate intervals.

There are, however, independently of those just enumerated, still further advantages to be gained by the employment of small steamers in this trade. Large vessels, unable to cross the bar, have to anchor at a distance of six or eight miles from Taku. Native boats have to be hired to proceed out into the gulf for the purpose of transhipping the goods destined for Tien-tsing. The hire of these boats rates generally pretty high; the natives who work them, unaccustomed as yet to the ways of foreigners, are slow and stupid, and the amount of labour performed is, as a consequence, very often in inverse proportion to its cost. At certain busy seasons junks are hardly procurable for this transport service at any price.

In addition to all this, goods are constantly being lost by the native boatmen; bales and cases are often broken open and pilfered; and the trouble, expense, and loss of time consequently incurred by the merchant are most serious. As long, however, as the river transport remains in native hands, such grievances, although perhaps susceptible of some mitigation, will continue to exist.

The true remedy for this state of matters is to be found in the employment of steamers, which would render transhipment at Taku totally unnecessary, and thus destroy the evil at its root. Difficulties, essentially the same, although less serious in degree, are involved in transhipment effected within the inner Taku anchorage. From Taku all merchandise, on importation, has to travel sixty-five miles in native

boats to Tien-tsin, *vice versa*, on exportation, and the delays and losses to which it is subjected *in transitu* are by no means insignificant. Small steamers, drawing from 8 to 10 feet of water, running right up to Tien-tsin, will obviate all these inconveniences. For the reasons now briefly indicated, the increased employment of steamers in carrying on the traffic between Tien-tsin and the more southern ports of China may be confidently predicted; and the increase of steamers, unless indeed trade increases in an equal proportion, will probably cause a still further diminution in the number of sailing vessels.

The coasting vessels which frequent this port are of a mixed character. There is the foreign vessel as well as the native junk. The majority of the foreign vessels which enter at Tien-tsin arrive from some other ports of China; and the majority of foreign vessels which clear from Tien-tsin clear for some other Chinese port. The foreign goods which arrive here are mostly re-exports sent up from Shanghae. The vessels which trade at Tien-tsin are, therefore, in most cases engaged in a coast trade; probably not more than one or two vessels arrive here in the whole course of the year from Europe, India, or America direct. A few vessels, it is true, enter this port from, and clear from this port for, Hong Kong direct; but these constitute the only exceptions.

There is another circumstance to be noted with reference to the character of the shipping at Tien-tsin. Not only are the great majority of the vessels which enter this port employed in a purely coast trade, but a very large number of these vessels, though foreign built, foreign owned, and navigated under a foreign flag, are engaged in carrying native not foreign produce.

The produce of Southern China is transported largely to the North in foreign bottoms, and, conversely, the products of Northern China are largely transported to the South in foreign bottoms. Thus foreign vessels are not restricted to the carrying trade in foreign products and manufactures; they are, under certain tariff regulations, which will be more particularly referred to hereafter, permitted to participate in the carrying trade in native produce. This privilege, freely accorded by the government of China, is of high and increasing value.

The junks are gradually disappearing from the highways of commerce. The more enlightened Chinese merchants no longer patronize them. A south-country junk makes but one voyage to Tien-tsin in the course of a whole year; the cargo cannot be insured, and the chances of her going to the bottom in bad weather as compared with the chances against a foreign vessel under like circumstances are great. Native merchants are now perfectly well aware of the enormous disadvantages involved in the employment of junks, and rarely entrust valuable cargoes to them when foreign shipping can be procured. Thus the competition of foreign vessels, coupled with the operations of the insurance offices, is rapidly driving the junk off the face of the ocean.

The following returns of junks arriving at ports in the Tien-tsin district in 1862, although unavoidably defective in some respects, may be considered as approximately correct:—

Table showing the Number of Junks visiting Tien-tsin in 1862.

Description.	*Number.*	*Tons.*	*Nature of Cargo.*
Southern junks:—			
1. Canton . . .	40	16,000	Rice, sugar, tea, paper, medicine, fruit, preserves, silk-pieces, native hardware, prepared opium, birds' nests, &c.
2. Fokien . . .	40	10,000	
3. Shanghae . .	47	7,050	
Northern junks:—			
Three masted .	1,000	200,000	Peas, beans, salt, fruit, vegetables, fish, wheat, barley, millet, medicine, ginseng, &c.
Two masted . .	1,500	225,000	
Three masted .	800	80,000	
Total . .	4,627	538,050	

With regard to the Shanghae and Fokien junks, it must be remembered that at least one-third of the whole arrived only two-thirds laden. Their nominal tonnage will therefore be about one-third more than the actual weight of merchandise brought by them to Tien-tsin.

The coasting trade carried on between the ports situated on the Gulf of Pecheli is still of considerable local importance. Not only native produce, but foreign manufactures are conveyed by the junks to the numerous seaports which stud the coast of the gulf.

Junk-owners at Tien-tsin are numerous, and comparatively wealthy; and junks, except on the great highways of commerce, where they fail to compete successfully with foreign vessels, still pay well: money invested in native shipping still yielding, I am informed, a good return.

Not only does the gulf coast swarm with junks, but the rivers in this district, comparatively shallow and difficult to navigate, teem with all kinds of native craft; and although the time must come when the principal carrying trade of China will be done by foreign vessels, the junks will still find employment on the numerous shoaly bays and secondary rivers.

The ports and harbours of this district exist simply as nature formed them. Nothing has been done by man to render them more accessible, safer, or more commodious than they naturally are. Civil engineering, except in its rudest idea, is not practised in this district; nor, putting aside the Grand Canal, do any works of public utility exist. The Great Wall cannot be considered an exception to this remark.

River inundations sometimes occur in this district, threatening the destruction of valuable land or the submersion of buildings; but in all such cases a few rude fascines, held together by piles, and backed up by earth, constitute the only remedy in use. If the waters prove permanently troublesome, the land is abandoned, and the buildings evacuated.

At the new British settlement, however, a bund seventy-five feet wide is being constructed, which will afford great facilities for the loading and unloading of vessels. At Taku the inner anchorage presents no such facilities.

The navigation of the Tien-tsin River (Peiho), from its entrance all the way up to the city, might be very much improved at a trifling expense. The bar between Taku and the gulf, about 400 yards in length by about 150 yards in breadth, could be cut; the river might be confined by a slight embankment, and the scour of the current thus obtained would keep the entrance free. At present no vessel drawing more than eleven feet six inches of water should attempt to cross the bar, even on spring tides. The north bank of the river is composed of hard mud, and is considered dangerous; the south bank is formed of soft mud and is not dangerous. Jetties and other works for the facility of commerce, excepting such as are being constructed on the British settlement, do not exist.

Buoys, lights, and lighthouses, there are none; though much needed in one or two localities. Some marks which were erected in 1861 for the convenience of vessels entering the port by that indefatigable officer Captain Gordon, R.E., and which proved of much service at the time, are no longer trustworthy.

As regards the improvement of the river itself little is required. If it were deepened in one or two places, and if one or two of its more awkward bendings were got rid of by the formation of straight cuts, all that is absolutely requisite would be effected. It is, however, hopeless to expect that the local authorities, beset as they are with all sorts of financial difficulties, and destitute as they are of all energy and enterprise, will undertake improvements of this nature. But such moderate alterations and improvements as the tonnage dues levied by the imperial customs on foreign shipping are adequate to meet, should be carried out forthwith.

Junk building at Tien-tsin is by no means a flourishing trade. A few small junks and covered boats are turned off the stocks every year, intended mainly for river navigation. Junk and boat building is a branch of industry which can hardly be said to exist at Tien-tsin.

In manufactures, cottons and woollens, the returns exhibit a decrease in the quantity of cotton goods imported in 1862, as compared with the quantity imported in 1861. This decrease is easily accounted for by the enormous advance which has taken place in the price of goods manufactured of American cotton. Cotton manufactures aside, however, the returns for 1862 compare favourably with the returns for 1861.

The returns of woollen manufacture still remain, however, very unsatisfactory. The trade in British woollens makes no progress. The decrease this year in cotton imports has been produced by a special cause, and when the cotton market in Europe returns to its normal condition, there is every reason to believe that the trade at Tien-tsin in this branch of foreign manufactures will steadily increase; but no such expectation can be entertained with regard to woollen goods.

The returns of Indian opium show a large increase in the quantity disposed of at Tien-tsin in 1862, as compared with the quantity taken off in 1861. This circumstance is accounted for chiefly by the destruction this year of the Shensi crop. Early in the season it was

generally understood that the opium crop in Shensi would be short. Soon afterwards political disturbances of a very formidable character occurred in that province, which all but annihilated, for this year at least, the opium traffic. The price of the native (Shensi) drug has accordingly risen to such a high figure that the Indian opium can now compete with it in the market. In the normal condition of the opium market, the native drug is nearly one-half cheaper than the Indian article; the former sells generally for about 400 taels a chest, the latter for about 800 taels a chest: but at the present time a small quantity of Shensi opium is offered in the market at 650 taels a chest, that is to say, at about 250 taels a chest above its usual value. The quantity of Indian opium imported into this district depends altogether on the state of the Shensi crop. When the Shensi crop is deficient, the demand for Indian opium increases, and *vice versa*. There will, however, always be a fair trade done at Tien-tsin in the Indian drug, because native opium requires to be mixed with the stronger Indian drug to render it palatable to the Chinese consumer. Pure native opium is seldom used. The Chinese say that in its unmixed state it is flat and insipid. The quantity of opium consumed in the city of Tien-tsin, judging by the number of smoking-houses, must be enormous. The dram shops of Manchester or Glasgow are not greater social nuisances than the Tien-tsin opium-houses. Of the opium imported into Tien-tsin from 100 to 150 chests a month are purchased for consumption in the capital.

The favourable condition in which the returns present the trade in Straits produce, and coupled with it the trade in native produce, next calls for a few remarks. The returns under this head in 1862 compare very favourably with the returns for 1861. The trade is partly in foreign, partly in native hands. The Chinese traders, it must be admitted, compete with their formidable foreign rivals in this field in a manner not unworthy of their reputation as the ablest merchants of Asia. The division of labour which it is desirable should take place in trade, is, however, rapidly being determined. The trade in raw produce of all sorts will fall to the share of the foreign merchants; the trade in prepared commodities of a miscellaneous description will remain in native hands.

(To be concluded in our next.)

Salvage Payments to Lifeboats' Crews.

As it often happens that the lifeboats of the National Lifeboat Institution are the means of saving vessels and their cargoes from destruction, or of materially contributing thereto, and as the owners of such property have not unfrequently objected to paying the lifeboat men for their services, believing that they are only performing their

duty by rendering them aid, we think it desirable that the owners of ships and merchandize, as well as the general public, should be made acquainted with the principles by which the institution is actuated in the matter of saving wrecked property, and the terms on which it allows its boats to be used in saving it.

In the first place, then, it cannot be too plainly stated, or too generally known, that the National Lifeboat Institution is a society established for the *saving of human lives*, and that only. It appeals to the British public to support it for that object, and that object alone. It has, therefore, no right to devote any part of the funds so raised to providing means for saving property, or for any other object than the philanthropic one which is its especial function.

Accordingly it is a misapprehension on the part of the owners of property at sea to suppose that it is the duty of the men who work the institution's lifeboats on the coast, to give their services gratuitously to effect its preservation. The institution pays them for devoting their time and labour, and for risking their lives, to save the lives of others, and it has no claim on them to do more.

On the other hand, however, it is felt that, in the interest of humanity, valuable property which has been produced by the "sweat of man's brow" should not be allowed to perish beneath the waves, if it can be saved. The institution therefore, authorizes the crews of its lifeboats to assist in saving vessels stranded, or leaky, or otherwise in distress, under special circumstances and on certain terms. In permitting those services, and in arranging those terms, a general principle had to be decided on, and such service being altogether distinct from the function of the institution, it was considered expedient to separate it, as far as possible, from the more legitimate employment of its boats; to effect which it was arranged that, on all occasions of using the institution's lifeboats to save property, they were to be considered as lent to their crews for that purpose, and that the latter should look to the owners of the property to remunerate them in accordance with the provisions of the "Merchant Shipping Act of 1854," and not to the institution.

The conditions on which the lifeboats are lent to their crews for such service are as follows:—

1st.—That they are on no account to be used in the salvage of property so as to interfere with private enterprise, when any other boats are available, and can be safely employed.

2nd.—That they are never to be launched and taken afloat expressly to perform such service, when lives are not endangered, without the sanction of the local honorary secretary, or other representative of the local committee of management.

3rd.—That the greatest care is to be taken of them, and that they are never, on such occasions, to be unnecessarily exposed to serious risk of damage or destruction.

4th.—That their crews are not to make exorbitant demands for payment from the owners of the property saved in proportion to the service rendered.

5th.—That to cover risk of damage to the boats, two shares of all salvage payments received, *i.e.*, an equivalent to the shares of two of the crew, shall be paid to the institution.

The utility of the first three of the above conditions will be obvious, and need not be further commented on; the two last call for some observations:—

With regard to the fourth, it is hardly possible that any rule which could be devised would altogether prevent disputes arising between the crews of lifeboats and the owners of property saved by them, since different elements have to be considered in determining the amount of the payment to which the salvors of property are fairly entitled; viz., 1. The value of the property saved. 2. The certainty of its loss, or the degree of risk of loss to which it would have been exposed but for the salvors' aid. 3. The amount of time and labour expended, and the difficulty, exposure to wet and cold, or risk of life incurred by the salvors. It is evident, therefore, that the character and value of such services must be of the most varied character; and that the owners of property saved and the salvors, whose interests lie in opposite directions, will be likely to form very different estimates of their value.

The legislature, sensible of the difficulties surrounding such cases, has, by the "Merchant Shipping Act of 1854," only stated that the salvors of property from loss at sea shall be entitled to "reasonable compensation," but it has made ample provision for settling all points in dispute. 1. By empowering the "receivers of wreck" to arbitrate between the salvors and owners of property, with the mutual consent of each party. 2. By authorizing any two magistrates of the locality to fix the amount of payment in cases under £200, where the parties cannot come to a mutual agreement. 3. By admitting appeal to the High Court of Admiralty, in cases above £200 in amount of demand: and in all cases when the contending parties, or either of them, are not satisfied with the decision of the local magistrates. And, 4. By ultimate appeal to the Privy Council.

All, therefore, that the institution can do in the interest of the shipowner or owner of cargo, in such cases, in addition to allowing the use of its boats, is to urge its crews not to make "exorbitant demands" on owners for payment, it having no power to remove such cases from the legal jurisdiction of the country. It has also to be remembered that the crews of the institution's lifeboats are not a body of enrolled men, retained by permanent wages, but that they are formed from volunteers of the local fishermen, or other boatmen, and in some instances of coast-guard men, who are only employed for the occasion, and paid "for saving or endeavouring to save human life."

The fifth condition, viz., the payment of two shares of all salvage receipts to the institution, calls for some explanation, as it is liable to be misunderstood. It may then be distinctly stated that it is not imposed as a source of profit to the institution; the first intention, as already implied, being to cover risk of damage, since without such equivalent it is not considered that the institution would be justified

in allowing its boats to be put to a use so distinct from that for which its supporters have provided them; whilst a second desirable effect of this condition is, that the boatmen are thereby induced to use their own boats in preference to the lifeboats for the salvage of property, whenever it is practicable to do so, since they have then no deduction made from the salvage awards which they may earn.

A case in illustration will still more clearly show the principle and the effects of its working:—

Some time since, a large Spanish ship grounded on the Blackwater Bank, on the south-east coast of Ireland. The captain and his crew of thirty men, with the exception of one of the latter, who was inadvertently left on board, escaped to the shore, some eight or nine miles distant. The wind was blowing a gale at the time, but moderating shortly afterwards, and shifting its direction, the ship slipped off the bank into deep water, and drifted to the northward. Being seen from the shore, the institution's Cahore lifeboat was launched, and, after a long and arduous row against wind and sea, succeeded in boarding her; some of the sails were shaking, some aback, the ship with six or seven feet water in the hold, and the one unfortunate seaman on board half frightened to death.

Now the coxswain and crew of the lifeboat would have done their duty to the institution which employed them, and to the supporters of the institution from whose contributions the boat was provided, had they at once returned to the shore with the poor Spanish sailor thus rescued from a watery grave, leaving the ship and cargo, worth £20,000, to their fate; and, were they unable to look for a "reasonable compensation" from the owners, they had no interest in acting otherwise. The fisherman-coxswain of the boat and the chief-boatman of coast-guard, who was also, with some of his men, in her, however, at once decided to do their best to save the ship. They accordingly put her head to the north, trimmed her sails, and set to work at the pumps, with a view to get her safely to Kingstown, if possible, and intending to send the lifeboat back to her station with a portion of her crew as soon as they could feel assured that their efforts at the pumps were successful. They soon, however, found that the water in the hold was gaining on them, and that they could only save the ship and cargo by running for the shore. This they did on the beach near Arklow, fifteen miles from Cahore. Here she was handed over to an agent for the owners, and the lifeboat, which could not be got back to her station until the termination of the gale, was hauled up, her crew returning to their homes by land.

The local committee of the Cahore branch of the institution then met to receive the report of the coxswain; and having satisfied themselves of the value and legitimacy of the service, they deputed the chief-boatman of the coast-guard and the coxswain to proceed to Dublin, and put in their claim for compensation for saving the ship and cargo from total destruction, which they had undoubtedly done. The result was, that the receiver of wreck at Dublin proposed £500

as an equitable settlement of the claims of the salvors, which proposition was acceded to by them and by the agent for the owners.

The institution in this case paid the crew of the lifeboat the usual sum of ten shillings each for saving the life of the one seaman left on board the ship, and also the expense of the requisite help to launch the boat; but all the expenses contingent on the saving of the ship and cargo, such as the hire of conveyances to take the crews to their homes and their subsequent return to fetch their boat, and also the expenses incurred by the coxswain and the chief-boatman of coast-guard by going to Dublin, were paid out of the £500 before its subdivision. When subdivided it gave about £34 to each of the crew of the lifeboat, and £68 were paid to the institution to cover risk of damage.

Now we cannot but think that such an arrangement was beneficial to all parties:—the owners or insurers of a valuable ship and cargo were fortunate in having their property saved at a very small per centage; the crew of the lifeboat, for the most part poor fishermen, received a handsome payment, which was calculated to increase their attachment to the lifeboat service; whilst the institution obtained a sufficient sum to cover all risk of damage to its boat.

The above case is sufficient to illustrate the practice of the institution on all occasions when its boats are employed to save property. It has hitherto been found to work well, and we see every reason to believe that it will continue to do so.

AT HOME AND ABROAD:—*A Foreigner's Account of us.*

(Concluded from vol. xxxiii, page 584.)

On entering the Royal Mint the ingot of gold is received by the deputy-master and worker, who transfers it to the hands of the king's assayer; then it is entered in a book by the comptroller, with the weight—as determined by the weigher and teller, its degree of refinement, value, the name of its proprietor, and the date. Furnished with this certificate of merit, the ingot is ready for melting; and now another series of proofs await it in the melting-room of the Mint.

This room, with its furnace—first heated with charcoal, then with coke, its clay crucibles of melted metal, and its black looking workmen, with their leather aprons, is much like that which we have already seen in the gold foundry. The recasting of the metal here has a peculiar object: it is here that it is to be brought to the standard value required by the law for legal gold. If the ingot is too fine or pure it must be reduced with an alloy of copper; and if, on the contrary, it does not come up to the standard, purer gold must be added to it until it does. In both cases the proportion of copper should not

be above two parts of copper to twenty parts of gold. There are no other coins in the world but the English sovereign and Russian pieces that attain this degree of intrinsic value.

When the metal has been thoroughly melted, and has a good clear appearance, it is well stirred from time to time with heated iron wands by the workmen, apparently with a magic air, and then cast into the moulds. Each of these vases, red and transparent from the liquid gold, contains metal to the value of £5,000 sterling. The moulds are kinds of tubes placed close to each other, and if they were round instead of being square would resemble a series of organ pipes. When I paid my visit to the Mint there were sixteen of these mould-tubes, which were successively filled to the brim. Presently the moulds are opened, as soon as the metal has become hard and cool, when it appears under a totally new form—the ingot of gold has become a bar. These bars of massive gold are about a yard long, and an inch or an inch and a half thick, and two of them weigh sixty pounds (English weight). After being tested in scales they are taken from the melting room—called in joke the golden kitchen,—and are then locked up in a sort of cellar until the assay-master pronounces them to be of the quality required by the law. After this decision they are placed in the hands of the ancient society of coiners, and here, in fact, the process is began by which these bars are transformed into current money.

This is a mechanical operation, and the first scene of it is the rolling room. Here are seen the bars of gold, piled on each other, which are destined to be rolled out gradually to the thickness of the sovereign, or even the half-sovereign; for which they are passed between a series of rollers. A steam-engine of thirty-horse power sets them in motion, and their business is to flatten the bars by transforming them into long thin ribbons. The band of gold thus formed of the proper thickness is the breadth of two sovereigns, and should it prove to be wider it is divided into two equal strips by a circular cutting instrument.

The strips of gold, by the pressure of the rollers, having acquired very nearly their proper thickness, are transferred to another room for the last operation. This, which is called the drawing room, has a draw-bench in it, which certainly, as a piece of art, may be called perfection. The duty of this machine, as explained to me, is to regulate the substance of the metal; that is, to obtain a more perfect degree of uniformity of thickness in the strips of gold than they had previously. One of the ends of the ribbon is placed between two polished steel cylinders by the dog, as it is called. Several of these machines have various organs like the animal system, and have their several names, such as the fingers, the tongue, the jaw. The dog itself has a round face, two eyes—which are screws, a large mouth, teeth, a tail, and, like the dog Toby, a little hat on his head. He advances the length of his chain and seizes the end of the ribbon of gold with his teeth; his tail being fast to the chain, he draws the whole length of the ribbon from the cylinders, and at the end of it raises his hat by a jerk, the effect of which is to make him let go his prey—that is, the golden band,—which has thus passed its whole

length through the cylinders. The operation secures the proper thickness of the bands, as being exactly that of the sovereign, and when thus ascertained they are transferred to the cutting room.

This last room is one of the handsomest and noisiest of the whole establishment,—in reference to that of machinery only, for the workmen are as mute as statues—a character which belongs to the generality of English factories. This silence in the work that is going on seems to impart a kind of religious solemnity among the workmen. The principle of our neighbours is that two things cannot be done well at the same time, an axiom which appears exceedingly simple, but which could never be put in practice in France, where we laugh and talk while we are at work.

In the middle of this cutting room is a large shaft, which turns, at a certain height, a large revolving fly-wheel, under which is a circular platform of wood, raised about two feet from the floor. Around this platform are arranged, at equal distances, a dozen massive cutting-presses. These presses are fond of gold, that is to say to bite it, for at each bite they carry off a little round piece of gold about the size of the button of one's coat, and they take a bite every second. Two little boys have the duty to perform of supplying them with gold, that is of placing the ribbon under their punches, which are rising and falling every moment; and in the course of a minute this gold, which is now discovered to be the ribbon that was prepared in the drawing room, is pierced with holes. The whole that are thus punched are carefully collected into packets of the same size and transferred to the melting room, to be recast the next day. As to the round pieces or buttons, they are called blanks, and fall into boxes intended to receive them like showers of gold. One can now form an idea of the *ensemble* of this cutting machine—so powerful and yet so delicate, the motive power which is in operation all the time being the pressure of the atmosphere.

From the cutting room the blanks, or those little round pieces without signs on their surface, are taken to the weighing room to be weighed. Who would suppose that the great importance of commercial security in a practical point of view is in this part of the work founded on the sincerity of number? The weighing room is distinguished from all others by a peculiar silence, for here even the machinery is no longer noisy, and this is a kind of sanctuary. From the style of the architecture and the nature of the ornaments it might be called the secret laboratory of a scientific museum. On a sort of counter, which runs round the room, there are two automatic scales. One need not imagine, on the faith of a name, that these are in the form of ordinary scales, with two plates of equal size. Not so: they are very rare and curious machines, enclosed in a mahogany box, placed on an ornamented iron pedestal, and covered with a glass shade, which preserves them from dust and damp. They were invented in 1842 at the Bank of England, by William Cotton, one of the governors; and have since been adapted to the requirements of the Mint by Napier, at the direction of Mr. Pilcher, the officer who is yet the

chief of the weighing room, and who explains all the details of his department with that intelligence which is the result of long practice and obliging manners. Such is the perfection of the mechanism of this machine that after at least a dozen years of daily use of these scales they are yet as new as when they came from the hands of the maker.

The title of automatic is well applied to them, for, not content with weighing, they also perform mechanically one of the most delicate operations of the mind, that of judging and choosing. These twelve machines hold a kind of council with each other, and as an ultimate appeal they decide the value of all the work that is done in the rooms. Who would believe it, that, with all the perfection of the flattening and all the precautions taken to secure a uniformity of thickness, two surfaces are found not to be of the same exact size in the blanks, and which should be exactly of the same weight. For this state of things it has been necessaay to establish, as a remedy for the evil, a conventional machine, which of itself selects those pieces of gold which are of the due legal weight. They may weigh heavier or lighter by even the quarter of a grain; they are then called medium, that is to say within the narrow limits of right. But if on this or on that side of those limits they are pronounced too light or too heavy. Who, then, is to decide so delicate a question? The judge,—that is to say, the automatic balance, who calls the blanks before him one after another, and who decides among all the candidates which are entitled to become sovereigns.

This machine has a hand which is advanced and withdrawn at equal intervals of time,—a few seconds,—and each time pushes a blank on a sort of index made of steel, gifted with a wonderful sensitiveness. Here the machine hesitates, it is said to be considering,—at last it decides, aud the blank having passed through its judgment, is pushed off by another following it, and which has to go through the same trial, falls into one of three compartments of the box according as it is heavy, light, or medium weight. This most scrupulous balance, which discovers and denounces the slightest error with inevitable certainty, which appreciates the hundredth part of a grain, reminds one of the fearful trial which weighs the souls of men in the ancient mythology.

All these operations are performed in the twinkling of an eye: each machine decides on twenty-three blanks in a minute, and as there are twelve of them, all this ingenious apparatus can weigh £80,000 sterling in a day. It has been calculated that the weighing performed by these automata not being more than that done by the hand in ordinary scales, saves for the Mint £2,000 every year. Behind these machines, which are quiet enough, there are young men who are even more quiet with their intelligent and serious looks, who have nothing to do but let the balances do the work and to keep feeding them with blanks. What becomes meanwhile of those pieces of gold which have been separated into the three compartments of the weighing machine. The light ones are never trusted, they are only fit for being recast. The

heavy ones have a right to appeal for favour and consequently they are turned over to another ingenious machine in the same room, and which, by means of an acid, removes the excess of weight. This machine, invented by Mr. Pilcher, reduces a piece every minute. Lastly, those of medium weight proceed without any molestation to the mechanical process awaiting them. Still they have a test to undergo: the weight is not the final proof; it is necessary that these blanks should produce the musical sound, in technical words, they should ring. To ascertain this, they are thrown with some force one after another on an iron slab; those that are dumb are cast aside and sent to the foundry along with the light ones, for there are no means of restoring gold to its value but by fire.

The work which successively goes forward in each room all leads to one object, that is, to prepare the blanks to receive the legal imprint, and these last are therefore sent to the marking room, where a marking machine is awaiting them, destined to raise the circular ridge at the edge of the flat even surface. This machine is endowed with prodigious power. It ridges six hundred pieces of gold in a minute. It receives them by a mouth in their smooth condition, and after making the necessary impression returns them by another, with a raised edge which protects the circumference of the future sovereign. A man or a boy suffices to manage it. From the marking room the blanks as they still remain are conducted to the annealing room, where they stop to be annealed and softened. In fact, it is necessary to know that in their present condition they would break the die rather than yield to it by the force of the machine. Therefore, to soften these hard pieces they are ranged inside a large box of iron, something like the moulds which the cooks use for making mince pies. These moulds each containing 2,800 pieces are then covered with clay and placed in the mouth of a large oven, which extends round the annealing room. Before one of these ovens is seen the tall, imposing figure of the workman, with his red beard, his cyclopean limbs, and his grave, benevolent look, directing this part of the work, that is termed pickling the gold.

When one of these moulds has been reddened by the fire for about twenty minutes, it is removed and thrown as it is on the floor, and when somewhat cooled, it is opened and the pieces, without their effigies, have no longer the beautiful shining hue on them which distinguishes the prince of metals. The process then is to restore this colour; it is an important affair, and to form an idea of the mode in which it is done, it is necessary to follow these edge raised and annealed blanks to the blanching room. There surely cannot be an English room so poor as this washhouse, as it is called, a chamber on the ground, where this new linen is to be blanched. Here about two or three feet from the floor there is a copper of zinc fixed in brick masonry, heated by ordinary coal. The whole room is termed the blanching room for blanching the gold. The pieces are here first cast into a cold bath, by which they become softened; then into a solution of sulphuric acid and boiling water, by which they are washed and

recover their former colour; then a second cold bath removes all trace of a sulphate of copper which might be formed on their surface by the combination of the acid and alloy. And being ready, they are thence carried into the next room to be dried.

Here they are dried by rubbing and shaking in a sieve with sawdust, warmed on iron plates by an iron purposely prepared, called the drying stove. This sawdust must be produced from the wood of beech or box, as no other will have the same effect, for it acts on the softened blanks like a dry sponge. To remove all humidity from them, they are again exposed to heat in a copper cullender, something similar to the process of roasting chesnuts. After this the blanks are considered worthy of receiving the impression which raises them to the dignity of legal sovereigns, for which purpose they are transferred to the stamping or coining room.

On entering this apartment of the establishment, one is immediately struck by its superiority over the rest. I do not allude to its size, which, in spite of the nakedness of its architecture, is one of the most imposing of the Royal Mint; but I refer rather to the superb character of the machines in it. The floor is of stone, from which large pillars of oak reach the ceiling, and eight colossal coining presses stand ready to receive the blanks. Eight youths seated, and about half of their persons concealed in square apertures of the stone floor, and covered over, amused themselves by now and then throwing into a tube sixty blanks at a time,—with which each machine goes on working without any assistance from the operatives whatever. As these automaton presses work by means of invisible mechanism, they are alluded to as living mortals, and the workmen even say that they talk and make as much noise as they do work. On the table of the press there is a die or matrix, a most delicate piece of art, constructed in the establishment after the design of Mr. Wyon. This type was formed with the most scrupulous care on Queen Victoria's accession to the throne, and is never altered. The King or Queen never becomes old on their coins. At the moment that the scale descends the blank is entirely enclosed in a collar between two surfaces of the die, one over it the other beneath it, so that it may receive at the same time the impressions as well as their border on both sides. Each stroke of the machine makes a sovereign, and the machine gives sixty to eighty strokes in a minute. At the time that I visited the coining room, there were but two machines at work. I remained about an hour admiring this ingenious piece of mechanism, and in that time it had coined £7,200 sterling. Supposing all the machines had been at work in that time £28,000 sterling; that is, a whole fortune would have been produced. The sovereign thus imprinted is immediately pushed by a spring of the machine like a finger, and rolled away with the effigy of the Queen on one side and the arms of England on the other, into a copper plate along with the rest, the press still keeping on at its work, and at each blow sending a piece of gold in the shape of a sovereign into that reservoir. From time to time these basins,

full to the brim of sovereigns, are taken away and carefully examined, the good being separated from the bad.

To err is human, says the proverb, and even these machines, in spite of their perfection, are after all but the production of man, therefore they too must sometimes fail. There are sovereigns which come from it broken or badly imprinted. They are set aside,—and, like the initiated in ancient mysteries, having failed, they must begin all over again at the fire.

The English gold coins consist at present of sovereigns and half sovereigns, which are worth twenty and ten shillings. In certain houses in London there are merchants who price their articles in guineas, of twenty-one shillings. But this coin is no longer at the Royal Mint, and is now imaginary, or it may still be found in the collection of money changers.

The guinea owes its name to the coast in Africa still known as the coast of Guinea. It was struck in the reign of Charles the Second from the gold which came from that part of the world. At present it is an imaginary coin, and it would be surprising to see it figuring in business matters, were it not that commerce and above all the liberal professions have an *interest* in keeping it in fashion. From time immemorial the physician's fee for his visit has been a guinea, that is the single golden coin. It may therefore be supposed that the doctor does not like the new monetary system, so he exacts a shilling with the sovereign to keep the old custom unbroken.

We have now traced the process of constructing the golden coin to its completion, and before being thrown into the abyss of circulation, it only remains to pass a final examination. Porters are now seen bending under the weight of the coin, weighing them and placing them in bags, each of which contains £701 sterling, and verifying the observation that a fortune is really a burthen to them. The bags are again opened, and two sovereigns are taken from them,—one for examination by a council of assay, the other is preserved in a strong box to appear one day and undergo the Pyx trial.

This final process is generally gone through with much ceremony at Westminster Hall on the appointment of a new Master of the Mint, the members of the Privy Council and twelve persons of the Goldsmiths' Company, at which the Lord Chancellor or in his absence the Chancellor of the Exchequer are present, and this tribunal pronounces judgment on the verity of the coins of the kingdom between the Royal Mint and the public.

Without going through the lengthy sitting of the Pyx the sovereigns in question are then and thenceforward pronounced as perfect, and are mostly consigned for some days to stone vaults with their iron doors until it pleases the company of the Bank of England to call for them. I was shown in the course of my visit one of these strong rooms, where there is collected sometimes above half a million sterling: gold is an earthly sovereign and treated as such. This apartment was much the same as one of those cells intended for prisoners that one meets with in old castles of royalty.

As yet we have been entirely occupied with gold, which owes at least a part of its value to the honour of being chosen as the only standard of the value of all English money. At the Royal Mint there is an abundance of silver and copper coins to serve as change for the gold. As the process of their construction is but the shadow of that here related, we need not stop to consider them. But between them there is always a difference which should not be, and all work relating to the gold coin is given gratis to the public. In the first place, a certain quantity of gold in ingots is brought to the Bank, and after a few days the same weight and the same value is paid for it in the shape of sovereigns. The same of the alloy which enters into the composition of these pieces. All the expense of manufacture is defrayed by the government, and it is the same with silver and copper. The Mint, on the contrary, buys the silver for its own purposes in the process, and the result of the whole management is that large profits were made by the State in the recent conversion of an ancient heavy copper coin into a lighter bronze currency. Besides this, the process of recasting gave employment for the time in small ways. I remember seeing in the city persons who collected the old bullion in barrows: they took it to the Mint, where they received for their trouble the payment of two per cent. All the copper money appears to be banished from the Mint, the privilege having been granted to two manufacturers at Birmingham to make pence and halfpence, in which process lately as much as ten tons of bronze per day have been used. From 1816 to 1836 the amount of gold, silver, and copper issued by the Mint has amounted to between sixty-seven and sixty-eight millions of pounds sterling: but in 1853 the amount for that year alone was £12,664,425 sterling.

These are amounts which will convey an idea of the activity of work at the Bank of England. The workmen still possess the spirit and something of the manners of the old English corporations. Son succeeds father voluntarily. Some live entirely in the building, and others ontside, but there is a family likeness that runs throughout them. Whether or not inhabiting these great monastic buildings, where life and manners are to some degree in keeping with the architecture, they always take their meals during the day within the walls of the establishment. After their day's work they cannot go home until the balance of accounts is seen to be right in each department, and it is ascertained that nothing wrong is going on. A certificate is then given to each that he may pass the gates of the building. There is no difference made in reference to the religion of the workmen, all the work required of them depending on their honesty. The workmen are generally employed by the job and receive very good pay, and after a certain length of servitude are retired on very good pensions. The principal trait in their character is in what regards gold and silver there is a certain manner which borders on familiarity. One of them in my presence asked a person how much he was worth, and receiving in answer five thousand a year. "Bah, (said the workman,) we can make more than that in a day's work." There are besides the work-

men plenty of other *employés*, various superior officers, the most of whom receive fixed allowances and reside in the establishment and bear titles which pertain to the ancient company of gold workers.

I left the Royal Mint with my head full of visions of gold, as I was passing along Tower Hill while a sharp autumnal wind was scattering the leaves of some trees ranged in a line and rolling them about my feet. Like the old legends of the middle ages, when the conjurer acted the part of making fasle money, the sovereigns I had seen seemed to be converted into dead leaves.

At a time when Wales is producing no inconsiderable amount of gold, with the prospect of a still larger quantity, it appears desirable that the Mint marks should be resumed, indicating the source whence coined metal is derived, at least, in any exceptional cases, such as Welsh gold. Sovereigns coined at the Melbourne Mint speak for themselves, but the Australian, or Welsh, or other gold coined in London is not distinguished. The interest of Mint marks is well known. Our word "Guinea" has, in one way, preserved a record of the gold brought from that country by the then African Company, in 1664, when the word and the coin were first naturalized amongst us, surviving down to the time of George the Third as a denomination of the coin, without reference to the source of the gold; but the first guineas themselves have a small elephant under the bust of the King, Charles the Second, which marks the gold imported by the Company; the same device, or an elephant and castle, marks also the silver coined in the reign of George the Second from the African Company's importation. The word "Vigo," under the head of Queen Anne, commemorates the capture of the city, and the Spanish galleons and treasure ships, whence the silver of that issue came. The word "Lima" marks the silver captured in the great Acapulco galleon. The Chinese silver was coined without following these precedents,—that extortion, however, were well severed from any record. S.S.C. marks the silver received from the South Sea Company, and a Prince's plume and linked C's, mark the silver brought to the Mint by the Welsh Copper Companies in the time of George the First; the plume alone separately marking silver brought from Welsh lead mines; while roses mark silver coming from the lead mines of Cornwall. As far back, indeed, as James the First, the Prince of Wales's feathers is the symbol for Welsh silver used in coinage, and it would seem a suitable symbol to use now for gold minted from the Welsh mines. To connoisseurs, the distinguishing an issue is always valuable; but though Mint marks are in that way useful, often serving to date even undated coins, it is so little probable that our present coinage will find any choice place in future cabinets, that, not on that ground, but rather as a point of economic interest as to products, it would be well to call the attention of the Mint to the subject.—*Athenæum.*

Blockade Runners.

Some amusing scenes, as well as some nervous trials, occasionally take place in this occupation; in which it appears, to our astonishment, that even the officers of her Majesty's navy are engaged! The fact has elicited an Admiralty order on the subject; on which the following appears in a contemporary journal:—

"In consequence of the recent capture by a Federal cruiser of a distinguished officer of her Majesty's navy, whilst in command of a blockade runner, Mr. Seward addressed representations, through Lord Lyons, to her Majesty's Government, which have led to a stringent order on the subject. The Admiralty have caused it to be notified to the officers engaged in the exciting and frequently profitable pursuit of commerce by blockade running, that they cannot countenance such an employment of their vacant hours. Although all the officers referred to are on half-pay, it was plainly most unbecoming for them, as long as they drew even half-pay, to engage in acts which subjected them to pains and penalties at the hands of the authorities of a friendly state, whilst they were at the same time treating with contempt the Queen's proclamation of neutrality, which, binding on all good subjects, had special claims to observance from officers in the pay of her Majesty."

We transcribe the foregoing from a naval paper, and until we saw it could not have believed that officers wearing her Majesty's naval uniform could be found to be so ready to break through and hold in contempt her Majesty's Order in Council, for the sake of a party which are held to be in rebellion against their government.

It is too true that these lawless blockade runners have sympathizers among us from various motives; some, indeed, interested (as our law courts have proved), and others in admiration of the slave-trade, or from the cotton famine having been produced by the Federals, or some such reasonable motive which John Bull is perverse enough to adopt; or they may find a reason in their having introduced the yellow fever into Bermuda, the starting point which they frequent when about to proceed on their now, happily, forlorn hope of breaking the blockade. Bermuda at present must be classed as a sickly station. Thanks to the blockade runners, what has hitherto been unknown has now become common there. Yellow fever is now its scourge, and will no doubt remain so while it is made the head quarters of blockade runners. As soon as the warm weather sets in again, yellow fever, which has now subsided, will return, for there is not a doubt that it was taken there by them, and its spread will only be prevented by the enactment of stringent quarantine laws. It is even said that St. George's Island has been a receptacle for everything vile and filthy, and is in a condition disgraceful to any civilized community. Thanks to the blockade runners and the gentry who herd there and perform exploits against the laws of civilized communities!

Among the steerage passengers of the *City of Manchester*, who arrived at Liverpool, were the crew of the blockade runner *Lady Stirling*, captured on the 28th of October, by the Federal cruisers, while attempting to get out of Wilmington with a valuable cargo of cotton. One of the crew gives the following interesting particulars:—

The *Lady Stirling* was an iron steamer of 900 tons, built expressly for blockade running, and was launched in London but four months since. She had been successful in running in her cargo, and started out again on the night of the 22nd October on her return voyage; but, owing to the darkness or the ignorance of the pilot, she grounded, and in getting her off they broke one of her cylinders, and were obliged to put back into Wilmington. Captain Cruikshank got the vessel repaired as well as he was able; but, owing to a lack of engineers, was compelled to defer the replacing of the broken cylinder.

A week after (the 28th) he determined, disabled as he was, to make another attempt to get out of Wilmington, and soon after dark tripped anchor. It was not considered a favourable night for venturing out, and several captains of vessels in harbour urged the advisability of waiting; but the captain was determined to go. They succeeded in clearing what is known as the Western Bar Channel without attracting attention; but had barely gone half a mile further when a rocket was seen suddenly to ascend from the direction whence they had come, followed immediately by others in various directions, apparently in answer to the first. On this the *Lady Stirling* stopped, her captain thinking it better to return to the harbour; but a glance in that direction told him how hopeless such a course would be, as two or three hitherto invisible tug-like steamers were now to be seen following rapidly in her wake. The foremost of these, the *Æolus*, fired a shot after her, but without doing any damage, and was also sending up rockets, by which the attention of the entire squadron was being drawn to the movements of the *Lady Stirling*. The blockade runner, however, soon distanced the *Æolus*, but found another Federal steamer, the *Calypso*, direct in her way.

A chase now ensued, the cruiser keeping up a rapid fire of shot and shell, some of which passed completely through the *Lady Stirling*, and two of the shells exploded in her hold. On board the blockade runner a most exciting scene was presented. A sum of money amounting to 60,000 dollars, in gold, was known by the crew and firemen to be on board. The latter, after the chase had lasted two hours, and seeing that the Federal steamer was gaining on them, thought it was time to look after their own interests. They left their fires, and importuned the captain for their wages and some reward for the risk they were running, telling him the gold might as well be divided amongst them as allowed to fall into the hands of their pursuers. The captain gave each of them ten double eagles (about £40), at the same time imploring the firemen to resume their work at the fires. A more impressive impulse, however, was here given to their movements, in the shape of a round shot from the *Calypso*, which whizzed by their heads as they

were standing at the cabin door, sending them in their fright in all directions in quest of shelter.

The officers then proceeded to conceal as much of the gold as they could conveniently carry on their persons. And now occurred a scene that baffles description. Something like 25,000 dollars were left in the cabin, and the officers had no sooner gone than some of the stokers and crew, who had been waiting for the opportunity, made a rush into the cabin, and an indiscriminate struggle commenced for the possession of the treasure. The keg in which the money was placed was knocked over, the bags burst, and the large twenty-dollar pieces rolled in all directions. Men who had never before seen so much money now for the first time in their lives found themselves in possession of hundreds of pounds. The men scattered about the vessel, and, taking possession of any place that was light enough to see, proceeded to make rips and rents in their clothes to conceal the money they had so hastily obtained before they were boarded by the cruiser; and not the least curious part of the affair now was to hear, in that moment of excitement, continued calls for needles and thread to sew up the rents they had made in their clothes.

The engine fires were neglected, and the vessel was rapidly slackening her speed. A shell had exploded in the midst of the cotton, setting it on fire, and the Federal vessel had so far lessened the distance between them that the voices of the officers on each steamer could be heard giving orders. Captain Cruikshank, seeing that it was hopeless to hold out any longer, and believing that he had done enough to prove his solicitude for the property of his employers, hung a lighted lantern astern in token of surrender, after a chase of three hours' duration. A boat was sent from the *Calypso*, and the crew of the *Lady Stirling* speak in high terms of the fact that the first words uttered by the Federal lieutenant on boarding were to inquire whether any of the crew had been hurt, as he had brought the *Calypso's* surgeon with him, who was at their service. Luckily, although three shells had exploded in the vessel, nobody was seriously hurt. Both crews then set to work to subdue the fire on board the *Lady Stirling*.

The captain and mates were taken on board the *Calypso*, and one of the latter, either from fright or excitement, or from the weight of the gold he had concealed on him, swooned away on the deck. Some of the crew took charge of him, and in a spirit of mischief, or from an idea that his weight did not quite correspond with his appearance, set him on his head and gave him a gentle shake. To the astonishment of the sailors out tumbled a score or so of United States double eagles—massive pieces of gold money, each weighing over an ounce. A further search was made, when no less than 10,000 dollars were taken from this man alone. Captain Stuart, of the *Calypso*, now had his suspicions aroused, and informed Captain Cruikshank that he thought it would be advisable to search all his crew; but on receiving a reply to the effect that the property the crew had in their possession was their own, he gave it up, his orders from the government at Wash-

ington being to respect all private property. The mate had the 10,000 dollars returned to him, and the subject was not further mentioned.

The *Lady Stirling* was taken in tow to Norfolk, where the crew were discharged, highly pleased at the termination of their night's adventure. They are now in London, and some of them who, four months ago, were waiting about the docks for a ship, and with scarcely a shilling to help themselves, are now able to place to their account at a banker's as much as £1,000.

But to show how capricious is fortune in her favours, another blockade runner, the *Lucy*, which was left safe in Wilmington when the *Lady Stirling* came out, was captured the following night, and was actually in Norfolk when the *Lady Stirling* arrived, its crew in a most forlorn and penniless condition, having had everything taken from them at the instigation of their own captain, because they had dared to lay hands on his dollars.

The cargo of the *Lady Stirling* was valued at 800,000 dollars, which will fall to the share of the *Æolus* and *Calypso*.

By advices we have received information that the blockade runner *Annie* has been captured. On the last occasion when the ship was going into Wilmington, she was run on shore. The engineers, firemen, and several of the crew, deeming the capture of the vessel imminent, betook themselves to the boats, and got to land. Shortly after this several of the blockaders sailed up close to the *Annie*, and were about to capture her, when the ship floated, and the captain, putting on a full head of steam, turned ahead and ran safely into Wilmington. After being some time in Wilmington, the *Annie* attempted to run out, when she was captured. Her capture is attributed to the fact that she was compelled to supply the *Tallahassee*, *Chickamauga*, and *Olustee* with fifty tons of her best coal.

By letters from Nassau we learn that the blockade runners *Coquette*, *Druid* and *General Clinch*, from Charleston, and the *Beatrice* and *Little Hattie*, from Wilmington, had all arrived safely at Nassau, with valuable cargoes of cotton, turpentine, and tobacco. The *Will-o'-the-Wisp*, *Wild Rover*, *Owl*, and *Stormy Petrel* had returned to Nassau, after several fruitless attempts to run the blockade of the Southern ports. The *Bertha*, *Julia Armstrong*, *Little Hattie*, and *Beatrice* had again left Nassau for Wilmington, to run the blockade.

A Washington despatch states that Admiral Porter announces the arrival at Fortress Monroe of the United States steamer *Josco*. She captured in the Gulf Stream the *Sybil*, bound to Nassau with 307 bales of cotton.

Admiral Stribling, of the East Gulf squadron, reports the following captures:—The schooner *Lucy*, the schooner *Sea Bird*, and another (name unknown) by the United States steamer *Nita*, with assorted cargoes; also the schooner *Badger*, from St. Mark, laden with cotton, by the steamer *Adela*.

The *New York Times* tells something of the destruction of the blockade runner *Beatrice*:—

The iron steamer *Beatrice*, from Nassau, with an assorted cargo, was driven upon the northerly side of the shoal of Drunken Dick and destroyed, while trying to run into Charleston. She was discovered, fired upon, and hit three times by our blockading vessels outside the bar; and no sooner had she run the gauntlet of these outside blockaders than she encountered our monitors, tugs, and picket boats inside the bar, by which she was completely riddled. The firing on our side was very effective, frightening the officers and crew of the *Beatrice* very much, so that they cried again and again, "We are aground; come and take us." Acting-Master Gifford, chief of scouts, with two large launches and two other boats, then boarded the prize, took such articles as could be readily seized, and set her on fire, bringing with him, on his return, thirty of her crew. The captain and about a dozen of his officers and crew had previously escaped to Sullivan Island, the batteries of which had once opened fire on the *Beatrice*, and thus actually aided our vessels and our batteries on Morris Island in the work of destruction. The *Beatrice* is a ship of about 500 tons burthen, worth, with her cargo, about 220,000 dollars.

THE "SEA KING" AND HER DOINGS.—We conclude the above with following extract:—

"Our readers have not forgotten the circumstantial contradiction given by some of our Liverpool contemporaries to the statement which appeared in these columns respecting the departure of the *Sea King* from London, to sail under the Confederate flag. The *Sea King*, on entering the Confederate service, became the *Shenandoah*, and we are enabled to report something more respecting her movements. The *Shenandoah* appears to have employed her time to some purpose. Advices received from Bahia report the arrival there of a Danish vessel with the crews of no less than five Federal vessels; all of which had been captured and destroyed by the *Shenandoah*, under the command of Captain Wardell. The names of these vessels are—the *Elena*, of Maine, the *E. Godfrey*, of Boston, the *Kate Prince*, the *Charter Oak*, and the *Susan*. We take it that this report establishes the fact that the *Sea King* is not only a Confederate cruiser, but that she is likely to rival, if not surpass, the *Alabama* in harassing the commerce of the Northern States."

Both of which vessels, it should have been added by the *Shipping Gazette*—in its boasting of good information, were fitted out in this *friendly* country, in spite of proclamations and masked assurances, in aid of a civil war "promoted and protracted" by British subjects! In our opinion the sooner she meets with the fate of the *Alabama* the better.

The Late Hurricane at Calcutta.

The following log, kept by an officer of the ship *C. N.*, vividly describes the fearful character of the storm. In a letter dated the 22nd of November, the same writer says:—"The price of some things since the 'blow' is enormous: they are charging fifty rupees or £5 a running foot for rough spars: 150 rupees or £5 a day for the use of one lighter; and everything else connected with ships is the same extravagant price."

Log.—October 5th.—At 6h. a.m. weather dull and cloudy; wind N.N.E., moderate breeze, but heavy squalls of rain. Barometer 29·40 falling. 8h. a.m.—Wind increasing, and bearing easterly with drizzling rain. Barometer falling fast. 10h. a.m.—Wind rapidly increasing; furled awnings, pointed yards to the wind, caulked inside ports, placed tackles and extra lashings on mooring chains, and proceeded to make every precaution for a heavy gale. 11h. a.m.—Wind East and blowing a heavy gale. Barometer falling rapidly. The tier astern, consisting of six ships, parted their moorings, and brought so much strain upon ours, that our starboard bow's moorings parted about 12h. 30m., while making every preparation in our power for holding on. The wind having risen to a hurricane, during a furious blast the ships inside, consisting of three, breaking adrift, came down upon us, parting our bow moorings and stern chains, the *Lady Franklin* lying outside of us; we were all driven athwart the *City of Paris*, and parted her chains. The *Lady Franklin* was cut down and sunk. Our port bows catching the *City of Paris*, she tore up our port fore chains and rigging, stove in our port bows, tore up port cathead, taking with it anchor; also carried away foretopgallant mast, jibboom, upper and lower fore topsail yard, billet head, bobstays, bowsprit shrouds, and damaging bowsprit, besides cutting the hull up most fearfully. After driving foul of several ships, and others driving down on us, whose names it was impossible to find out, we were at length driven on the Howrat Bank on the other side of the river, where we grounded and remained about three quarters of an hour, it then blowing a fearful hurricane.

About 2h. 30m. p.m., the wind bearing S.S.E., we drove over the bank and went driving up the river before a furious hurricane; at times in collision with, and others driving down on us and cutting us up on all sides. Coming in collision with one ship stove in our stern, lifting up the whole quarter-deck, starting house, and starting stern post. Our rudder being jammed with the stern moorings, the ship was completely unmanageable.

About 4h. p.m. we drove on shore off Cossipore, and remained stranded. The ships *Waterloo* and *Lincolnshire* came down upon us. The *Waterloo* came down with her broken bowsprit, doing us a great deal of damage, carrying away our main rail, stanchions, splitting covering board, twisting main chain plates, damaging mizen rigging and chain plates, and very much cutting up our starboard side. Directly

after stranding the steam-tug *Fire Queen* drove down upon us, and hooked our starboard anchor, tearing it away from the cathead. Coming under our forechains she tore up the channels and cut up our starboard side. In a few moments she sunk alongside.

About 5h. 30m. p.m., wind and weather moderating, barometer rising more rapidly than it fell. During the time from commencement of the hurricane the pumps were kept regularly sounded, but the ship made little or no water. We now lay stranded, the *Speedy* and *Hindostan* cutting into us on the port side, and the *Waterloo* and *Fire Queen* on the starboard side.

October 6th commences with light breeze and clear weather, and looking around we find she is lying in a dangerous position, and straining very much every tide. Friday and Saturday—Nothing done to get ship off; crew employed in sending down broken glass and gear. Sunday—Agreed with tug *Defiance* to tow us off, but failed. Monday—Steam tug *Defiance* towed us off, and we anchored in the river.

A meeting of the citizens of Bombay was held in the Town Hall on the 2nd of November, presided over by Sir Jamsetjee Jejeebhoy, for the purpose of devising means to alleviate the distress in Calcutta caused by the late hurricane. Nearly £5,000 was collected in the room, in addition to the amount previously remitted. The subscriptions already realised in Bombay on account of the Cyclone Relief Fund at Calcutta, amount to about £20,000.

The government of Bengal will appoint a committee to inquire into the state of the moorings in the port of Calcutta. It is believed that the screw pile system of mooring ships will be introduced.

The *Englishman* of the 5th of November, gives the following particulars of the courseof the late cyclone:—

From information forwarded us at various times we have studied the track of the cyclone of the 4th, and, according to our view, it advanced upon us from the Andaman Islands, the larger of which, supposing its rate of progression to have been tolerably uniform, it probably crossed on the morning of the 2nd of October; it is possible, of course, that the gale originated in the bay to the West of the Andamans, and, on the other hand, it may have extended as far as the Malayan peninsula. It seems to have travelled up the bay at an average rate of ten miles an hour, to have increased its speed as soon as it curved off towards the East, advancing probably at one time as fast as twenty-four miles in the hour, and traversing the interval between Santipore and Pubna at a rate of about fifteen miles per hour. On reaching the Garrow Hills it may very probably have been somewhat deflected from its direct course and checked in its speed, and this supposition is strengthened by information which has reached us from Gwalpara, which would appear to indicate that the track, after passing Jumalpore, inclined slightly towards the West.

The diameter of the cyclone disc may be estimated at from 100 to 120 miles, increasing as the gale progressed to as much, probably, as 150 miles; the central calm was seven or eight miles wide, (perhaps

more,) and appears, from the accounts we have received from places which it traversed, to have been a very decidedly marked one. There were no very marked electrical phenomena attending the gale, and in this respect it seems to have differed considerably from the cyclone which traversed the Sandheads on the 22nd of October, which, according to all the accounts that have reached us, was accompanied by very vivid and constant electrical discharges. A broad, lurid illumination of the sky in rear of the track of the cyclone was noticed by some observers, and may have been an electrical phenomenon due, as Piddington suggested in a case of a similar observation, to an uplifting of the posterior part of the cyclone disc.

We have heard it remarked that during the height of the gale in Calcutta a slight shock of an earthquake was experienced, we cannot say that we were ourselves conscious of such an occurrence, but we mention the observation because a similar statement has been made to us by a correspondent from Pubna. There is sufficient evidence to show that the track of the wind during the gale was not a perfectly circular one, but that there was a considerable amount of incurving or spiral inclination towards the centre, which Piddington describes as a common occurrence. This incurving in the late gale was sufficient in amount probably to reduce the difference between the wind and the compass points from eight to six points,—that is to say, that in a place in which the wind was due East, the centre would bear towards the S.S.W. instead of towards the South, the direction in which it should have been supposing the wind to be following a perfectly circular course. A proof of the existence of this incurving during the late gale is afforded by the log of the *Alexandra*. From this log it appears that the *Alexandra* traversed the central space of calm, and that whilst doing so several land birds were thrown upon her deck, a circumstance which could only have happened under the influence of wind spirally tending towards the centre,

We have taken the 20th parallel of latitude as the assumed position of the centre of the storm at 2h. a.m. on the 5th of October, and the probable site of the loss of the *Persia*. Our reason for doing so is the evidence of the men who were saved, from whose description it would appear that the steamer must have foundered in immediate proximity to the centre of the cyclone, and who stated their belief that at that time they were supposed to be about seventy miles from the pilot station, a position differing but slightly from the spot we have mentioned.

The more we inquire into the circumstances of the cyclone, the more deeply are we impressed with the culpable neglect of all reasonable precautions which the authorities of our port have so long been guilty of. Thanks to the exertions of our late fellow-townsman, Mr. Piddington, it is out of our power to plead ignorance of the phenomena which precede and attend these terrible gales. We know that they advance upon us usually more or less from a southerly direction, that they bring with them a storm-wave which invariably commits frightful devastation, that that wave has more than once reached as

far as Calcutta itself, with effects upon our shipping which our late experience renders it a work of supererogation to describe; and yet, with all this knowledge, we still possess no organised system of storm signals. We have allowed ourselves to be surprised by a cyclone travelling at a rate of only ten or twelve miles per hour without giving utterance to one word of warning, or taking the slightest precautions to prepare for the attack. It is to be hoped that whilst the impression produced by the devastation around us is still vivid measures will be taken to insure us against the recurrence of a neglect almost criminal, considering the knowledge we are possessed of, and which has been gained without the slightest assistance or even kindly recognition of government.

Royal National Life-Boat Institution.

The last monthly meeting of this institution was held on the 1st of December at its house, John Street, Adelphi, Thomas Chapman, Esq., F.R.S., V.P. in the chair.

The committee expressed their deep sympathy for the loss of life during the late fearful shipwrecks off Tynemouth last week, and particularly in reference to the loss of two gallant men who unfortunately perished by jumping out of the Tynemouth lifeboat, belonging to the institution. It appeared that the performance of the lifeboat on that distressing occasion elicited the admiration of the oldest seamen in the place. The boat was in the act of rescuing the crew of a schooner, when unfortunately the expression used by the coxswain, "Come, lads, jump on board," was misunderstood by some of the lifeboat crew, four of whom thereupon jumped on board the schooner, believing the lifeboat was going to pieces. This circumstance so completely deprived the remainder of the crew of their presence of mind that they lost control over the boat, and a heavy sea striking her at the same moment against the ship, all her oars, with the exception of two, were broken, and her side stove in. Nine of the men, however, stuck to the boat, and with the two oars and the help of another boat succeeded in reaching the harbour in safety. The two men who unhappily perished from the lifeboat have left two widows and seven orphans. The institution voted £100 in aid of a local subscription now being made on their behalf. The institution had also paid the crew of the lifeboat £26 for their gallant exertions on the distressing occasion in question.

The silver medal of the institution, and a copy of its vote on vellum, were also presented to Mr. Lawrence Byrne, chief officer of the coastguard at Tynemouth, for his gallant exertions in assisting to save, by means of the rocket apparatus, some of the unfortunate crew and passengers of the ill fated steam ship *Stanley*, on the occasion.

The institution at once sent down to Tynemouth, on Monday last, a new lifeboat to replace the disabled self-righting boat; but the local

committee decided yesterday (Thursday) on retaining the latter after having been repaired in London.

Rewards amounting to £105 were also granted to the crews of some of the lifeboats of the institution for going off and rendering the following important services to shipwrecked crews during the late fearful gales:—The Blakeney lifeboat saved six men from the French *chasse-marée Eleanore*, of Nantes, and five men from the brig *Fernand*, of St. Malo. The Tramore lifeboat took off the crew of five men and one passenger from the schooner *Sarah*, of Waterford. The Lossiemouth lifeboat saved six men from a derelict vessel after several shore boats had attempted in vain to launch through the surf. The Newbiggen and Berwick lifeboats went out and rendered important services to twenty-four fishing boats and their crews, numbering nearly 100 men, who, while out fishing, were overtaken by fearful gales of wind. The Ntw Quay (Cornwall) lifeboat put off and rescued five men from the schooner *Heroine*, of Milford. The Tenby lifeboat took off the crew of three men from the sloop *Active*, of Carmarthen. The Penarth lifeboat went out and assisted to save the ship *Far West*, of Newport (Monmouth), and her crew of twenty-two men, from a very perilous position. The Dungeness lifeboat rescued fifteen men from the barque *Louis XIV.*, of Dunkirk. The Yarmouth lifeboat put off and gallantly saved three of the crew of the barque *Sea Serpent*, of South Shields. The Winterton lifeboat took off and brought safely ashore six men from the brig *John*, of Hartlepool. The Dundee lifeboat (the *Mary Hartley*) went out in tow of a steam-tug, and saved four men from the schooner *David and John*, of Montrose; making a total of 113 lives saved by the lifeboats of the institution during the recent heavy gales on the coast, many of which gallant services had taken place during a dark midnight storm.

The lifeboats of the institution at Campbeltown, Penarth, Walmer, Rye, Winchelsea, Porthdinllaen, Southport, Lytham, Scarborough, and Padstow, had also gone off during the recent gales in reply to signals of distress from various vessels. In some instances the vessels had, by the time the lifeboats arrived alongside, succeeded in getting out of danger or in weathering perilous points; but in other cases, unfortunately, the casualties had been so sudden and so complete that all vestige of both vessel and crew had disappeared before the lifeboats could possibly reach the scene of the disasters. Payments amounting to £96 10s. were made for these services.

The crews of the Walmer, Bacton, Tyrella, and Dungeness lifeboats had also assembled in readiness to go off to the succour of the crews of different vessels. For these services the society voted £18 14s.

Rewards amounting to £25 were also granted to the crews of various shore boats for their services in saving several shipwrecked crews on the coasts of the United Kingdom during the past month.

Altogether, during the storms of the past two months, the lifeboats of the institution and shore boats, to whose crews the society had granted rewards, had happily been the means of rescuing nearly 250 shipwrecked persons.

The silver medal of the institution, and a copy of its vote on vellum, were likewise presented to Mr. J. Bulkeley, coxswain of the Tynemouth new lifeboat of the society, in admiration of his long and gallant services in assisting to save, in the lifeboat and by other means, a large number of shipwrecked persons.

The Controller-General of the Coastguard submitted to the National Lifeboat Institution a list of about fifty places where it was desirable to place a small handy class of lifeboat, in the absence of lifeboats belonging to the institution.

The committee decided to give this important question their best consideration. R. B. Mannion, Esq., of Piccadilly, had, on behalf of a friend, presented to the society £300 to pay for a new lifeboat for Ardmore, Ireland. Miss Wardell had also munificently sent to the institution £320, to defray the cost of a new lifeboat and carriage for Alnmouth on the coast of Northumberland, in lieu of the small boat and carriage now on that station.

The committe expressed their sincere regret to learn of the decease of the late Mr. Robert Ransome, of Ipswich. He was a warm friend of the lifeboat cause, and had materially assisted in establishing the "Society of Friends" lifeboat at Selsey, on the Sussex coast.

Payments, amounting to upwards of £2,000, were ordered to be made in various lifeboat establishments, and £1,500 of the funded capital of the institution were ordered to be sold to assist in meeting these heavy payments.

It was stated that one of the four lifeboats presented by the city of Manchester to the institution, named the *Robert Whitworth*, had, on its way to its station at Bridlington, been exhibited during the past week at Manchester, Leeds, and Bradford. The sight of the lifeboat had excited the greatest interest in those inland towns.

A lifeboat, presented to the society by the town of Birmingham, had also, *en route* to its station at Sutton, on the Lincolnshire coast, been exhibited in that town. It was calculated that 100,000 persons turned out to witness the lifeboats on these occasions.

The first lifeboat given by the commercial travellers to the institution, has just been forwarded to its station at Piel, on the Lancashire coast. The society had also sent new lifeboats, during the past month, to Hornsea, Yorkshire, and Valentia, on the West coast of Ireland.

Messrs. Forrestt and Son, the lifeboat builders of the institution, stated that they had forwarded to Cronstadt a fine six-oared lifeboat on the plan of the society, making the sixth lifeboat supplied to the Russian government, in addition to two furnished to the Russian Steam Navigation and Trading Company.

The proceedings then terminated.

Coppering Iron Bottoms.

Since the introduction of Peacock and Buchan's important composition for preventing the fouling of ships' bottoms—the only successful preparation which seems to be universally adopted—we had considered this question of fouling by weed, &c., as set at rest. We have, indeed, wondered at the question being asked—When is it to be prevented? when it is entirely prevented by the above composition. But it would almost seem that such persons desire to dismiss from their minds all care on the subject, and want a metal, if they can find one, that, like copper, will take care of itself, and require renewing once in a year or two. Various attempts have been made, but have all failed; and one something similar to the following was proposed to us by Captain Sheringham, R.N., about a year ago. The continual antagonism going forward between iron and copper when in contact appeared to us an insurmountable objection; which, however, seems to be removed in the method proposed in the following extract. Still, while we have so complete an antidote to the evil in Peacock's composition, the fouling of a ship's bottom should not be heard of. If this can be surpassed by a cheaper compost, or by a covering which will answer the same purpose, and as economically in the long run, well and good; but until we do see such a thing, and already have Peacock's, we have no right to complain.

The difficulty experienced in keeping the bottoms of iron ships clean was last session one of the excuses of the Admiralty for preferring wood to iron; and it will no doubt be named again next session by Lord Clarence Paget, should the question be asked why the accumulation of timber has proceeded in the dockyards during the recess. Attempts, therefore, to deal practically with the fouling of iron bottoms never fail to attract visitors, and during the present week numbers have inspected the iron ship *Iron Gem* with a copper-sheathed bottom. Unfortunately, the ship having made only one short voyage with the copper, instead of having been at sea with it for two or three years, when galvanic action, if ever likely to be developed, would be obvious at a glance, there was nothing to be seen but the mode of attaching the copper to the *Iron Gem's* sides. That appears to have been done efficiently, for in the neighbourhood of the ship, suspended at both ends from a beam, was to be seen a small section of the ship's side, subjected to the test of five hundredweight, and that failing to detach the copper fastening from the iron It was stated that the test had been applied for five days, and would have been applied for any number of days more, but the weights were wanted by the shipbuilders, the Messrs. Fletcher, Union Dock, Limehouse.

The mode of application to the skin of the *Iron Gem* is simply this:—At convenient intervals narrow ribs of T iron are riveted vertically up and down the ship's sides, and fitting into these ribs are pieces of timber with slotted ends. The slots keep the pieces of timber

to the iron skin, with such assistance as a pitchy and alleged non-conducting substance renders, and on the faces of the pieces of timber, the copper sheathing is nailed in the usual manner. The plan is simple and, as observed before, it appears to be efficient. And it ought to be both simple and efficient, because the inventor, Mr. Mulley, is one of Lloyd's agents at one of the Devonshire outports.

But, if simple and efficient, the invention is dear,—dear beyond general adoption in the mercantile marine, whatever may be thought of it in Whitehall. The price of the ribs, composition, and timber for the copper is, for a ship of 1,000 tons, £1,000; with the sheathing in addition, £2,000. Shipowners, it is safe to state, will long prefer to rub their ships' bottoms with red paint, which, on the whole, answers well enough for a single India voyage out and home. But let us do Mr. Mulley the justice to state that if his invention is costly so also is that other new one, the paint in which certain dockyard officials are deeply interested, and which the Admiralty are buying just now at the outrageous price of £220 a ton. Mr. Mulley's sheathing is much cheaper than the £220 a ton dockyard paint.

Mr. Mulley gives the following account of the application of the sheathing:—

"The work may be commenced anywhere by fastening on one of the holdfasts, then show the second iron its berth, and cut the sheathing off the exact length and quantity equal to the breadth of the plate; form the ends to correspond with the irons, and when so fitted introduce whatever composition is deemed most suitable to bed it in; then replace it and rivet the second iron, always with the flange outwards; and so on in similar sections throughout. In such parts as the bows and quarters, and turn of bilge, the sheathing may vary both in length and breadth. The whole to be well caulked and thickly coated with pitch, and, over all, felt, or prepared paper; the metal sheathing is then nailed on as in the ordinary way in a wooden ship—it requires to be carried up to the load water-line, and the wood sheathing two or three strakes above.

"For ships navigating tropical climates it would be a great advantage if continued to the gunwale, to neutralise the intense heat generated by iron sides. To avoid shrinkage this part of the sheathing should be of teak; warping would be effectually prevented by the irons running through the grooved ends, and thus maintain a perfectly even surface. The weight of the holdfasts is little more than 1½lbs. per foot, although, no doubt, of ample strength for sheathing of double the proposed thickness, and which might, as a safeguard against perforation by striking on a rocky bottom, be increased to that extent in the flat and about the bilges at merely the additional cost of the wood.

"It will be borne in mind that in a well-built iron ship there will be no disturbance of parts to cause leakage, and, therefore, no probability that even the slightest dampness can reach the ship's skin; hence an almost unlimited duration of plates and rivets is by means of the sheathing obtained. It may also be fairly presumed that the metal sheathing itself would, owing to the strength and rigidity of an iron

ship's bottom, and all projections being avoided, wear longer than on a wooden one. The cost to prepare the bottom ready for the metal sheathing would only have to be incurred once—at least not repeated for many years,—so that the increased buoyancy would alone liquidate it. But the most important advantage of metal sheathing is that of enabling a ship to make a long trading voyage without the necessity of docking or any loss of speed, the value of which can scarcely be over-estimated. It is also easily repaired, and only the positively injured parts would require removal."

To Mr. Mulley we desire to speak encouragingly, because it is desirable to remove from iron bottoms the only disadvantage under which they labour; the disadvantage, namely, of being unable to engage on a lengthy trading voyage in a warm climate unless frequent docking is resorted to. Let, therefore, the *Iron Gem* be brought again to London after a year or two of wear and tear, and if then there is no apparent chemical action on the iron, Mr. Mulley may speedily acquire a fortune, as it is possible that the cost of preparing the iron sides for the copper sheathing may be considerably reduced. A sheathed bottom, or dry docks in all convenient places, will by all be preferred to any paint, whether prepared with mercury or without mercury. Mr. Laird, of Birkenhead, and others of the greatest experience in iron shipbuilding and iron ships, would prefer clean iron bottoms and dry docks at all convenient places to any other thing.

Nautical Notices.

Particulars of Lights Recently Established.

(Continued from vol. xxxiii. page 684.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
63. Point Torrox	South coast Spain	36° 45·2′ N., 3° 59·4′ W.	F.	93	15	Est. 1st Dec., 1864. (*a.*)
64. Canary Islnds	Fuerteventura, S.W. end	28° 2′ N., 14°21·4′W.	R.	106	15	Est. 1st Dec., 1864. Period once a minute. (*b.*)
65. Wormso Isld	Gulf of Finland	59° 1·7 N., 28° 8·3′ E.	F.	67	14	Est. 13th Oct., 1864. (*c.*)
66. Poti	Black Sea	42° 9·1′ N., 41°38·7′ E	Ffl.	118	17	Est. end of 1864. Once a minute. (*d.*)
67. Larnaka Pt.	Cyprus Isl., South side	34° 55′ N., 33° 38·9′ E.	F.	46	4	Est. 1st Nov., 1864. Red light.
Europa Point	Gibraltar Str.	.....	..	..	..	(*e.*)
68. Gozzo Spadaro	Sicily, East end	36° 41·2′ N., 15° 8·8′ E.	R.	269	18	Est. 1st Dec., 1864. (*f.*)
69. Nuevitas Port	Cuba, North coast	21° 37·8′ N.,	F.	49	9	Est. 15th Sept., 1864.
Lucrecia Pt.	Ditto	21° 4·6′ N., 75°37·9′W.	F.	52	6	Temporary.

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a.) 63.—Information has been received at the Admiralty, that Lissan e Kahbeh, or Low Sandy Point, or Bagasse lights, on the coast of Karamania, have been re-established.

(b.) 64.—The Griego Bank extends about S.W. a mile from the lighthouse. The currents in the vicinity form into strong eddies, and a wide berth should be given to the point. Variation 20° 15′ W. in 1864.

(c.) 65.—It shows white over the shoals of Stapelboten when bearing between S.W.¼W. and S.b.E.¼E.; and *red* from S.b.E.¼E. round by East to N.¼E.

Note.—The Werder and Kin Island lights will be exhibited in the spring of 1865. Variation 8° 40′ W. in 1864.

(d.) 66.—The light will be a *flashing* light, showing alternately *red* and white *flashes* at intervals of *one minute*.

(e.) 67.—With a view to mark the position of the Pearl Rock, a strip of *red* light will be seen therefrom in the direction of the said rock. The *red* light is visible over an arc of 23° when bearing between N.E.b.E.¼E. and E.¼N., and extends half a mile southward of the Pearl Rock. Variation 19° 35′ W. in 1864.

(f.) 68.—From this date Cape Passero light, which is about a mile eastward of it, will be discontinued.

LONGITUDE OF BATABANO,—*South Coast of Cuba.*

The Spanish Hydrographer, Senor Salvador Morena, has issued the following:—

It appears by a notice recently issued by the Spanish Hydrographer, Senor Salvador Morena, that the difference of longitude between the lighthouses of Havana and Batabano by the mean of ninety-nine telegraphic electric signals was 0° 3′ 50·9″ E., which therefore places the latter in long. 76° 6′ 5·1″ W. of San Fernando or 82° 18·5′ W. of Greenwich. This result will occasion an alteration in the chart of Cuba, which is not yet decided, until it is known how far on the South coast the corrections must be extended.

CHINA SEA.—We learn by a notice from the Spanish Hydrographic Office that the Depôt de la Marine of Paris has published the following notices.

Madras Rocks, Stags, and Lizzie Weber.—The English ship *Madras*, on her voyage from Bangkok to Hongkong, was lost on the western edge of a bank of rocks in lat. 8° 14′ N. and long. 113° 34′ 36″ E. The bank extends N.N.E. ten miles, with some rocky peaks standing nine feet above the water. The crew took to the boats, steering for the coast of Cochin China, touching at Storm Islet on their way, and crossed the position of the Stag Rocks without seeing anything of them; nor did Captain Russell find them on cruizing East and West of the reported position of this danger.

It is considered therefore that this supposed danger and that of the Lizzie Weber, considered to be close to it, are no others than the Madras Bank, the position of which itself requires confirmation.

Glasgow Bank.—According to a notice from Singapore, Captain Baird of the ship *Glasgow*, from Singapore to Manila, discovered a bank in lat. 8° 39′ and long. 115° 31′ 0″ E., which apparently extended three miles to its N.E. edge, composed of sand and rocky peaks in some places from 21 to 32 feet above the sea.

Surat Bank.—The English barque *Surat*, from Liverpool to Hongkong, was lost on a coral bank of 2½ fathoms, when the following bearings were taken.

Islet to the West bearing S. 84° 22′ W.
Islet to the North „ N. 22° 30′ W.
Islet to the N.E. „ N. 61° 52½′ E.

The approximate position of the bank is lat. 5° 26′ S., long. 112° 46, 36″ E.

Lammermoor Rock.—The English ship *Lammermoor*, from Shanghae to London, in Macclesfield Strait struck on a rock with the following bearings. Point of entrance, S. 28° 7′ W.; S.W. point of Pulo Leat, S. 67½° E.

This is a sharp pointed rock with deep water close to, and from being in the same latitude and two and a half miles to the eastward of the Discovery Rock, they are probably one and the same danger, the trifling difference in position possibly arising from the bearings of the point of entrance of the strait being taken at night. If the bearings are correct, they place it in the very middle of Macclesfield Strait.

Safety Buoy off the Mouth of the River Llobegrat, South Coast of Spain.—The Captain of the port of Barcelona has given notice that he had stationed a bell buoy off the point of the mouth of the Llobegrat River, painted red and white, and lying in 36 feet water.

The intention of placing the buoy is to distinguish the mouth of the Llobegrat and to be of service in case of need to mariners; but the bell has been washed away.

Schooner Cut off at Kongerik Island.

By the schooner *Abby Forest*, which arrived on Sunday from Micronesia, intelligence has been received of the loss of the Hamburg schooner *Franz*, and the massacre of her crew and passengers, at one of the Micronesian Islands. This vessel left the Amoor River for Honolulu some three years ago, consigned to Messrs. Melchers & Co. of this city. The long absence of the schooner created fears that she had been lost at sea or cut off by savages; but until this arrival no news had been heard from her. The intelligence of her loss is conveyed in a letter to Rev. S. C. Damon from Rev. Mr. Snow of Ebon, from which we extract the following particulars, published in the *Friend* for October.

Ebon, May 19th, 1864.

My Dear Brother,—If you have not learned the fact before, let me here communicate to you the sad intelligence that another vessel has

been cut off among these islands, and all on board have been murdered. It was some time during the past year, and at one of our northern islands. The native name of the island is Kongerik, lat. 11° 26′ N., long. 167° 14′ E. according to Kotzebue.

The information is from our Ebon natives who have just arrived from the North. They have not been to that island, but have seen natives from there, and obtained many things of them taken from the vessel. They describe the vessel as a schooner about the size of the *Maria*, which was wrecked on this island. They were at anchor in the lagoon, and I think it was the second day after they came to anchor that they murdered them and took the vessel. They did it while part of the company was on shore, murdering those on shore first, then those in the vessel. So far as I can learn, there was no provocation whatever for the barbarity. It was solely for plunder. And they were greatly disappointed to find that the things they most wanted were not in the vessel, such as tobacco, hatchets, knives, axes, &c.; but on the contrary there was a great deal of clothing, prints, boxes, books, and, I should judge, bar iron for blacksmithing, together with a great many China or Japanese boxes.

But what makes it sadder to us is the probability that there was a missionary family on board, for they speak of one of the company—and he was not the captain—who read from a book morning and evening, and then stood up and shut his eyes and talked, and while he did this all the rest put their heads down and went to sleep, that is, shut up their eyes. The white woman who was on board was the wife of the man who prayed. The flag of the vessel with a name on it is with our chiefs who are now at Jaluit. I have a medicine chest from the vessel with a few medicines in it, and all of them labelled in German. An apothecary's card is on the inside of the cover with the name A. L. Siemens, and Hamburg upon it. This is also in German, stating, among other things, that medicine chests could be fitted out or replenished at short notice and on reasonable terms, with directions in the various languages of Continental Europe.

It is a touching and instructive fact that the natives, either from his teaching or from his praying, called the name of the praying man *Jehovah*.

After they had killed the company they worked the vessel on shore upon the reef and burnt her.

The First Lighthouse on the Coast of Morocco.

The erection of the first lighthouse* in his dominions by the Sultan of Morocco forms an interesting epoch in the history of that country. Having civilized Europe in front, and the barbarous nations that extend to the Cape of Good Hope behind it, the empire of Morocco is the scene of a perpetual contest, maintained between the conflicting usages and requirements of savage and civilized society. The representatives

* See No. 53, page 609, last volume.

of the Christian powers in Morocco are the permanent advocates of the interests of the civilized world, and by connecting the Moorish government with their own by means of treaties of commerce, are gradually drawing the Sultan within the pale of modern civilization. No small advance in this direction was achieved when the Sultan was induced to employ the services of an able French engineer, Monsieur Jacquet, to construct a lighthouse on Cape Spartel. The completion of this structure and the kindling of the light was very judiciously made the occasion of some little ceremony by the corps diplomatique at Tangier. A century or two ago a Moorish governor might have been seen urging the Salee rovers to capture Christian merchant ships in the offing, and it must have been an agreeable sight, as marking a pleasant change in the manners and customs of the Moors, to see the Mahomedan governor kindling with his own hand the first beacon designed to give the vessels of Christians friendly guidance along the Moorish coast.—*Gibraltar Chronicle.*

The lighthouse built by the government of Morocco at the extreme point of Cape Spartel is twenty-four French metres high, (the metre is rather more than 3 feet 3¼ inches,) and its light can be seen twenty miles at sea. It has been constructed by a French engineer. The first lighting of it took place on the 7th, in presence of the European diplomatic agents of Tangier, and of the local authorities. The Governor of the province, Sidi Mohamed, performed with his own hand the operation of lighting, and he delivered a speech, in which he said that he hoped that the construction of the lighthouse would be considered by European nations as a proof that his government desires to march in the path of civilization and progress.

The Great Explosion at Erith,—Powder Barrels.

Captain Peacock, of Starcross, moved by the catastrophe at Erith, has submitted to the authorities a plan for shipping and storing gunpowder, which appears both simple and effective, as will be seen from the following interesting statement:—

There cannot be the slightest doubt but that the explosion occurred from the barbarous method adopted of packing gunpowder *loose* in barrels. I was present, says Captain Peacock, in the harbour of Malta, a great many years ago, when a merchant ship blew up and killed every one in the hold merely from the loose powder which had leaked out of the barrels during the voyage and fallen down to the bottom of the hold, the barrels themselves having been all previously discharged into the magazine. Having had great experience in the shipment and stowage of gunpowder, both in the royal navy and mercantile marine, I many years ago proposed a simple plan which I have again and again tried to get introduced and now have laid before the government, and although I have no object in the matter, beyond a desire to be useful, I trust at length this simple remedy, or some other, to avert a recurrence of the fearful Erith calamity, *will become the law*

of the land. My plan is to put the gunpowder into a twilled calico bag, that has been dipped in a solution of alum, to fill up the pores of the bag when dry, and render it also inflammable.

The bag is to have a round bottom, to be of the internal diameter of the barrel and three or four inches longer than the barrel; it is to be partly filled before putting into the cask, shook down, and the top drawn over the chime-edge whilst filling, to prevent the possibility of the powder getting between the bag and the staves, it is then to be filled up in the weighing scales, the mouth of the bag tied with a piece of prepared twine, the head of the barrel inserted, and the hoops driven on. By this *simple* and *economical* plan no leakage could possibly take place and the bags would serve over and over again. The liability to accidents also at mine stores, firework-makers, and retail-dealers would be avoided, as the mouth of the bag in use could be tied or at all events doubled over the contents, so that if a lighted candle, or cigar, or pipe, fell into the open barrel (an event of not unfrequent occurrence) there would be a chance of escape, and barge loads of this destructive but indispensable agent may then be exposed with impunity from falling sparks, or burning cigars, or pipes, in loading or unloading, in the most populous neighbourhoods.

By the present barbarous method of filling gunpowder loose in the barrels, it is quite impossible to prevent the powder from lodging inside the top hoops and lying crushed between the upper part of the staves, as before inserting the head of the barrel the upper hoops are slackened, the staves necessarily opening and the powder running out and lodging within the top hoops whilst the head is being inserted, so that whenever a barrel is moved these loose grains fall out, also the crushed dust between the staves, and should the weather be *dry* and the ground *dry* a train must necessarily be laid from the barge to the magazine and *vice versâ*.

I once superintended the shipment in London river of no less than sixty-four tons of gunpowder in one ship going to Valparaiso, every barrel on this occasion leaked more or less, and I caused the loose grains to be destroyed as they fell on the deck, whilst taking the barrels on board from the barges, by wet swabs. I also had the ship's deck and the barge's deck wetted, caused the men to work without shoes, took knives, pipes, cigars, and lucifer matches from their pockets, and had the fires extinguished on board the ship and the barges before the hatches were opened. Whenever I have proposed my simple plan I have been met by the remark that "the trade could not afford it, as it would add ten or twelve shillings a ton to the price; moreover it would be too great an innovation upon the usages of the trade," &c.

A Story of the Sea.—We are indebted to Captain Sissun, recently returned to New London, from a whaling voyage, for the following touching narrative:—On the voyage home that awful scourge,

the ship fever, broke out. The carpenter of the ship, who happened to have his little son on board at the time, was one of the first victims. His shipmates sadly enclosed his body in a hammock, and we having read over the burial service and attached to his feet a grindstone, for the purpose of sinking it, committed it to the deep. The poor little boy, perfectly overcome at the loss of his natural protector, sprang overboard, and before he could be rescued, was beyond the reach of human aid.

We noticed on the following day a large shark in the wake of the ship. Having procured a hook and attached a chain and line, we cast it overboard and soon had the exciting pleasure of hooking the monster; and with the aid of our windlass, we hauled the writhing mass on board. We soon despatched it. As it lay in its death struggles the sailors heard a very singular rumbling noise that seemed to proceed from the captive.

Taking the ship's axe, we cut our way into the dead fish, and to our astonishment we found it had swallowed *the carpenter, the grindstone, and the boy!* But the former, who had only fainted, had actually rigged up the grindstone in the monster's belly, and with the assistance of his boy to turn it, was in the act of grinding his jack-knife *to cut his way out.—N. Y. Atlas.*

Time Signal at Melbourne.

A signal gun now announces the time to the citizens of Melbourne. Two 32-pounders have been mounted at the Melbourne University, and at one p.m. each day one of these pieces is discharged. At present the discharge is timed by a chronometer, but as soon as a wire can be laid down it will be fired from the Observatory by electricity.

Charts and Books Published by the Hydrographic Office, Admiralty, *in December*, 1864.

Hebrides, sheet 10, Scarpa Island to Barvas Lewis Island, N.W. coast, Captain Otter, R.N., 1860 (1s. 6d.)

Channel Islands, Alderney Island and the Caskets, with views, Commander Sidney and Staff-Commander Richards, R.N., 1863 (2s. 6d.)

Adriatic Sea, Ancona, Italian survey, 1864 (2s. 6d.)

Sicily Island, Pozzolongo Point to Marsala, Lieutenant Wilkinson, R.N., 1864 (2s.)

Vancouver Island Pilot, Captain G. H. Richards, 1864 (5s. 6d.)

Tide Tables for 1865, Staff-Commander Burdwood, R.N. (1s. 6d.)

Edward Dunsterville, *Commander, R.N.*

Hydrographic Office, Admiralty, December 20th, 1864.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

FEBRUARY, 1865.

The East Indian Electric Cable,—*The Mekran Coast Section.*

Notwithstanding the repeated failures of the electric cable, whether from foul ground, deep water, or ships' anchors, it is yet destined to yield the enormous advantages of its miraculous powers. No one more than ourselves watched the progress of the first Atlantic cable and deplored the ills which it endured from its very birth to its destruction, followed by the mutilated remnants that were fished up off Newfoundland, notwithstanding its favourable landing at Bulls Arm and in the exposed bay North of Valentia Island. Another cable, with greater powers than those possessed by the first, is to try its fortune across this vast span of the Atlantic, which, from its great extent and the stormy character of the sea, is without doubt the most difficult of the whole world. But for this we believe that the task of encircling our globe with a connected series of electric belts has but few serious difficulties. That in the Mediterranean has been broken and repaired again and again; but alas for that of the Red Sea,—stubborn ground from vertical coral rocks, to say nothing of questionable volcanic bottom and considerable depths, all seem to have been concerned in the destruction of that section of our electric detail. Still India is a portion of England worth to this country every possible attempt to win the reward of success. If the Red Sea, so favourable in its direction, forbids an easy accomplishment of the great object, there is yet a land line for adoption, and albeit that it may pass the dwellings and overlie the ground frequented by a wild, untutored, indeed uncivilized portion of the race of Adam, are they

not to be won over and their favourable opinions and dealings to be gained by conciliation. The soothing system is said to prevail where command will fail, then why not adopt it with such a glorious reward to be attained:—News from India in a less number of hours than weeks formerly occupied by the fleetest conveyance! Verily the electric flash that would secure that to us was worth trying for at almost any cost. And accounts say that it is almost completed.

The following telegram from F. E. Webb, Esq.. to the Secretary to Government, Bombay, says—"All submarine cable is in working order. Cable is relaid to Manora and in working order to Gwadur; only awaits ten miles of land line, which Mr. Walton is constructing, to work from camp to Gwadur."

We have gained intelligence from a friendly source that gives a little more than a general view of the progress and whole result of this undertaking in an extract of a letter written at the seat of operations, showing the nature of the service performed in laying the line, the character of the country here and there through which it lies, to say nothing of the dips in salt water which it is to endure. The following brief summary of this part of the important subject speaks for itself:—

All the world knows that communication by electric telegraph has long been open between Bombay and Kurrachee, the northern seaport of India, as well as between other places of the peninsula; but it is not so generally known that these lines are in very bad order, and form no part whatever of the new Anglo-Indian line. This starts from Kurrachee, and runs westward along the South coast of Baloochisten, over perhaps one of the most rugged countries in the world: a country almost destitute of vegetation and water, and nearly of inhabitants also. Constant feuds have thinned the people down to a few, and still rapine and bloodshed appear to be the order of the day. And yet these natives at first sight do not appear to be especially ferocious, and like most people are capable of assuming the mildest and most friendly manner when their interests are concerned. Through their country, which has hitherto scarcely been ever trodden by Europeans, the telegraph line runs for 280 miles to Gwadur, a town on the confines of Persia. Here the coast line is abandoned by the cable, after crossing barren plains, rocky ridges, and numerous streams, marshy patches near the sea, masses of broken ground inland, and after climbing cliffs, running round the bases of mountains of enormous height, leaping ravines, and plunging down valleys. This country in some places seems to bear the appearance of a sudden convulsion of nature; it looks like a world of ruin and desolation; everything seems to have a toppled down appearance, if you will allow me the term. It is supposed by some geologists that this has been brought about by gradual change—the slow upheaving of the land from the sea; but the coast in some places does not seem to bear out the theory.

Here there is a remarkable level plain some distance inland over which one may travel without interruption for fifty miles. But then

the traveller is suddenly brought to a standstill by a ridge of mountains almost inaccessible, and about fourteen thousand feet in height. There they stand thrusting themselves up abruptly from the plain, which is perfectly level, and on which a person may walk to their very side, as if formed by a high brick wall! The appearance of this ridge (which by the way is many miles in length) suggests the idea that the ground on which you tread once formed the bed of the sea!

On some of the table land of this ridge the ibex is found, as well as a few partridges. There are also foxes and hyenas, and from the accounts of the natives it would appear leopards are occasionally met with, but these I have not seen.

As to these cliffs of the Mekran coast, let a person imagine himself to have walked over in a direct line two miles of level ground; suddenly he finds that he has arrived at the brink of a precipice, one, too, with a surface that is by no means firm at the edge, but very much inclined to give way beneath his feet. The country stretches out like a map beneath him. He wishes to remain and enjoy the prospect, but wants a policeman to hold him back by the collar. He retreats and advances several times, but cannot adjust his eyesight for the distant objects, all look as an unnatural picture. At last he is constrained to place himself flat on the ground and crawl to the edge, always wishing for the policeman to hold him by the legs. Then he looks down and sees the side of the unbroken cliff, a perpendicular drop from summit to base, a height of above 3,000 feet. What are those insects moving along (he asks himself) in a string immediately beneath him? The telescope tells him they are camels! He sees ravens at an enormous depth below him wheeling round in play with kites and eagles, and horrified with the depths beneath he retires from the dizzy height on which he is lying, whence he has seen hills that elsewhere would be mountains appear jumbled together, striving each to surmount the other.

The land line of the telegraph terminates at Gwadur, where a station has been established. The country around Gwadur has precisely the same uninviting appearance as that to the eastward. It has been supposed that the natives might interfere with the working of this line, and therefore a submarine cable has also been laid between Gwadur and Kurrachee, giving to this part of the telegraph the advantage of being double. But the natives show no disposition to interfere with us, and both lines up to the present time have worked admirably. Gwadur itself is seated on a very narrow isthmus, not more than half a mile broad, up which mountain the submarine cable comes on one side and plunges down into the sea on the other, taking its way on to the Persian Gulf. It follows a westerly course along the South shore of Persia; then it edges away a little to the northward, and cutting across the gulf of Oman, reaches Cape Mussendom, on the N.E. corner of Arabia. Here it again runs into an inlet of the sea, called Malcolm Inlet, which is situated on the East side of Cape Mussendom, and is separated from a similar one on the West

side of the cape only by a narrow neck of rock about one third of a mile across.

These inlets are each about eight miles in length, and from two to three broad; they are surrounded by stupendous rocks, in fact, rocky mountains, rising tier behind tier until their dim outlines are scarcely discernable in the distance. The cable enters Malcolm Inlet, and on reaching the rocky isthmus connects with a level line which communicates with the opposite inlet. Then it starts afresh and takes its way on to the open sea, and up the Persian Gulf as far as Bushire.

If the confused chaotic state of the Mekran coast impresses the stranger with the idea of having been caused by some sudden convulsion of nature, certainly the appearance of the rocks of Cape Mussendom has no such effect. The rocks of this headland seem to have been worn into their present state by the work of ages. Their sides rise vertically from the sea, compact, solid, and as hard as iron, and their summits average an altitude of three thousand feet above the water.

Curiosity induced some of us in 1857 to visit Elphinstone Inlet. The entrance is very narrow and tortuous from the rocks inside; suddenly on the left hand they separate and form a magnificent basin, the mountains at its head being about seven miles from us, and the inlet from two to two and a half miles across. Everything was as still and silent as death, the rocks and the water at their base motionless.

In the midst of this inlet are several rocky islets, one of which has been adopted as a telegraph station. It is very small indeed, not much bigger than a good sized ship: how the telegraph people will live there in the summer remains to be seen, shut out as the inlet is from any wind. All they can look for is the land surrounding letting out at night the heat which it absorbs during the day. At present the people belonging to the telegraph are living in a hut with double roof. They have also two hulks roofed over at their disposal.

There are several other inlets of the sea besides these two along the coast; but that chosen for the station is the most peculiar, being completely land-locked, and the entrance very narrow. There is very deep water in all parts of it, even close to the rocks, and plenty of fish to be had for the trouble of taking; large, and of great variety. The bottom near the sides of the inlet is covered with branch coral and sea eggs, and the sides themselves smothered with young oysters. The only amusements the telegraph people will have when not occupied with their duties, are practising at a mark with a rifle, boating, fishing, and bathing. In the cold seasons some duck and teal may be got at a place not far distant.

The cable from here takes its course up the Gulf of Persia for Bushire, where there is also a station in the British Residency in the town. This principal seaport town of Persia is still the same wretched, forlorn looking place to European eyes that it has long been, a poor place indeed, until one becomes somewhat accustomed to its peculiarities. One gradually gets accustomed to its ragged appearance, re-

membering perhaps after all the climate it is in. It stands on the extremity of a low sand spit, the country around it being as low to a distance of thirty miles, in part capable of cultivation. The mountains on the horizon are always visible on a tolerably clear day, some of them capped with snow.

The approach to the city by water is so shoal, that ships of a moderate draught are obliged to anchor four miles from the landing place and three and a half from the shore. Although celebrated for its intense heat in summer, the winter in the Persian Gulf brings the thermometer down to 34°, by the bleak winds that come rushing down from the North, rendering our usual pastime anything but agreeable.

Bushire in former times was a fortified town, but was dismantled by the English in the last Persian war, and the walls have not been rebuilt. There are very few English residents here, perhaps not more than a dozen, all told. They are much better off than those at Gwadur, and indeed infinitely better than those at Cape Mussendom.

From Bushire the cable passes across the head of the Gulf to Fao, at the mouth of the Shaut-el-Arab, a river connecting with the Euphrates and Tigris, whence it is continued as a land line on to Bagdad, and through Turkish Arabia to Constantinople, which line is now in progress, but not without difficulty, for these Arabs require some persuasion to fall into the views of the Sultan. However, a little firmness and a little in the way of presents go far towards conciliating these gentry.

Fao is another wretched place, seated on an extensive mud flat, stretching outward from the shore; a very hotbed of fever. The land is all excessively low, being scarcely above the level of the sea. A few straggling huts form the town, which is adorned by some few date trees. The river current carries its fresh water some distance into the sea. Fao is about 500 miles from Bagdad by the river, the land between being tolerably level. The banks of the river for some miles are densely lined with date trees, but these extend only a short distance from the river's bank. Beyond is a desert country, where the wild boar and sometimes the lion may be met; the former seems the most disposed to frequent the vicinity of the river. Wild duck may be found in abundance at the proper season.

With regard to the Persian Gulf itself, it is a dismal place, and not a little disheartening to a new comer. Nearly all the land that surrounds it and all the islands with which it is well stocked, partake of the same barren caste as the coast of Mekran. Calms prevail for weeks together in the hot season. Scum of fish spawn, &c., collects on the surface, and the water literally has the appearance at times of boiling with heat. Strong winds, however, also prevail at certain times, and wrecks are tolerably frequent for the satisfaction of the navigator. Looking southward from the head of the Gulf all the country on the left hand is peopled by Persians, and all on the right by various tribes of Arabs. The former as a rule give little or no trouble to the English, from being under a settled government; but the latter have frequent disturbances amongst themselves, which

sometimes cause great inconvenience to the British representatives in this part of the world.

Regarding the Arabs that inhabit the district about Cape Mussendom, they appear to be quiet enough. Some of them lately seemed inclined to be troublesome, with the object of extorting money and presents. But they soon found that the game wouldn't pay. Those of them who live in the immediate neighbourhood of the cape erect dismal looking little huts, which, viewed from a distance, resemble tombstones. A village in consequence has all the appearance of a graveyard. The huts are generally about twenty feet long, oblong, with flat roofs and without windows. They are fishermen, and live principally on their toil washed down with brackish water, from which diet it may be they do not become a vigorous manly race. They belong nevertheless to the Bedouin Arabs. The natives of the interior have superior kind of subsistence, and are finer men. The coast on the South part of the Persian Gulf has many fortified towns where a considerable trade is carried on. This part of the Gulf is also famous for its pearl fisheries, on which the cable does not trespass, the pearl banks having been very properly most studiously avoided.

A message then from Bombay to Constantinople on its way to England, in the first place will thus go overland up the western coast of India to Kurrachee, then to Gwadur along the Mekran coast either by shore line or cable, then by cable to Cape Mussendom on the Arabian coast, then by cable to Bushire in Persia, thence also by cable to Fao in Turkish Arabia, thence by land to Bagdad, and thence to Constantinople. A telegraph line is now also being conducted from Bushire to Teheran, the capital of Persia. The telegraph lines stretching over different countries are doubtless the best modern feelers of civilization.

Since the receipt of the foregoing it is stated by the daily prints that the following papers were placed on the 1st of December at the disposal of the Bombay press:—

Indo-European Telegraph Department,
Kurrachee, 24th November, 1864.

Sir,—I have the honour to forward, for the information of government, extract from a message received by me to-day from Lieutenant St. John, R.E., Superintendent Shiraz Division of Telegraphs in Persia:—

"*Bushire, 24th of November*, 12.20 *p.m.*

"A courier arrived from Teheran this morning. Major Champain has hopes that the difference between English and Persian authorities will be settled satisfactorily. In ten days or a fortnight the matter will be decided one way or another. Boundary dispute between Turks and Persians settled. Rates for Persian line not yet fixed.

"O. ST. JOHN, *Lieutenant R.E.*

"*To Mr. Walton, Kurrachee.*"

Mr. Johnstone, the Vice-Consul at Bussorah, also informs me that the clerks to work the English wire through Turkey, in accordance with article VI. of the convention signed at Constantinople on the 3rd of September last, have left that capital for the several stations in Turkey. We may, therefore, now daily expect the line to be declared open for the transmission of messages between India and England and intermediate countries.

I have, &c.,

F. J. WALTON, *Director,*
Mekran Coast and Submarine Telegraphs.

To the Secretary to Government, Bombay.

THE MEKRAN COAST.—*Extract of a Letter from Kurrachee.*

Since I last wrote we have been constantly at sea, in and out of sundry places on the coast West of Kurrachee to the distance of about 250 miles. We have had very pleasant and healthy weather throughout, but some good stiff breezes, which at this time of the year always blow at the full and change of the moon. I think I mentioned in my letter that the duty on which we are now employed is in assisting in the construction of the Mekran line of telegraphs.

We arrived at Kurrachee this morning, and found two other steamers belonging to the I.N. lying here, one of which is engaged on much the same duty as ourselves, but further West. The telegraph is to connect India with England through the gulf of Persia. The superintendent of the Mekran part of the line is a first rate fellow, and so are all under him, and I am glad to be associated with them in their work. We have just returned from a place called Corbut, beneath a high mountain called Malan, the summit of which was a few months ago reported to government as inaccessible by some one who had been dispatched with a body of horsemen on an exploring expedition, prior to the laying down of the telegraph wires. As for the top being inaccessible, we spent Christmas day there, and drank the health of all absent friends; and further on, on its highest part, we spent new year's day.

The savage grandeur of the country is beyond description, a mass of chaos, tremendous peaks piled one behind another in all directions, valleys stretching everywhere, with deep nullahs and cracks at the bottom, huge masses of rock strewn about like pebbles, and here and there a patch of vegetation. In the lower levels are to be found the cheetah, the hyæna, the jackal and the fox, besides sundry lesser animals; and on the higher ridges the ibex: all of which give mankind a very wide berth. The ibex supplies a capital pair of horns and good venison.

This is the country of the Belooch, and a precious wild country it is; but the natives are very proud of their mountains, and at first evidently believed them to be too difficult for Europeans to travel over, and were strongly averse to having any kind of intercourse with them,

seemingly imagining themselves to be the superior race. But since they have witnessed some of the wonders of civilization they have become marvellously docile and obliging, which is a good omen in so fierce and brave a race of people. Some of the chiefs have been on board the vessel, and were all struck with the size of the ten-inch gun, and (to them) wonderful working of the engine, which being a high-pressure, consequently makes a great row. The people are now very civil and obliging, readily bringing provisions and guides, and exhibiting any amount of good feeling.

We had great difficulty in mounting the Malan at first on its western side, but now the wire is taken up and stretches across to its opposite side, a distance of about ten miles. We reached the East side on New Year's Eve, and on the morning approached the edges of the cliff to gaze at the depths below. I never before witnessed so grand a sight, the precipice going sheer down to the water, a depth of 2,000 feet. The roar of the surf below told us of the heavy sea, and yet it was so far beneath us as to appear as smooth as a duck pond; and in the distance the land, as far as the eye could reach, seemed exactly of the same description as that on which we were standing. The natives smiled gravely, and seemed by their looks to inquire—How will you manage here? Well, this question is not yet answered to their satisfaction, nor will it be for eight or ten days; at the end of that time a cable will have been raised from the shore below to connect the two parts of the line.

Before leaving the bay below this cliff I ascertained the height of the top where the cable will go to be 1,593 feet, and a peak by the side to be 2,000 feet. The line will go about 200 miles further along the coast, and then strike off into the sea.

Mr. Walton tells me that on the Mekran coast—"In several places mud volcanoes vomit forth liquid mud; and it is worthy of remark that those volcanoes are evidently influenced by the action of the tide, although they are in some instances ten or twelve miles from the sea. At spring tides the mud, which is quite cold, bubbles up unusually high, and is accompanied by a rumbling sound, which can be heard at some distance off. The highest of the volcanoes that have come under my notice was about 350 feet above the level of the surrounding country, and about seven miles from the sea.

"On one occasion, about twelve months ago, when coming into Kurrachee from Guadur in the gunboat *Clyde*, we passed through many miles of sea literally covered with bodies of dead fish of every size and description. At the time I felt confident that these fish had been destroyed by some submarine volcano emitting noxious and deadly gases, for there is a most unpleasant smell and a large emission of gas from the mud volcanoes on shore.

"But these are circumstances on which I merely venture to offer an opinion. One practical conclusion, however, would appear to suggest itself, namely that the unsettled state of the crust of the earth along this coast, and which, I believe, extends far out to sea, may have some bearing on the security of the cable."

To Find the Latitude and also their Azimuths by the Altitudes of Two Stars Observed at the Same Instant.—*By Staff-Commander J. Burdwood, R.N.*

1st. Take from the *Nautical Almanac* the right ascension and declination of each of the two stars for the day of the month, or the nearest to it, and correct their observed altitudes for dip and refraction. 2nd. With the zenith distance of one of the stars, its declination and a latitude (the degree next *less* than the supposed latitude) compute the star's hour angle or distance from the meridian, which put under the star's right ascension; *add*, if the star be West of the meridian; *subtract*, if East; adding, if necessary, 24 hours to the upper line, the sum or difference will be sidereal time, which call A. 3rd. With the same zenith distance, declination, and a latitude a degree *greater* than the last used, find sidereal time as before; call this A′. 4th. Make a similar computed for the other star; and call the sidereal times deduced therefrom B and B′. 5th. Turn the sidereal times into degrees and minutes of arc. 6th. Construct a Mercator's chart for the two parallels of latitude used, and lay off the sidereal times in arc A and B on the lower parallel, and those of A′ and B′ on the higher parallel, as if they were longitude. Draw a line through A A′ and B B′, their intersection will be the true latitude.

Note.—It is not absolutely necessary to construct a chart, as those in use on Mercator's projection, containing the parallels of latitude used, will answer the purpose; merely placing the sidereal time (in degrees and minutes) in pencil on the degrees of longitude.*

Example:—May 11th, 1842, in the Bight of Benin, the following altitudes of the stars Fomalhaut and Antares were taken at the same instant in order to find the latitude. Height of the eye, 12 feet. Lat. by acc. 4° 45′ N.

Fomalhaut, East of Meridian.

Obs. Alt. . .	42° 47′ 15″	Dec. . .	30° 27′ 12″ S.
Dip	− 3 25	R. A. . .	22h. 48m. 56s.
	42 43 50		
Refraction . .	− 1 3		
True Alt. . .	42 42 47		
Zenith dist. . .	47 17 13		

* A diagram to facilitate the obtaining a ship's position by Sumner's method has been published by the Hydrographic Office, Admiralty, and sold by J. D. Potter, Agent for the Admiralty Charts, 31, Poultry, and 11, King Street, Tower Hill, price 6d.

Lat. . .	4° 0′ 0″ N.	sec. . .	0·001059
Dec. . .	30 27 12 S.	sec. . .	0·064475
	34 27 12		
Zenith dist.	47 17 13		
	81 44 25		
	12 50 1		
	40 52 12	sine . .	9·815814
	6 25 0	sine . .	9·048279
		Haversine.	8·929627 = *a*

a = 2h. 15m. 38s. = ✱ dist. from mer.
✱ R. A. 22 48 56

Sidereal time 20 33 18 in time.

308 19 30 in arc = A

Lat. . .	5° 0′ 0″ N.	sec. . .	0·001656
Dec. . .	30 27 12 S.	sec. . .	0·064475
	35 27 12		
Zenith dist.	47 17 13		
	82 44 25		
	11 50 1		
	41 22 12	sine . .	9·820155
	5 55 0	sine . .	9.013182
		Haversine	8·899468 = *a*

a = 2h. 10m. 52·6s. = ✱ dist. from mer.
22 48 56 = ✱ R. A.

Sidereal time 20 38 3·4 in time.

309 30 51 in arc = A′

Antares, West of Meridian.

Obs. Alt. . .	20° 51′ 0″	Dec. . .	26° 4′ 42″ S.
Dip	− 3 25	R. A. . .	16h. 19m. 48s.
	20 47 35		
Refraction . .	− 2 35		
True Alt. . .	20 45 0		
Zenith dist. . .	69 15 0		

Lat. . .	4° 0′ 0″ N.	sec. . .	0·001059
Dec. . .	26 4 42 S.	sec. . .	0·046633
	30 4 42		
Zenith dist.	69 15 0		
	99 19 42		
	39 10 18		
	49 39 51	sine . .	9·882094
	19 35 9	sine . .	9·525364
		Haversine	9·455150 = a

a = 4h. 18m. 14s. = ✱ dist. from mer.
16 19 48 = ✱ R. A.

Sidereal time 20 38 2 in time.

309 30 30 in arc = B

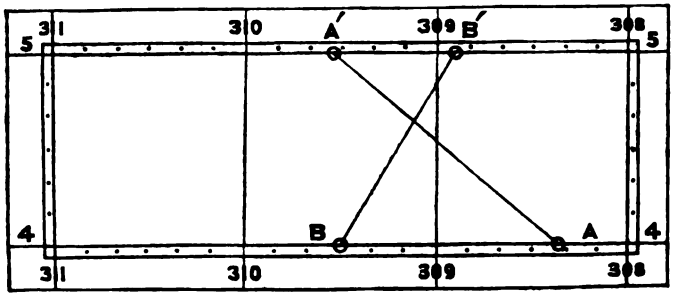
Lat. . .	5° 0′ 0″ N.	sec. . .	0·001656
Dec. . .	26 4 42 S.	sec. . .	0·046633
	31 4 42		
Zenith dist.	69 15 0		
	100 19 42		
	38 10 18		
	50 9 51	sine . .	9·885284
	19 5 9	sine . .	9·514563
		Haversine	9·448136 = a

a = 4h. 15m. 54s. = ✱ dist. from mer.
16 19 48 = ✱ R. A.

Sidereal time 20 35 42 in time.

308 55 30 in arc = B′

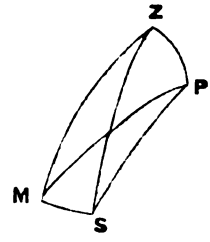
Graphic example for the determination of the Latitude.



The intersection of A′A and B′B gives the lat. 4° 40′ N.

It will be observed that the preceding being merely the computation of four hour angles, and the operation for each nearly similar, its simplicity should recommend it to the attention of the navigator, especially when approaching the English Channel and anxious to obtain his latitude; to vessels that have no chronometer it will be found execedingly useful. Several bright stars East and West of the meridian are often seen in the twilight, when their altitudes from the distinctness of the horizon might be accurately measured.

Proof of the above by Spherics.



Let S represent Antares, and M, Fomalhaut.

M's R. A.	22h. 48m. 56s.	M's North polar dist. =	120° 27′ 12″
S's R. A.	16 19 48	S's „ „ =	116 4 42
		M's zenith dist. =	47 17 13
Diff. . .	6 29 · 8	S's zenith dist. =	69 15 0
In arc. .	97° 17′ 0″		

Then we have given ZM = zenith dist. of M . = 47° 17′ 13″
„ „ ZS = zenith dist. of S . . = 69 15 0
„ „ PM = polar dist. of M. . = 120 27 12
„ „ PS = polar dist. of S . . = 116 4 42
„ „ MPS = diff. of R. A. of M & S = 97 17 0

Half MPS, PM, and PS. To find MS.

48° 38′ 30″	cosine	9·820048
48 38 30	cosine	9·820048
120 27 12	sine	9·935525
116 4 42	sine	9·953367
236 31 54		19·528988
118 15 57		
35 33 0	sine	9·764494
153 48 57	sine	9·644680
82 42 57	sine	9·996482
		19·641162
41 25 15	sine	9·820581
82 50 30 = MS		

PM, PS, and MS. To find PSM.

120° 27′ 12″		
116 4 42	cosec.	0·046633
82 50 30	cosec.	0·003398
319 22 24		
159 41 12	sine	9·540505
39 14 0	sine	9·801047
		19·391583
60 14 30	cosine	9·695791
120 29 0 = PSM		

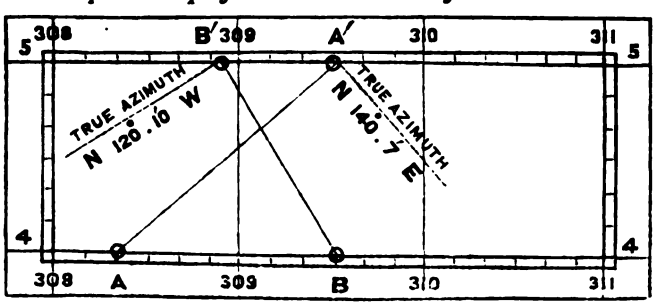
ZM, ZS, and MS.
To find ZSM.

47° 17′ 13″		
69 15 0	cosec.	0·029126
82 50 30	cosec.	0·003398
199 22 43		
99 41 21	sine	9·993762
52 24 8	sine	9·898908
		19·925194
23 26 30	cosine	9·962597
46 53 0 = ZSM		
120 29 0 = PSM		
73 36 0 = ZSP		
36 48 0 = half ZSP		

Half ZSP, ZS, and PS.
To find ZP = co lat.

36° 48′ 0″	cosine	9·903487
36 48 0	cosine	9·903487
69 15 0	sine	9·970874
116 4 42	sine	9·953367
185 19 42		19·731215
92 39 51		
47 12 30	sine	9·865607
139 52 21	sine	9·809282
45 27 21	sine	9·852900
		19·662182
42 40 0	sine	9·831066
85 20 0 = ZP = co lat.		
90 0 0		
4 40 0 = lat. N.		

Graphic example for the determination of the Azimuths.



A line drawn at right angles to the south-east or perpendicular to it on any part of AA′ shows the true bearing or azimuth of Fomalhaut, viz., N. 140° 7′ E. or S. 39° 53′ E.; and a perpendicular in a south-west direction on any part of BB′ gives the true bearing or azimuth of Antares, viz., N. 120° 10′ W. or S. 59° 50′ W.

Hence, we may by this method verify or correct the "Compass Deviation Table," for, if at the time the altitudes are taken, the magnetic bearings of the stars be observed, the difference between the magnetic and true bearings must be the variation in the ship, or, in other words, the amount combined of the *correct* variation of the compass at the ship's place, and of the deviation for that point of the compass to which the ship's head may then be directed.

To ascertain the deviation we require, therefore, to know the variation at the geographical position of the ship; this can be conveniently obtained from the "Chart of the Curves of Equal Magnetic Varia-

tion," published by the Admiralty; and the difference between the variation therefrom and the ship's variation will be the deviation required.*

Proof of the Azimuths by Computation.

To find the true bearing or azimuth of Fomalhaut.

Polar distance .	120°	27′	12″		
Zenith distance .	47	17	13	cosecant	0·133851
Co-latitude . .	85	20	0	cosecant	0·001442
	253	4	25		
	126	32	12	sine . .	9·904968
	6	5	0	sine . .	9·025203
					19·065464
	70	3	45	= cosine .	9·532732
Azimuth . . N.	140	7	30	E.	

To find the true bearing or azimuth of Antares.

Polar distance .	116°	4′	42″		
Zenith distance .	69	15	0	cosecant	0·029126
Co-latitude . .	85	20	0	cosecant	0·001442
	270	39	42		
	135	19	51	sine . .	9·846976
	19	15	9	sine . .	9·518197
					19·395741
	60	5	0	= cosine .	9·697870
Azimuth . . N.	120	10	0	W.	

The altitudes of these stars were taken by one observer and reduced to the same instant, thus:—The time by a watch was noted when an altitude of Fomalhaut was taken, then, the time when the altitude of Antares was observed; and again, the time was noted when another altitude of Fomalhaut was taken. By the rule of proportion, therefore, the altitude of Fomalhaut was known at the same instant that the altitude of Antares was observed.

It will readily be seen that had the times when the altitudes were taken been noted by a chronometer showing Greenwich mean time, the longitude also might have been determined by the rule for that purpose given in works on navigation.

In our volume for 1846, page 539, will be found Commander Burdwood's previous communication on this subject.

* *Chart of the Curves of Equal Magnetic Variation*, 1858, *by Frederick J. Evans, Master, R.N.*, and *Admiralty Manual for ascertaining and applying the Deviation of the Compass*, second edition, 1863, page 5, art. 6; sold by J. D. Potter, agent for the Admiralty charts, 31, Poultry, and 11, King Street, Tower Hill, London.

The Late Gales and Refuge Harbours on our Eastern Coast.

(Concluded from page 9.)

It would be far from unreasonable to expect in a great maritime country like England, whose high position in the scale of nations arises from her maritime power, that a harbour of refuge on her dangerous coasts, where nature has denied all shelter and where the storms of winter produce more fearful disasters than on any other coast, should be carefully provided for her mercantile shipping: that such a harbour—one, too, that fulfils all the wants of deep water and accessibility at *all times of need*—should even receive the earliest attention and the most considerate encouragement. The mere fact of the saving of life and property should really entitle it to such a place in the estimation of the public. When we know that there is a coast of 180 miles in extent (and that much frequented by vessels which are notorious for their incapacity to keep the sea in gales that render it a lee shore) on which there is not a place that a ship can take refuge in at any time she may require it, one might reasonably expect that we should try and make up for what nature has not supplied,—to make a harbour for ourselves in the most favourable position that could be chosen for it.

But, alas, such expectations are vain. We are glad enough to avail ourselves of any such advantage where it can be found ready to our hand, but it is quite another thing to construct a harbour there; and to our disgrace be it said, that instead of making it ourselves, the very parties who should lead the way in the work are the same who are foremost in opposing it! We showed in our last number that shipowners would not have a refuge harbour there were it even provided for them without cost; and yet, when pressed by stern necessity, with safety under their lee and on each side of it certain destruction, they were obliged to confess that they would in such case adopt the alternative of safety and be glad of the harbour!

However, the animus was but too plain. Refuge harbours are not wanted in this country by shipowners, and we shall be curious to see the kind of reception which Mr. Bulkely Hughes will meet with from those gentlemen when he brings forward in the House of Commons the plan for his refuge harbour at Porthdinllaen—the port which really should have been the mail station, instead of Holyhead! Mr. Bulkely Hughes is stated to have said at a meeting recently held (at Caernarvon, we believe), that every *shipowner* and every gentleman at all interested in shipping should be appealed to at every port in the kingdom to forward the construction of a refuge harbour at Porthdinllaen. No one wishes Mr. Hughes success more cordially than we do, for in our early volumes we have also advocated the same thing long ago. But, alas, well acquainted as that gentleman is with the numerous schemes that have been wrecked in the House of Commons, we have abundance of reason to doubt his success. The House of

Commons is the very place for its opposition. But we shall watch anxiously for the exposition of his measure; although we shall be nothing surprized at its defeat, we shall rejoice heartily at his success.

There is a variety of motives for opposing such a scheme. It is naturally to be accompanied by a tax on shipping for a light as well as its safe anchorage—each claiming dues that go to the very hearts of shipowners. It is of no avail to talk of safety of life and property and yet between the Forth and the Humber there are plenty of trumpery dry and bar harbours which exact a tax from shipping, but not one of which can offer a refuge to a crippled ship in an onshore gale. And these all have their advocates, who will oppose the efficient refuge harbour with all their might, and yet with all their main strength will stand up for their own useless wreck traps, as they are called, little dreaming that they are holding up to the contempt of the world places that dry with every tide, or have so little water on their bars that a ship at low water dare not approach them.

Among these is the Tyne, which claims to be considered as a refuge harbour, and yet it has no more than six to seven feet on its bar at low water. Mr. Brooks's term of "wreck trap" is well applied here, as is proved by the unfortunate *Stanley*, which ship was induced to seek refuge there. The *Stanley* did get over this bar,—how, we are not informed, but she did it to her cost. We can easily imagine that the pressure of the easterly gale would keep an extraordinary height of water on the eastern coast, and give more water on the bar than it has in its normal condition in a calm; which circumstance, no doubt, helped the unfortunate *Stanley* to her destruction in this imagined refuge from the storm. So sad a loss as that of the *Stanley* (of thirty lives) could not but find a due record, and we preserve here the following, from the *Newcastle Chronicle*, dated—

Tynemouth, Friday, 25th November.

The sea, which had been gradually growing in violence during yesterday, became more and more boisterous as evening drew on, and as the shades of night began to draw around, the waves could be seen dashing in foaming breakers on the rocks. The wind at the time was from the E.S.E. About dark a casualty occurred which proved the herald of others of a much more afflicting nature. One of the Tyne Commissioners' lighters, having three men on board, was driven by the fury of the storm behind the North Pier. Fortunately she drove sufficiently near to enable some of the men employed upon the pier to rescue her crew by means of life buoys, which they threw to them. The steamboat which had the lighter in tow was driven on shore on the Herd Sand; but her crew were fortunately saved by the South Shields lifeboat. Worse was yet to come.

The steamer *Stanley*, of Aberdeen, on her passage to London, with passengers, merchandise, and cattle—the latter about forty in number, together with some sheep and pigs, was overtaken by the gale; and made such bad weather of it, that the captain, being anxious to save

the live stock on the deck, made for the Tyne. Sad to relate, while entering the harbour she struck on the rocks* off the Spanish Battery, at about six o'clock. As soon as she came to the ground, the boiling waters burst over her with terrific force. The rolling of the vessel on the rocks, the heartrending shrieks of the female passengers, and the hoarse and hurried shouts of the seamen as they were tossed to and fro, made up a scene which it is impossible to find words adequately to depict. The irresistible force of the waves lifted her further on to the rocks, and in coming down she holed her bottom. The sea rushed in, put out the engine fires, and burst one of the boilers. The firemen fortunately escaped without sustaining any more serious injury than a few slight scalds.

As soon as the ill-fated steamer was seen on the rocks, Mr. Lawrence Byrne, of the coast-guard, immediately caused the rocket apparatus to be taken down to the shore opposite the *Stanley*. After three shots had been fired, they were successful in establishing a communication with the stranded steamer. The rocket apparatus worked admirably, and one of the crew of the steamer was successfully brought on shore by it. The next man that was brought on shore by the apparatus was the fireman. An attempt was then made to bring off a third man, but most unfortunately, while the poor fellow was midway between the vessel and the shore, the whip-line of the apparatus became entangled somehow with the rocks, and the consequence was that he was kept in the water a considerable time. Ultimately those on shore succeeded in drawing him a little nearer the shore, when the apparatus again became entirely useless, from having again become entangled amongst the rocks.

At the imminent risk of their lives, Mr. George Bruce, draper, Tynemouth, Mr. James Fry, joiner, of the same place, Mr. Ferguson, and another man, whose name we failed to ascertain, exerted themselves with much daring gallantry, and succeeded in freeing the entangled line, and the third man, much exhausted, was drawn on shore. After the disheartening accident to the rocket apparatus, Mr. Byrne ordered it to be taken up into the fort. Before this was done, however, Mr. Byrne himself had a very narrow escape from being swept away by a retiring wave. While holding on by the hawser of the apparatus a mighty sea came rushing upon him, and he must have inevitably perished had it not been for the courageous conduct of an aged gentleman, who rushed to his assistance, and whose cloak he fortunately seized hold of in time to save himself.

About this time it was seen that the seamen were endeavouring to lower the lifeboat of the steamer from the davits, with a view of saving the women and children on board. The crew had previously been busily engaged in pitching the cattle overboard in the endeavour to get the deck clear. They had then turned their attention to the rescue of the females. While in the act of lowering the lifeboat the

* The bed of rocks which dry at low water on the North side of the entrance.

tackle of the fore davit gave way (at that time five women and three sailors being in the boat), and the lifeboat, immediately swinging round by the other davit, swamped. Two of the women were pulled into the steamer, but the other poor creatures, it is feared, found a watery grave.

After the rocket line fouled it was taken into the fort, as already stated, with the view of getting it refitted. After that was accomplished Mr. Bruce and Mr. Fry suggested that the rocket apparatus should be taken down to Shields in a cart, with a view of putting it on board a steamer, in order that it might be got nearer the wrecks. It was accordingly taken to Shields, but no steamer would put off with it, several steamers having been disabled already. An offer of £20 to go off was refused by one captain. The apparatus was consequently brought to the Low Lights. While these efforts were being made to save the crew, the screams which proceeded from the vessel, and in which the shrill shouts of the women piteously mingled with the hoarse cries of the sailor lads, were sufficient to pierce the hearts of the stoutest spectators; and the painful sounds were kept up long after every effort to rescue the crying sufferers had temporarily ceased.

It was about half past ten o'clock when a schooner went on shore a little to the westward of the steamer. This new source of misfortune, as may be conceived, greatly increased the excitement, and for a moment diverted the thoughts of the crowd from the more appalling catastrophe; but as the *Stanley* was the larger vessel of the two, and had the greater number of people on board, the efforts of the coast-guard men were primarily directed to the ill-fated steamship. In the meanwhile the schooner gradually drifted up until she came to a ledge of rocks nearer to the shore.

In this state of things the Tynemouth lifeboat, manned by an efficient crew, put out of the haven, and attempted to get alongside the steamer; but owing to the terrific sea which was running, the men were unable to do so. They then made for the schooner, and had nearly got alongside of her when they were overtaken by a heavy sea, which broke all the oars on the larboard side, and also stove in that portion of the boat; the melancholy consequence being that Edward Robson, James Blackburn, Joseph Bell, and James Grant, four of the crew of the lifeboat, were pitched into the water before any assistance could reach them, and were drowned.

About half past ten o'clock, the tide then being within an hour and a half of high water, the schooner slid off the ledge of rocks, and, sad to state, capsized. Truly terrible was now the scene. The cries of the immense crowd of people on the shore rose up in a despairing wail for the poor creatures on board, as the unfortunate vessel slowly disappeared in the boiling surf. It is supposed that there were on board about six human beings, the whole of whom have thus met with a watery grave.

About ten minutes after this painful calamity the apprehensions of the spectators were further aroused by a loud crash, accompanied as it was by what appeared to be the cries of persons on board, and was

by many ascribed to the breaking up of the steamer. Shortly afterwards, however, the night became a little clearer, and it was then ascertained that the ominous noise had arisen, not, as was supposed, from the *Stanley*, but from the shock of a brig which had been driven alongside the ill-fated steamer. The people on board the brig began to make signals of distress, but it was impossible to render them any assistance, and they had to be left to their fate, with the hope that she would hold together until the sea fell. At two o'clock she still withstood the violence of the waves.

At that time it seemed impossible that the three lifeboats would be able to get to the steamer on the rise of the tide. When the Northumberland lifeboat made an attempt to reach the vessel before that, she was struck with a tremendous sea, and the men on board were completely stunned by the weight of water which fell upon them. They lost five of their oars, and were obliged to row back to the harbour much discouraged at their misfortune, and sadly disappointed at not being able to render any assistance to the poor creatures who were in deadly peril. Two of the South Shields lifeboats were also manned, and ready to venture on their life-saving mission as soon as there seemed to be any prospect of getting near the vessels. The sea is still making, but the wind is westerly a little. It is quite apparent, however, from the state of the sea, that to the eastward a very strong gale is blowing. The only hope of saving any of the unhappy people on board the steamer is that the fore part of the vessel, which appears to be firmly fixed upon the rock, may hold together until daylight. A great many of the cattle have swum ashore, and been captured in various places. One or two were towed on shore at the stern of the lifeboat.

At half-past eleven o'clock the body of Edward Robson was washed on shore at the Low Lights, and taken to the deadhouse. The scene at Tynemouth was most heartrending. The wives of the men who had been drowned were on the shore bewailing the fate of their loved and lost ones, who had perished so gallantly in trying to save the lives of others.

A further account says,—

We have had the most terribly exciting night ever experienced on our river, and we have had a greater loss of life at the mouth of it than has ever been experienced here within the last fifty years. The survivors of the passengers and crew of the steamship *Stanley*, from Aberdeen to London, were, after experiencing a night of untold horrors, rescued from the forepart of the ship this morning, between five and six o'clock, by means of the basket apparatus, which was ably managed by the officers of the coast-guard. Of fifteen female passengers but two are alive, and of the same number of male passengers nine have been rescued. Captain Howling, the commander of the *Stanley*, is a fine type of a real British sailor. He would not leave the ship till every living person was landed. The body of a Miss Garden, who was going to a situation in London, was left on the

vessel. She perished through exposure during the night. The bodies of ten drowned persons have come on shore; four of these are women. Several of the lady passengers were emigrants going out to Australia. The vessel is an entire wreck; her cargo is all scattered about the shore.

But here is an episode describing a scene of a different caste to that which we have just seen on board the now shattered *Stanley*—a contrast which was worthy of the pencil of Hogarth. It is a true story from the columns of a northern paper, the *Aberdeen Free Press*, which says:—

Mr. and Mrs. W. Anderson, of Elizabeth Terrace, Islington, arrived at Shields on Sunday, in quest of their lost sister, Miss Harper. Their father, an aged man, had been up to London visiting his two daughters, and whilst amongst them he told his son-in-law that he had not been so happy for many a day as with his two lasses beside him once more. He persuaded his daughter to see him to Aberdeen, and she was returning to London, after performing this act of filial duty, when she was lost in the ill-fated *Stanley*. Her body has not yet been found.

Many disgraceful scenes occurred on the beach during the night and morning of the wreck. Hundreds of wreckers were busy plundering and carrying off what was most portable. One most revolting act was witnessed. The body of a fine young woman was cast ashore, and a brutal ruffian was actually seen plundering the corpse of a few articles of jewellery which the poor girl had concealed in her bosom before she was washed off the wreck. Amongst the waifs and strays drifted ashore were several casks of whisky, which were speedily pounced upon by the thirsty portion of the wreckers. The heads of the casks were promptly knocked out, and in a brief space of time many of these topers, of both sexes, were strewed about the beach in a disgraceful state of intoxication. Men and women laden with sacks and baskets might have been seen staggering under their burdens, and wending their way to the "place from whence they came" in some of the sunless courts and alleys in the lower part of Shields; while hundreds of others, empty handed, were unceasingly pressing forward to secure their share of the spoils of the sea which thickly strewed the beach.

It was something revolting to witness this insensate thirst after plunder while the lives of so many human beings hung, as it were, in the balance, and when the corpses of so many fellow-creatures were lying stiff and stark amid the dank tangle-covered rock, over which the sea a few hours before swept with such irresistible fury. In one part were piled fragments of wreck, splintered masts, torn sails, and tangled cordage, all jumbled together in chaotic confusion by the fury of the waves, interspersed with many carcases of dead bullocks, sacks of flour and oatmeal, either sodden or burst, and their contents strewn along the sands.

At an angle of the rock, in the midst of this confusion, was a noisy group worshipping at the shrine of Bacchus. The flickering of a fire lighted up a knot of semi-drunken umbered faces. In the midst

was the altar, a large cask of rum, the head of which had been forced in, and every one who came within the charmed circle was invited to take "a pull." A glass had been improvised for the occasion out of a stone bottle, and many were reeling about under the maddening influence of the fiery liquor.

A melancholy scene was witnessed near this group of noisy bacchanals, the sight of which for some moments checked this ill-timed mirth. This was the corpse of a young woman, which had been found in a hollow of the rocks, almost imbedded in tangle. The dishevelled tresses fell in dank masses across her pallid marble-like face, and the blood was oozing from a wound in the temple, evidently caused by being dashed against the rocks by the fury of the sea.

Such was the disgraceful scene that took place on the strand of Tynemouth, while the mangled remains of the drowned were lying among the rocks with the fragments of their vessels. It was one that will be long remembered there,—one that shows too well that however fatal may be the circumstances attending a wreck, there is still a class so degraded in the scale of society as to set all decency at defiance, and for the sake of sensual gratification render themselves contemptible, as being beneath the very brute creation.

Let us turn from this distressing and disgusting scene to the result,—let us find, if we can, what remedy is applied to prevent transactions which partake more of the character of some foreign island peopled by savages than the shores of civilized, Christianized England. The first and last thing done is the inquiry of the government into the whole case, one which was most deliberate and searching.* The commander of the *Stanley* was exonerated from all blame for running for the Tyne, which in an evil moment he made up his mind to do. Could he have adopted another resolution instead, and have made for the Forth, about fifty miles further North, the fate of the devoted *Stanley* would have been avoided. But "any port in a storm" prevailed, the mate had been into the Tyne, and although he did well to a certain extent, the current of the tide, along with the gale, was too

* After five days' sitting the Board of Trade inquiry into the loss of the steamship *Stanley*, with twenty-six passengers and crew, was brought to a close in the Town Hall in North Shields. At the conclusion of the evidence the two magistrates, with the nautical assessors, consulted for about an hour, when Mr. Alderman Joseph Spence said that they had arrived at the end of a very long and very important investigation. The decision of the court was, that taking into consideration the state of the weather, and what was requisite for the safety of the ship, and the lives and property entrusted to his care, the captain was justified in making for this port. And having been unsuccessful in obtaining a pilot, and being then on a lee shore, with an unusually heavy sea, and knowing that there was a sufficient depth of water on the bar, that he was also justified in running in, assisted as he was by the local knowledge of the mate. The court was further of opinion that the loss of the *Stanley* was a misadventure, caused by the overwhelming sea, the absence of leading lights, and other circumstances beyond the control of the master. The court therefore adjudged that Captain Howling was entitled to a renewal of his certificate. The decision of the court was received with applause.

much for his experience, and the *Stanley's* fate was sealed. The gaping piers at the entrance, like two huge open arms, as they are, received the *Stanley*, but afforded her no shelter, and the distressing scenes of the wreck, as related above, followed.

A northern paper, about a month after the event, says,—"The ill-fated *Stanley* is rapidly breaking up, and what remains of her has been washed so near the shore, that if the sea were to become calm the wreck might easily be approached at low water. The storm of the last few days naturally suggests the inquiry,—What would be the prospects of saving life in case another wreck or series of wrecks were to occur such as it was our painful duty to record three weeks ago? We regret to say there does not appear to be any better organization for the purpose of saving life; and, as far as we have been able to learn, there is just ground for dissatisfaction on the part of the men who were mainly instrumental in saving thirty-one persons from a watery grave on the memorable morning of the 25th November."

More is said on this subject, which we have no doubt has been set to rights before the present time. But there is a point touched on afterwards that confirms our views of the kind of engineering that has been going on at the mouth of the Tyne. The great object seems to have been to deepen the bar, but what has followed? The remarks continue thus,—

"We are also informed by those whose practical knowledge entitles them to give an opinion that the lifeboats now on the station at both North and South Shields are too small to be effective in the storms with which we have been visited of late. The deepening of the bar, we understand, though of the utmost value in enabling vessels of much larger draught to enter the Tyne, has been accompanied with this disadvantage, that it allows a heavy sea to roll in comparatively unchecked, and with such violence as to require the strength of much larger boats' crews than the existing lifeboats can admit. The Tynemouth men therefore recommend that two larger boats, one for North Shields and another for South Shields—boats of greater length and provided with a greater number of oars, should be substituted for the boats now in use."

We should have every confidence in the opinion of the Tynemouth men, but as seamen they must be aware that the sea has but little respect for oars, and that in an easterly gale, when a lifeboat is most wanted, the sea may be so heavy that no boat can dare to show herself to it. A large boat is an unwieldy affair, and even more unwieldy the heavier the sea. Doubtless a certain size is necessary, but for a boat to be managed by oars in a seaway give us one of a moderate size, that will readily feel her oars.*

But what says all this for the harbour of the Tyne—that would be called a harbour of refuge—that even a lifeboat is unmanageable in it,

* We have since been informed that one of the lifeboats at the Tyne is of the largest class constructed by the Lifeboat Institution. We therefore much doubt the views of the Tynemouth men being attended to, and we are even more confirmed in our own as to the size of the boat.

from the heavy seas running in, to save the crew of a vessel wrecked inside of it. Doubtless the deepening of the bar will admit heavier seas into it, for there is no breakwater, and the little use in that way that the sandy bar was—even that is being removed to admit more seas still. They may go on deepening, but they must do more than that if they ever intend to keep what they get, and as Captain Hewett has said, it will cost them even then a great deal of money. Does the engineer of the Tyne imagine that he will ever keep more water on the bar of that river unless he is perpetually dredging.

But we take leave of the subject, and with sorrow too, seeing no hope of having an efficient harbour of refuge, such as might be formed at Redcar, ever constructed on our eastern coast. A wreck chart is annually constructed—it is said presented to parliament. But what good has that done? Has that obtained a single refuge harbour for our mercantile shipping? Of what use are all those heavy black spots spread over the coasts—and plentifully enough on our eastern shores—but to remind us year by year of the lives that are sacrificed where, if there were a harbour to receive our crippled vessels, those lives would have been saved,—but which shipowners do all they can to prevent.

The measures arising from this occasion that are proposed for adoption are:—

1. That the leading lights be shown from sunset to sunrise.
2. That the channel of the river on both sides from the Narrows to the outer end of the piers be efficiently buoyed.
3. That there be a second set of leading lights to keep vessels in the proper channel after leaving the line of the present lights.
4. That the Black Middens be removed.
5. That the advanced foundations of the south pier be distinguished at their eastern end by a floating light.

Of the foregoing projected changes for the mouth of the Tyne, the first is likely to produce more wrecks, inasmuch as there will be an encouragement to vessels to take the bar on each side of low water, when there is not depth enough on the bar for them.

No. 2 will be most serviceable to vessels, provided the buoys be kept in their places, for they will be often knocked away.

No. 3. Quite desirable for vessels that do get over the bar.

No. 4. A very desirable measure, although it was outside of the Black Middens that the *Stanley* met her fate.

No. 5. Light-vessels are more expensive than lighthouses, and a very inexpensive light and its abode would be far more economical than any vessel; besides which it would not be likely to break adrift at the very time it is most wanted.

But what is more wanted far than anything else is more water *at all times* on the bar and the mouth of the river to be less exposed to the sea than it now is. When that is the case, and the increased depth maintained, the Tyne may then, but not until then, have some pretensions to be considered a harbour of refuge, and we shall be among the first to acknowledge it as such.

A Run from Brisbane to Port Curtis,—*Queensland.*

The North-Eastern portion of the Australian coast included within the above limits is yet but imperfectly known to navigation. The following extracts of a letter from the Port Master at Brisbane contain notes made in reference to the selection of positions for lights, from which we are glad to learn that the establishments of these friends of the navigator are likely soon to make their appearance on that coast; and we are no less glad to find the prosperity of our infant colony of Queensland on the increase, and the prospect it affords of a future.

I started from Brisbane on the 15th of September, a surly day, blowing a heavy gale of wind from the westward. I could not proceed beyond the bar, but there rode it out, and left for the northward finally at 11h. p.m. the same night. On my way I laid down an additional buoy off Redcliff Point. Went a short distance up Pumicestone Passage, between Bribri Island and the main land; went into Murrula Harbour in the boat to see if any change had taken place since my survey in 1861; looked into Laguna Bay at night, being moonlight, and found less shelter than I expected. Shelter at S.E., hardly any at E.S.E., none at East, and a regular trap during N.E. winds. There is a small creek emptying itself into the bottom of the bay, into which small craft can enter during westerly winds and at high water; it leads into a number of shoal, inland lakes of considerable extent. I had wished to visit them on this occasion, but had to postpone it for westerly winds in early winter.

Anchored under Double Island Point; found good shelter during South, S.E., East, and E.N.E. winds, and for small craft even during N.E. winds. There is a sand bank running to the S.W. from the point, inside of which there is at times, I believe, plenty of water for small craft, where they are sheltered from all winds; but when I was there, there was not more than eight feet at low water.

From thence I crossed Wide Bay Bar and went up to Maryborough, which is twenty-six miles up the Mary River. I brought the harbour master down the river and took him out to Sandy Cape to inspect and report on a site for a lighthouse. We had a very successful trip, and found a much better spot than I had been led to believe existed for the purpose. The highest hill though did not exceed 313 feet, 299 by aneroid. On the chart it is stated, I think, to be 365 feet, and appears there to be of loose sand, whereas the loose sand must refer to hills to the N.E., which do not exceed 180 feet in height; for my 313 feet friend is well covered with vegetation, both in the shape of grass and shrubs and trees. We returned to Woody Island, where the harbour master left me, and I departed the same evening with the tide northwards.

Forty-eight hours afterwards, when off Sloping Hummock, I bore up before a very strong N.W. breeze for Woody Island again. I,

however, very nearly came to grief, for the weather became more hazy and the wind increased after I bore up, and I was to leeward of the channel and close to the breakers before the leading marks became visible. I, however, hauled up through a narrow opening in the breakers, and got in in safety. For the last ten miles we were running before a dreadful breaking sea for a small craft, in from 8 to 10 fathoms water; the only bad sea we shipped was, however, after hauling up to pass through the breakers.

The day after getting back to Woody Island the weather moderated and the wind drew round to the southward. I was from want of time obliged to give up my design of visiting the Burnett, the Kolan and Baffle Creek, which lie between Harvey Bay and Port Curtis. However I went into the inner harbour of Rodd Bay and made a rough survey of it. I was about there for three days. I anchored for an hour off Bustard Head on my way up, landed and examined it as a spot for a lighthouse. That will be the second point at which a lighthouse will be erected.

The land forming the North side of Rodd Harbour has no business to appear in the position assigned to it on the Port Curtis chart, and might seriously mislead vessels as to the whereabouts of the entrance to Port Curtis in hazy weather. It must at least be two or three miles *further* to the eastward of the Seal Rocks than is shown on the chart. That land did not appear on the original Port Curtis charts, and the soundings eastwards of the rocks never ran up to the edge of a steep bank as they are there made to do. I think also that the lower sketch on the chart, which shows marks to lead clear of the "S.E. end of the Banks," would be much better omitted, as it has nothing whatever to do with *Port Curtis*. There is no information to show where those marks lead to or how far they clear you of shoal water, and at first sight a person would be disposed to think a sketch on the Port Curtis chart was for the purpose of giving the leading marks into that port, and that the S.E. end of the Banks would mean the S.E. end of the East Banks. In clear weather there would be no excuse for such a mistake, but in the hazy weather in which I went from Rodd Bay to Port Curtis, when none of the back hills were visible until we were in the westerly reach of the channel, a mistake might possibly occur, particularly in a small craft, when it is impossible in a sea way with a common compass to get a correct bearing.

I went up to Gladstone, and anchored in Auckland Creek at 1h. a.m. I left again the same day, took the harbour master with me to Gatcoute Head and examined the spot best suited for a harbour light. Left Gatcoute Head at 4h. a.m., and at 1h. p.m. the next day was on the top of Cape Capricorn. Went up to Rockhampton, forty-five miles up the Fitz-Roy, and while there went twenty-five miles beyond the township, to examine and report on the state of the river, with a view to making it navigable. From Rockhampton I went to the Pioneer River, from the Pioneer to Port Denison, from Port Denison to Cleveland Bay. It had been reported that there was a good navi-

gable creek running into the bay. I found a very small creek, which, however, would admit small craft at high water, and goods could be lightered down to vessels in the bay; but it was not so good as I expected to find it. I made a plan of the entrance as well as I could in an hour or two, for the vessel had to lay to off and on, and I had only a small dingy, which could not have crossed the bar during the fresh part of the sea breeze, and the entrance was on a dead lee shore during north-easterly winds.

I found a wide channel of about 8 or 9 feet at low water between Magnetical Island and the main land, the extreme point of which is called Cape Pallarenda. A nasty sunken reef runs off the South point of Magnetical Island, nearly three quarters of a mile, in the direction of Cape Pallarenda. There is good anchorage under Cape Cleveland in East, E.N.E., and S.E. winds, but nothing to the northward of E.N.E. The natives here are very numerous and troublesome, though they will very soon be taught good manners by the squatters, as the neighbouring country is being occupied.

After leaving Port Denison on my homeward journey, I passed through Gloucester Passage, between the island and the main land. I will by next mail send you all the corrected sailing directions for the ports on this coast; they are now set up in type, but are not yet struck off. When I have time to put my work in Rodd Bay on paper I will send you a tracing of it.

I think one if not two lighthouses will be ordered from England by next mail. If our debentures had been more saleable at home the order would have gone home by this mail; however, I hope the present state of the money market will not continue, as it will put a stop to nearly all our public works. Notwithstanding our wet and unfavourable seasons, the colony is progressing rapidly; and though perhaps not in your day or mine, yet in the ordinary course of events this will be one of the greatest sugar, tobacco, and wine producing countries in the world at some future day.

A despatch from the Governor of Queensland notifies the establishment by the government of that colony of two ports and settlements on the N.E. coast of Australia:—one at Cardwell, in Rockingham Bay, and the other at Somerset, near Cape York. The governor states that the crews of vessels wrecked in Torres Strait and the neighbouring seas will now find safe harbours of refuge in the above ports, while captains of passing vessels can there procure fresh provisions and water and other supplies, and (when necessary) the protection and assistance of police magistrates and other officers of government.

Voyaging in New Brunswick.

In the collection of papers of the *Vacation Tourists' Notes of Travel* (which is a publication of considerable importance to any one meditating a trip into any country of which they treat) there is a paper, at least of local interest, by the Hon. A. Gordon, relating his wilderness journeys in New Brunswick. It is a narrative of visits into the interior of that extraordinary country from St. John, and reminds us of the kind of life which has fallen to our lot in former days in the heart of Upper Canada. Certainly, notwithstanding all its drawbacks of exposure to sudden and severe changes of climate, vicissitudes of weather, rough fare, being squeezed into a canoe for hours every day, or in winter being on the ice all day, and at night, whether winter or summer, sleeping in the bush, there is nothing like a voyager's life,—for health, at least, being always in the air, and for enjoyment of scenery, having abundance of change. Such a mode of life is healthy and invigorating; it improves the whole system, and, whether summer or winter, gives a relish to meals that is unknown in more civilized places.

Mr. Gordon's experience does not extend, like our own, to ice, either on creepers or snow-shoes, but we are induced to take a leaf from his voyaging, which reminds us of our own experience of Canada about half a century back. He is travelling, however, in New Brunswick, which, for the thickness of its woods and the swampy character of its ground, is wilder even than its sister country, and here is his mode of encampment.

To those who are keenly alive to impressions from natural objects, few things are more delightful than to drop down some great river, where every frequent turn presents, notwithstanding the monotony of continual forest, some new view; and where, as you smoothly glide on, a perpetual succession of fresh pictures is presented to the eye; where the play of the sunlight on the leaves, and rocks, and water, the beautiful kingfishers startled from their nests, the great owl waked by the splash of the poles or the sound of voices, and winking and blinking from his cedar bough; the small excitement of the descent of some foaming rapid; the sight of flowers bright and unknown, and of ferns almost tropical in their luxuriance; the mid-day halt under the shade of some spreading tree; the luxurious bathe in the still, lazy warmth of noon; the pauses to fish in any tempting pool: all combine to make the day pass in dreamy delight.

Towards evening the declining sun warns us to camp. All eyes are turned in search of some suitable spot, and at the first which appears eligible the canoes are run to the shore and lifted carefully out of the water. The spot thus selected may sometimes be a sandy or pebbly little promontory, jutting into the swift stream, which runs round it with musical murmur;—sometimes a grassy bank, bare of trees;—sometimes the beach;—sometimes, indeed, no natural camping

ground offers itself, and room has to be cleared by the axe in the wood itself. Those who land are immediately surrounded by swarms of biting, buzzing, stinging, humming insects; and the first thing done is to diminish their annoyances by making a smoke, if possible, with the dry aromatic bark of the American cedar, to the scent of which they entertain a special aversion.

The site for the camp is chosen where the current of air, which always blows up or down the river, may have free access to it; the skins and packs are dragged out of the canoes and thrown down on the spot, and the party separates to perform their respective shares in constructing the camp. Saplings are soon felled, and a couple of forks erected at such a distance from each other as the number of the party may require, a ridge pole placed on them, and then other saplings laid against this; over which is stretched a piece of sail-cloth, should the party possess such a luxury; if not, or if the weather threaten heavy rain during the night, their labour is prolonged. A spruce tree of some size is selected, a long straight cut made, and the bark stripped off in long rolls about a foot broad; these rolls are then stretched across the camp instead of the sail-cloth, and a few more poles or stones are added to keep them flat.

In front the camp is open along its whole length, and here the fire is made. I had always supposed that the camp fire would be round, but this is not the case. It is invariably composed of long logs, some six or eight feet in length, supported on short thick billets placed transversely by way of dogs to secure a current of air below the fire. It is the duty of one of the party to cut a sufficient supply of long logs to last the night. Another with his arms full of short spruce boughs. These are for bedding, and on the mode in which they are laid down greatly depends our comfort for the night. The new beginner, who throws his bundle on the ground any how, will wake with an uncomfortable sensation of pointed sticks running into his back. The best of the various methods in use is probably that which thrusts the broken wood into the earth, and covers the lower part of each bough with the upper part of that next put down. Such a bed, covered with a bear or buffalo skin, is as dry, springy, and comfortable a couch as any man can desire.

Meanwhile others have put their rods together, and are employed in catching fish for supper nearly as fast as they can throw the fly, for the trout are plentiful and unsuspicious in these regions. The faces of some of the fishermen are probably covered by muslin masks as a protection against the black flies, now more tormenting than ever, as though conscious that their reign is about to expire. Suddenly, about sunset, their attacks cease, and in a few minutes not one of the swarm that has so pertinaciously hovered round you during the day is to be seen. Intensely relieved, you throw off the few garments you have on, and again plunge into the clear river.

Preparations for supper are meanwhile advancing, and you are fully prepared to do it ample justice, whatever it may be. We squat upon the ground behind the fire,—if we have plates we take them on our

knees, if we have none a piece of birch bark supplies the want; and, do we wish to clean such a platter, all we have to do is to pull off the uppermost layer of bark, and lo! a fresh plate is before us. There is hardly any limit to the uses to which birch bark may be put; it makes not only our dishes, but our cups and our candles too. Fried salt pork and biscuits we are sure of, and unless very unlucky, or on one of the few rivers where fish are not, we may count on a dish of splendid trout, if not salmon, to say nothing of such accidental luxuries as partridge (and the white partridge is excellent) or rabbit; or the more questionable delicacies of boiled beaver or musquash soup. Beaver, however, is very good, especially the tail, which is all fat (the flesh itself tastes somewhat like coarse tongue with a *soupçon* of hare), and I have readily devoured musquash and onions. And why not? Oh, no reason at all, good reader, only it might not sound so palatable if I were to translate the name and write *rat*. Unless our stock of flour is exhausted, we add damper, after the Australian fashion. All this is washed down with strong tea and *nothing else*. A total abstinence from all spirituous liquors makes the whole difference as to comfort on these excursions. The slightest use of them makes the assault of the black flies and other noxious insects a serious torture, instead of a matter of comparative indifference; and the great parties of wood-cutters or lumberers almost invariably confine themselves wholly to tea while in the woods. I am afraid on their return to the settlement they often indemnify themselves for their enforced temperance.

By the time supper is over night has fallen,—the fire throws its bright light into the recesses of the wood, illuminating the red or purple shirted figures, or causing some small tree to stand out all brilliant against a dark background, and producing Rembrandt-like effects, which I never tire of watching, on the groups of men and on all surrounding objects. We smoke and roll ourselves in our blankets, and soon the camp sinks into a sound and dreamless sleep.

I have passed the night shivering on a mountain side waiting for dawn;—I have passed it stretched on the long grass of the Hauran, snatching short slumbers under the Syrian moonlight, with my horse's bridle round my arm;—I have spent it in many different places, under circumstances calculated to inspire strange and solemn thoughts;—but never anywhere with so awful a sense of man's insignificance, and of the calm changelessness of nature as in the depths of the American forest. In cities each day seems a well defined period, sharply cut off from those which preceded and those which are to follow it; but in the wilderness one learns to realize the ceaseless march of twilight and dawn, and day and noon, evening, twilight, night and dawn, and twilight and day again in its unbroken course, and to feel one's own helplessness and littleness. The daily petition, too, for daily bread acquires new force when offered in the literal meaning, and when for the day's food one is in a great measure dependant on the living creatures that may chance to cross one's path during its course.

Dawn comes; the black flies, happily, are late risers, and, if not unlucky, we obtain our morning swim unmolested by them. Break-

fast is eaten, the canoes are launched, and we are off again, leaving the expiring fire to send its curls of blue smoke idly into the air, and the deserted lodge to stand a relic of man's visit till prostrated by some storm, or torn down by the clumsy curiosity of some inquisitive bear.

Such is the daily life during a canoe voyage, when unrelieved by incidents of hunting or discovery such as frequently diversify it; but pleasing, nevertheless, even in its monotony. Sometimes, however, I have made journeys on foot.

There is nothing like plain truth, and we are contributing to remove a wrong impression made by a celebrated writer when we quote the following correction of a sad mis-statement in a well known book.

I have often wished, on seeing one of those unwieldy machines (which are only rather less difficult to get out of than into), that I had by my side Mr. Anthony Trollope, who has informed the readers of his very pleasant book on America that "though New Brunswick borders with Lower Canada and Nova Scotia, there is neither railroad nor stage conveyance running from one to the other," and that "the Canadas are, in effect, more distant from New Brunswick than from England." If Mr. Trollope had given a day or two to this province (where he would have been, and will be, heartily welcome), and had witnessed the receipt and despatch of the daily mails from St. John, he would not have written this sentence; still less, had he travelled over the railway (certainly second to none on the American continent in the solidity of its works and completeness of its arrangements), which passes within a short distance of the Nova Scotia frontier, with which it is connected by daily stages.

Not only, however, are we supposed to be without regular communication with Canada, but without roads to effect such communications. Great was the amusement produced in New Brunswick, early in 1862, by a number of the *Illustrated London News*, accompanied by a large coloured print, purporting to represent the march of the Guards to Canada from St. John. These unfortunate troops were depicted on foot, with their knapsacks on their backs, and their bearskins on their heads, trudging up a winding path on the face of a portentous mountain, accompanied at intervals by mounted officers; whilst in the foreground was a "bivouac" (something like one of our forest camps), where, round a fire, various figures were grouped, who, according to the letter-press, were "Indian guides consulting as to the route to be taken," and who were accompanied by huge dogs, whether to smell out the road or to pick the soldiers out of the snow, I am not aware. The paper ended its description by observing that whatever might be thonght of the artistic merits of the picture, its scrupulous fidelity might be relied on with confidence.

Now for a few words of sober fact. 1st. Not one man of the 7,000 soldiers who passed through New Brunswick in the winter of 1861–2 made the journey on foot. 2nd. Not one man carried his knapsack. 3rd. They had no mountains to cross 4th. The bearskins were not

sent out till summer. 5th. No officer made the journey on horseback: had any done so he would probably have lost one or both feet. 6th. No Indian—or any other—guides were needed, seeing that it would have required considerable ingenuity to *lose* the way—a high road, along which her Majesty's mail constantly travels, whilst a line of telegraph posts and wires runs by its side during its whole course from St. John to Rivière du Loup.

But in all our Canadian experience we do not remember meeting with the malady of leprosy, nor should we have expected to have heard of it in New Brunswick. And yet our experience ranges over the whole country from Quebec to near the Lake of the Woods above Lake Superior. But we have no idea of leprous cases there. In New Brunswick, however, there is a sad dismal tale of suffering from this dreadful malady, and Mr. Gordon visits the hospital of incurables, where the unhappy patients, shut out from the rest of the world, are doomed to pass the remainder of their lives in helpless obscurity. When the reader has perused the following extract, he will offer the tribute of a grateful heart to his Maker that he is not as one of the unhappy occupants of the leprous hospital of New Brunswick.

There is an obscure and doubtful story that, some eighty or a hundred years ago, a French ship was wrecked on the shore of the county of Gloucester or Northumberland, and that some of those who escaped from the crew were sailors of Marseilles, who had caught in the Levant the true eastern leprosy, *Elephantiasis Græcorum*. However this may be, there is no doubt that for many years past a portion of the French population of these counties has been afflicted with this fearful malady, or one closely allied to it,—probably that form of leprosy which is known to prevail upon the coast of Norway. About twenty years ago the disorder seemed to be on the increase, and so great an alarm was created by this fact and by the allegation (the truth or falsehood of which I have not been able satisfactorily to ascertain) that settlers of English descent had caught and died of the disease. Then a very stringent law was passed, directing the seclusion of the lepers, and authorising any member of a local Board of Health constituted by the Act, to commit to the Lazaretto any person afflicted with the disorder. After being a short time established at Sheldrake Island, in the Miramichi River, the hospital was removed to Tracadie, in the county of Gloucester, where it continues to remain.

The situation of the Lazaretto is dreary in the extreme, and the view which it commands embraces no object calculated to please, or indeed to arrest, the eye. On the one side is a shallow, turbid sea, which at the time of my visit was unenlivened by a single sail; on the other lies a monotonous stretch of bare, cleared land, only relieved by the ugly church and mean wooden houses of a North American village.

The outer enclosure of the Lazaretto consists of a grass field, containing some three or four acres of land. Within these limits the lepers are now allowed to roam at will. Until lately, however, they

were confined to the much narrower bounds of a smaller enclosure in the centre of the large one, and containing the buildings of the hospital itself.

Into these dismal precincts I entered, accompanied by the Roman Catholic Bishop of Chatham, the Secretary to the Board of Health, the resident Physician, and the Roman Catholic priest of the village, who acts as Chaplain to the hospital.

Within the inner enclosure are several small wooden buildings detached from each other, and comprising the kitchen, laundry, &c., of the establishment. One of these edifices, but newly completed, is furnished with a bath,—a great addition to the comforts of the unhappy inmates. The hospital itself is a building containing two large rooms, the one devoted to the male and the other to the female patients. In the centre of each room is a stove and table with a few benches and stools, whilst the beds of the patients are ranged along the walls. These rooms are sufficiently light and well ventilated, and at the time of my visit were perfectly clean and neat. In the rear of these rooms is a small chapel, so arranged that a window obliquely traversing the wall on each side of the partition which divides the two rooms enables the patients of either sex to witness the celebration of mass without meeting. Through the same apertures confessions are received and the holy communion administered. I may here remark how curious an illustration is thus afforded to the architectural students of the object of those low skew windows often found in the chancels of ancient churches. In a remote corner of North America is a rude wooden building of modern date, erected by men who never saw a mediæval church or possess the least acquaintance with Gothic architecture, convenience has suggested an arrangement precisely similar to one which has long puzzled the antiquaries and architects of Europe.

At the time of my visit there were twenty-three patients in the Lazaretto, thirteen males and ten females, all of whom were French Roman Catholics, belonging to families of the lowest class. These were of all ages, and suffering from every stage of the disease. One old man, whose features were so disfigured as to be hardly human, and who appeared in the extremity of dotage, could scarcely be roused from his apathy sufficiently to receive the bishop's blessing, which was eagerly sought on their knees by the others. But there were also young men, whose arms seemed so strong, and their powers of work and enjoyment as unimpaired as they had ever been, and—saddest sight of all—there were young children condemned to pass a life here of hopeless misery.

I was especially touched by the appearance of three poor boys, between the ages of fifteen and eleven years. To the ordinary observer they were like other lads,—bright eyed and intelligent enough; but the fatal marks which sufficed to separate them from the outer world were upon them, and they were now shut up for ever within the walls of the Lazaretto.

An impression similar in kind though feebler in degree is produced

by the sight of all the younger patients. There is something appalling in the thought that from the time of his arrival until his death, a period perhaps of many long years, a man, though endowed with the capacities, the passions, and the desires of other men, is condemned to pass from youth to middle life and from middle life to old age, with no society but that of his fellow sufferers, with no employment, no amusement, no resource; with nothing to mark his hours but the arrival of some fresh victim; with nothing to do except to watch his companions slowly dying around him. Hardly any of the patients could read, and those who could had no books. No provision seemed to be made to furnish them with any occupation either bodily or mental, and under these circumstances I was not surprised to learn that in later cases of the disease the mind generally became enfeebled.

The majority of the patients did not appear to me to suffer any great amount of pain, and I was informed that one of the characteristics of the disease was the insensibility of the flesh to injury. One individual was pointed out to me whose hand and arm had been allowed to rest on a hot stove, and who had never discovered the fact until attention was arrested by the strong smell of the burning limb, which was terribly injured.

The *Vacation Tourists' Notes of Travel* is a most useful contribution for the assistance of those who can snatch a breath of foreign atmosphere now and then, and it would be still more attractive if it could have the merest outline of a map to assist the reader, so as to render him independent of Mr. Arrowsmith or any other geographer.

A Ship Lost for the Sake of Half-a-Crown!

"For want of a nail the shoe was lost, and for want of the shoe the horse was lost," says the old adage; to which we may add with the same truth, for want of a chart the ship was lost. This ship was known by the name of a maritime quadruped called the *Seahorse;* a class of animals that do their work at sea, but for the safety of which a good chart is as requisite as a shoe is to the valuable servant of mankind that does his work on shore. The parallel may be carried even further, for the value of the shoe to that of the horse may bear about the same proportion as that of the chart to the value of the ship; or, probably, the shoe, trifling as is its value, may bear a far greater proportion to that of the horse than the trumpery cost of the chart does to that of the ship. The *Seahorse* was lost in the Strait of Banca for want of a good chart, the value of which, as appears by the Admiralty catalogue, was just *half-a-crown!*

Some one was deprecating the inquiries into the loss of our mercantile shipping a few days ago in a wholesale condemnation of them,—to which we would not consent with the every day proof of their

value that is now so notorious. And here is the report into the inquiry (held at Singapore) on the loss of the British ship *Seahorse*, which appears to be from Liverpool:—

"*Singapore*, 17*th October*, 1864.

"We, the undersigned, having inquired into the loss of the British ship *Seahorse*, of Liverpool, official number 27,666, burthen 866 tons, Robert Francis Carthy, Master, find that the said vessel left Liverpool on the 4th of June, 1864, bound for Shanghae, with a cargo of coals. Passed Anjer on the 4th of September, and made Macclesfield Channel, Gaspar Straits on the 10th; when, at about a quarter to nine a.m., the weather being fine and the ship going about 1½ knots, she struck on a coral rock, said to be about two miles E.½N. from Jelaka Island, and in forty-five minutes had twelve feet of water in her hold. The tide fell, and the vessel became firmly fixed on the rock; which, from the report of divers sent down by the Dutch President at Billiton, appears to be a small pinnacle with deep water all round. Any attempt to save the vessel was useless, and she became a total wreck. The master was on deck, the second mate in charge of the lead, and a man on the forecastle on the look-out, but no danger was observed.

"The ship was being navigated by a general chart of the East India Archipelago, sheet No. 1, published by James Imray and Son, Minories, 1864,—a chart on too small a scale for such a dangerous passage as Gaspar Straits. Many of the dangers are not laid down, and from the smallness of the scale no correct bearings could be taken. A dangerous reef, called the Discovery Rocks, is placed in mid-channel, and it was to avoid this reef the master ventured too close to Pulo Leat, not seeing the danger he incurred, as the rock on which the ship was lost is not marked on his chart. The only channel for which his chart was applicable was the Carimata, and this channel the master should have taken, and we cannot fully accept his explanation for not doing so, viz., easterly winds and a S.W. set. He would, in our opinion, have shown a wise discretion in submitting to some delay, instead of attempting a passage for which his chart was so obviously inadequate. Although in this the master was no doubt guilty of a serious error of judgment, we do not consider it a case of culpable negligence deserving of punishment, as from the evidence adduced he appears to have been very careful in the way of conducting his vessel, and had he been supplied with a proper chart on a larger scale, such as the Admiralty chart of 1861–2, No. 2,137, of Gaspar Straits, we believe he would not have lost his ship.

"We are of opinion that the loss of the *Seahorse* was owing entirely to the want of a proper chart of Gaspar Straits.

"We would also beg to observe that not only was the vessel despatched from Liverpool insufficiently supplied with charts, but great remissness appears to have taken place regarding the compasses; they do not seem to have been adjusted in any way prior to leaving port, or any deviation table to have been supplied, the standard compass on the bridge being of the commonest description, and quite unfit for the

delicate observations requisite to determine the deviation which always occurs in iron ships.

"W. W. WILLIAMS, *Magistrate of Police.*
"J. L. KIRBY, *Officiating Master-Attendant.*
"Confirmed, O. CAVENAGH, *Colonel, Governor Straits Settlement.*"

Here, indeed, is another proof of the value of these government inquiries. Not only is the *Seahorse* reported deficient of a proper chart for her navigation, but her compasses appear to have been in that state which is well described by a correspondent whose valuable letter appears in the October number of our last volume.* To navigate a ship with such means as the commander of the *Seahorse* had may well require careful and discreet conduct, for which he was well known, and which may account in a great measure for the ship not having been lost before. But the Strait of Gaspar was too intricate a navigation for him, and it was no proof of the master's discretion to attempt such a navigation with the chart which he had. If the Admiralty chart of that strait had been on board the *Seahorse*, she could not possibly have hugged the land of Jelaka as she did without its dangers being apparent to her commander. The report seems to have been misprinted, for the rock two miles E.½N. of that island would place it in the middle of Billiton. But with the chart of Gaspar Strait on board the commander would have seen how, in the Macclesfield Channel, to keep clear of the Discovery Rocks (for he was four miles from them) without hugging the dangerous Jelaka shore.

As to compasses, especially those out of Liverpool alluded to by our correspondent, and with one of which the *Seahorse* was navigated, it seems to be a hopeless subject to see their failings ever rectified, notwithstanding their errors are said to be "corrected on Professor Airey's principle." Of what use is it, we would ask, when we are deliberately told that—

"It is not uncommon to see men in trying situations steering at one time with the bridge compass, and then by the steering compass, hopelessly puzzled as to which is the more correct; while the means of ascertaining the error are ruder than the astronomical instruments used by the Chaldean shepherds on the plains of Shinar. So notorious is this unknown error of the compass, that few Liverpool pilots ever trust to them in running from Point Lynas to Liverpool during a fog."

It is very truly observed that sailors are like children and want as much looking after. Certainly, applying the observation in reference to the compass, there can be no doubt of it. Even if a ship has her deviation found for her by some competent person, some last things will be placed on board of iron construction, and in such proximity to the compass that the deviation found becomes useless. It might as well have been let alone.

* Page 551.

The loss of the *Iowa* has produced a letter on this subject by a person who signs himself J. S. Trivett, that is too long to quote here; but we agree with him that "much has been written," and in many cases with little effect; and if the compass is bothered so much with iron now a days that it is "enough to drive one mad," the tricks of the compass must be endured until they are cleared away, or ships must be navigated by the sun and stars as of old.

But the last means produced for correcting the compass anywhere between the latitudes of 48° and 56° North or South inclusive are a series of tables,—which tables give the true bearing of the sun for every four minutes of time, and which are certainly the readiest means of obtaining the deviation of the compass at sea that we have met with. They are noticed in our last volume, page 557.

BAROMETRICAL VARIATIONS OF THE LATE STORMS,—*By James Glaisher, Esq., F.R.S.*

The variations in the readings of the barometer at the Royal Observatory, Greenwich, include forty-six days, ending the 30th of November, during which period there have been several severe gales of wind on our coasts, producing, as usual, distressing shipwrecks, attended with fearful loss of life.

The reading of the barometer from the 1st of October to the 15th day was always high, and every day above its average, frequently to the amount of 0·3 in. and 0·4 in., and on the 3rd day to 0·5 in. nearly. The direction of the wind till the 8th day was generally East or E.N.E., and the greatest force of the wind during this interval was about 8lb. on the square foot; but usually the air was in gentle motion. From the 9th day the prevailing direction of the wind was North and N.W., but at all times weak in strength. On the 16th day it changed to the S.W., and the barometer reading descended below its average, and declined to 28·71 by 3h. a.m. on the 20th, on which day pressures to 9 lbs. on the square foot took place. The reading of the barometer suddenly changed to an increase, and at midnight on the same day was 29·40 in., being no less than 0·69 in. increase in fifteen hours. It remained some little time at this point, and declined to 28·90 in. by 9h. p.m. on the 22nd. From noon of the next day, the 23rd, its general tendency was increasing; it passed above its average on the 30th, having been fourteen days continuously below, and at times for twenty-four hours together, as much as three-quarters of an inch nearly. From the 23rd the course of the wind was mostly from opposite quarters, *viz.*, S.W. and N.E., but at all times light, and sometimes the air was almost free from motion.

The barometer reading continued to increase, though with frequent slight falls, till November 6th, when the reading was as high as 30$\frac{1}{2}$ in. or 1$\frac{3}{4}$ in. higher than on the 20th. On the 7th day, the reading

began to decrease, and passed below its average on the 10th, it having been above this point from October 30th, or eleven days, a part of which time it was for twenty-four hours together more than six tenths of an inch in excess. During the 13th and 14th days the decrease was rapid, and the reading from noon on the 14th to nearly noon on the 15th varied only between 28·61 in. and 28·64 in., thus the decrease amounted to 1·9 in. in eight days. At this time, at Greenwich, the greatest pressure we experienced was 3 lbs. only; and it is very remarkable that with so low a reading of the barometer about London, there was scarcely any wind, whilst fearful storms were raging North of us. From the 25th, the readings of the barometer oscillated, but for the most part increased, and were 29·72 in. on the 19th, whilst the air was in gentle motion from the S.W. and S.S.E. Like changes followed, but decreasing readings were greater than increasing till the reading of the barometer again was very low, *viz.*, 28·72, at 1h. a.m. on the 26th, accompanied with S.W. wind, blowing with a pressure of 5 lbs. on the square foot only. From this time the readings increased, and on the 30th passed above the average, having been below eighteen days.

It cannot fail to be remarked that at all times when the reading of the barometer was above its average, the wind has everywhere been moderate in strength, but that the periods of our recent heavy gales have begun shortly after the reading has descended below the average; and these gales have also been the worst when the departures below have been the greatest, and the bad weather has ceased only on the average again being approached.

One fact may be learnt from these readings, and it is one I forcibly impressed upon the fishermen of the Northumberland coast when I first fixed the barometers there, *that at no time, and particularly during the winter months, should the warnings of the barometer pass unheeded;* for although the barometer reading may be low, and indeed unusually low in some localities, without the storm passing over these places, yet they may feel certain that bad weather or gales of wind are at that very time most likely raging not far from them, and which might suddenly visit their localities without further warning. It is remarkable, indeed, that about London the barometer was no less than three times a good deal below 29 inches, yet no storm of any moment visited us; but we have had sad evidence of the fearful storms then raging on our northern and eastern coasts; and one almost sees the agonies and hears the cries of the drowning men, women, and children at Tynemouth and Shields, imploring help from the plunging lifeboat, two of whose noble crew perished in their humane efforts to succour their perishing fellow-creatures. All honour to these brave but nameless heroes, of whom England may well be proud; and well may we mourn over those who, unhappily, perish in such sacred work.

These sad wrecks were taking place all along our eastern and northern coasts, while in London we were in comparative calm.

I wish to impress upon all sailors and fishermen the necessity of care when *continuous declining* readings of the barometer are proceed-

ing, and of viewing such a state of things as plainly indicating approaching gales, which may not visit their own localities, but yet may do so; and if, fortunately, a gale does not visit them on any occasion, not to place less confidence in the barometer warnings, but rather to be careful till that reading of the barometer be attained which is the average of the place.

It is an ascertained fact, that when great atmospheric disturbances take place and great depressions of the barometer readings occur, particularly when sudden, that they are the certain and sure prognostications of the approach of storms; such signs no fisherman or seaman can, I think, now be so unwise as to neglect; for the caution thus given to him, conjoined with his own knowledge of the storms of the locality with which he must be familiar, will probably save him and others from loss of life and property. The Royal National Lifeboat Institution, by placing reliable barometers (tested by me at the Royal Observatory, Greenwich) around the coast, and thus directly preventing loss of life, may not gain so much praise as when its lifeboat saves a crew from the sinking ship; but I consider that it deserves equal credit by taking timely steps to warn our fisherman from going into that sea in times of danger. And surely the public will not fail to appreciate fully the feelings which prompt the committee of the institution to prevent as far as possible the necessity of having recourse to the lifeboat, by timely warnings to those who otherwise might need its valuable and ever-ready services.

Royal Observatory, Greenwich, 14th December, 1864.

THE ATLANTIC TELEGRAPH ENTERPRISE,—*Ireland to Newfoundland.*

The distance from the western coast of Ireland to the spot in Trinity Bay, Newfoundland, recently selected as the landing-place for the new cable, is a little over 1,600 nautical miles, and the length of cable contracted for, to cover this distance, including the "slack," is 2,300 knots, which leaves a margin of 700 knots to cover the inequalities of the sea-bed, and to allow for contingencies. On the first occasion 2,500 statute miles were taken to sea, the distance to the Newfoundland terminus on that occasion being 1,640 nautical miles; and, after losing 385 miles in 1857, and setting apart a further quantity for experiments upon paying-out machinery, sufficient new cable was manufactured to enable the *Niagara* and *Agamemnon* to sail in 1858 with an aggregate of 2,963 statute miles on board the two ships, of which about 450 statute miles were lost in the two first attempts of that year, and 2,110 miles were finally laid and worked through.

The greatly increased weight and dimensions of the present cable would have made the question of stowage a very embarrassing one had it not been for the existence of the *Great Eastern* steamship, there being no two ordinary ships afloat that would be capable of con-

taining, in a form convenient for paying out, the great bulk presented by 2,300 miles of a cable of such dimensions. This bulk, and the now acknowledged necessity for keeping cables continuously in water, have indeed made their influence to be felt in a very expensive manner to the company and to the contractors throughout the progress of the work even at this early stage. The works at Morden Wharf have had to be to a very large extent remodelled to meet these contingencies. Eight enormous tanks, made of five-eighths and half-inch plate iron, perfectly watertight, and very fine specimens of this description of work, have been erected on those premises, into seven of which the cable is now daily being coiled as it comes in its completed state from seven corresponding closing machines. An eighth closing machine will soon be added, and these tanks will then receive an aggregate of eighty miles per week. Four of the tanks are circular in shape, and will each contain 153 miles of cable, being 34 ft. in diameter, and 12 ft. deep. The other four are slightly elliptical, being 36 ft. long by 27 ft. wide, and 12 ft. deep, and will contain each 140 miles.

The contents of all these, as they become full, will have to be transferred to the *Great Eastern* at Sheerness. and for this service the Lords of the Admiralty have granted the loan of two sailing ships. until recently laid up in ordinary at Chatham, namely—the *Amethyst* and the *Iris*. These ships have had to undergo very considerable alteration to render them suitable for the work, portions of the main deck having been removed—fore and aft—to make room for watertight tanks, which here, as elsewhere, are to be the medium for holding the cable. The *Amethyst* is now ready to receive cable, her two tanks being finished, and the hauling-gear and engine fitted on to her upper deck ready for coiling it out of the factory. The *Iris* is in a forward state, and will be ready also in a few days. The dimensions of the two tanks on board the *Amethyst* are 29 ft. diameter by 14 ft. 6 in. in depth, and they will each hold 153 miles of cable; of those on the *Iris*, one will be 29 ft. diameter and 14 ft. 6in. deep, and will hold 153 miles, and the other, which will hold 110 miles, will be 24 ft. wide, and 17 ft. deep. The coiling on board the *Amethyst* will now commence in a few days, and the rate at which the cable can be taken on board her will be about two miles per hour to each tank.

The work on board the *Great Eastern* steamship is progressing very rapidly. She will contain three very large tanks, one situated in the forehold, one in the afterhold, and the third nearly amidships. The bottoms and the first tier of plates will be of five-eighths iron, and each tank, when completed to this height, is tested as to its tightness by filling it with water, and when found or made to be perfectly watertight, it is let down from its temporary supports on to a bed of Portland cement 3 in. in thickness, and the building up and riveting of the remaining tiers is continued. The beams beneath each tank are shored up from the floor beneath it down to the kelson with 9 in. Baltic baulk timber, and it will give some idea of the magnitude of the work to state that upwards of 300 loads of this material are required for this purpose alone. The dimensions of the fore tank will be 51 ft.

6 in. diameter by 20 ft. 6 in. in depth, and its capacity is for 693 miles of cable. The middle tank will be 58 ft. 6 in. broad, and 20 ft. 6 in. deep, and it will hold 899 miles of cable; and the after tank will be 58 ft. wide and 20 ft. 6 in. deep, and will contain 898 miles. The three tanks are therefore capable of containing in all 2,490 miles of the new cable. The fore tank and the after tank are complete and tested, as high as the first tier of plates, and the erection of the remaining tiers is rapidly progressing. The space is cleared and shored up for the middle tank, and the laying of the iron floor has commenced. It is expected that the *Great Eastern* will begin to receive cable on board about the first week in January. Her deck engine and hauling-in gear are already prepared, and she will be able to get on board and coil the whole contents of the *Iris* or the *Amethyst* within three days from their arrival at Sheerness on each voyage.

The charge of laying the cable on the present occasion will be committed to Mr. Canning and Mr. Clifford, who, in concert with Sir Charles Bright, successfully submerged the original cable in 1858, and whose experience in this branch of engineering has been very large and varied. If all go well, the *Great Eastern* will be fully loaded and ready for sea by the end of June, 1865, and when fitted completely for this expedition, will have on board about 15,000 tons of cargo, of which the cable will be 4,500 tons, and the coals 8,000 tons; and her complement of hands all told, and including the electrical and engineering staff of the contractors, will be nearly 500 persons. Her commander has not yet been named, but it is to be hoped that no pains or expense will be spared to secure in him and his subordinate officers the very best men that the service can produce. Much will depend upon the manner in which the ship is handled, and as two vast enterprises will, on this occasion, be on their trial at one and the same time, a double responsibility will rest upon the officers to whom the conduct of this remarkable voyage shall be ultimately entrusted.—*Mechanics' Magazine.*

THE TRADE OF TIEN-TSIN.—*Report of Mr. Acting-Consul Gibson.*

(Concluded from page 24.)

With regard to the Tien-tsin export trade a very few observations will suffice. The returns for 1862 exhibit a considerable increase as compared with the returns for 1861. The great drawback to Tien-tsin, however, as a port of trade consists in the absence of any exportable article of much importance.

The exportation of furs and skins has been considerable, but the bulk of the export trade consists of miscellaneous articles of no great value. The native traders are particularly well qualified to conduct this kind of trade, and, accordingly, a large quantity of the merchandise exported from Tien-tsin this year in foreign vessels was the property of natives.

Hides, wool, and tallow ought to be abundant in this district, but these articles have hitherto not come down country in any quantity. At present there is a company being formed at Tien-tsin, having for its object to open a trade in Peking coal. If this enterprise succeeds, the prospects of Tien-tsin as regards its export trade will no doubt improve.

Large quantities of gold have been exported from Tien-tsin in the course of this year. The gold is brought into the market in the form of bars, each bar weighing 10 taels, or 13⅓ ounces avoirdupois. It is purchased at Tien-tsin for about taels 15·15 per tael, or 1⅓ ounce avoirdupois; sold at Shanghae for about taels 16·20; and eventually at Hong Kong for about 23 dollars per tael. The gold is mostly sent on to India.

Much difference of opinion exists as to where this gold comes from; some persons think that it is mostly Russian gold. But this opinion seems to be untenable; for if Russia exports gold to China, that country must take away from China something of corresponding value. On the assumption, however, that most of this gold is Russian, such would not appear to be the case. It is safe, therefore, to conclude that the gold is mainly, if not entirely, native gold, derived from the valuable gold mines which are known to exist in Manchuria, and other districts outside the Great Wall. A small quantity of gold-dust and nuggets are brought down to Chang-chia-kow (Kalgan) by the Mongols. The gold thus obtained is sent to Peking, where it is cast into bars. It is said to lose about five per cent. in the process of casting. The fact that the gold bars are cast at Peking is a further proof that the precious metal is not Russian.

Brick tea, which appears in the returns, was purchased for the Russian market. The Russian tea no longer reaches the north of China overland by way of Shansi. It is now shipped at Hankow for Shanghae, and transhipped at Shanghae for Tien-tsin; it then proceeds up the River Peiho to Tung-chow, near Peking, in boats. From Tung-chow it is conveyed on camels *viâ* Hsuen-hua-fu and Chang-chia-kow over the desert of Gobi to the frontier town of Kiakhta.

The Russian woollen trade in this district is considerable, but it cannot be valuable. Indeed the Russian import trade, in North China at least, is essentially a large retail trade. The go-downs of Russian merchants are little more than stores. At Tien-tsin there are two Russian mercantile establishments. Their trade is not large, but it is respectable.

There are two French traders residing at Tien-tsin. Both deal in small merchandise, such as Geneva watches, stereoscopic views, &c. French trade is not yet developed, but ample facilities have been provided for its accommodation when it springs up.

There are two German houses at Tien-tsin. Their business is tolerably respectable.

There are only two American firms, Messrs Russell and Co. and Messrs. Heard and Co., engaged in trade at this port, but their business is large and respectable.

The domestic trade of this district in home cotton manufactures is still considerable. The foreign cottons are cheaper than the native, look much better, and under certain circumstances are even more profitable; but the latter nevertheless are still extensively used. I have now before me samples of native cottons of the following sorts: first, a white fabric, 1ft. 2in., English, in width; its retail price 1½d. a foot; second, a blue cotton, 1ft. 2in., English, in width, price 1¾d. a foot; and thirdly, a very coarse white cotton, 1ft. 3in., English, in width, price 1¼d. a foot. When the difference in width is taken into account, the foreign cottons are about one-half cheaper than the native; but native cottons wear better, and are, therefore, still generally preferred by the country people whose avocations are of a rougher description than those of the town population. Thus two yards of foreign cotton can be purchased for, say 9d.; and will go as far towards making a jacket as 3½ yards of native cotton, which, assuming the quality to be equally good, will cost about 1s. 3d.; but a jacket of the latter will wear twice as long under bad treatment as a jacket made of the former.

Since foreign cotton became so common among the people of this district, a vast number of dye-works have been established. In these dye-houses the white and unbleached cottons of Manchester are dyed light blue or black. Nearly the whole population, male and female, belonging to the middle and lower orders living in towns, wear these home-dyed foreign cottons. Unbleached and pale ash-coloured cottons are universally put on for mourning. The quantity of foreign printed goods used in upholstery within this district must also be enormous.

The domestic trade in woollens is limited. Russian cloth is a good deal employed in upholstery. English cloth, blue and grey, is worn in the shape of jackets by such people as can afford to buy it. In winter these jackets are lined with fur. As padded cotton jackets are equally warm in winter, and a great deal less expensive, woollen ones are rarely purchased by poor people. Wealthy persons prefer to wear the beautiful native silks.

There is a considerable domestic trade done in furs and skins. These are brought from Manchuria and the Mongolian provinces of the empire. The sheep and fox skins are good; but the finer furs are nearly all of inferior quality. During a residence of three years in this district, I have never seen a really first-rate ermine or sable robe. The prices asked by the native dealers for these indifferent furs are enormous. The best furs obtainable are sea-otter skins, costing, when made up into a long robe, about £150.

The salt trade carried on at Tien-tsin is of considerable importance. A brief account of it can hardly be considered superfluous in a report of this kind. The salt trade is strictly a government monopoly. The traffic is carried on under the supervision of an officer called the Yen-yün-sze, or Commissioner of the Salt Gabel, who has under him a numerous staff of subordinates. Any person who wishes to engage in the business of preparing salt must communicate with the department presided over by this officer, and receive from it a written warrant

authorizing him to erect his salt-pans. The quantity of salt which he is permitted to manufacture is specified, and he must be careful not to exceed the prescribed limits. At Taku, where salt-pans abound, the price of salt previous to the payment of the government duties is only one cash a catty, that is, one-fifth of a farthing for $1\frac{3}{4}$ ounces avoirdupois.

The merchant who purchases from the producer must also hold a warrant from the Salt Department. Its terms are specific; he must not purchase more than the warrant permits, and he must not purchase salt beyond the limits of the district, department, or circuit, stated in the document. After paying the duties levied by the government upon the article, and after securing his profits, the salt merchant can afford to sell his salt at about ten cash a catty, that is to say, at about sixpence per pound. This is, in fact, the retail price of salt; the profit secured on the commodity by the petty dealers being merely nominal.

The salt used in this district is all obtained by the evaporation of sea-water, and is abominably coarse and dirty.

The iron, which is purchased to a small extent at Tien-tsin for exportation, comes from Shansi. Judging from the specimens of the ore procured from that province, the quality of the iron ought to be good. But this is not the case. The unscientific smelting apparatus employed by the natives amply accounts for the indifferent quality of the Shansi iron. The metal is generally dirty and porous.

Altogether the domestic trade of this consular district is very considerable, and under the auspices of a more enlightened government is capable of vast expansion.

The operation of the tariff regulations is satisfactory. Foreign goods are imported under the tariff rules attached to the treaty of 1858. The tariff regulations applicable to the coast trade in native produce carried on by foreign merchants are just and moderate. The rate fixed is a duty of 5 per cent. *ad valorem* at the port of shipment, and a further $2\frac{1}{2}$ per cent. at the port of discharge. Foreign ships and merchants are permitted, under these very moderate conditions, to participate in the native trade of China. The duties fixed by the tariff are fairly levied, and no reasonable complaint can exist under this head. The $2\frac{1}{2}$ per cent. transit duty, however, on goods entered for an inland market has been the cause of some irregularity, but it is only fair to state that every effort has been made by the Superintendent of Customs, and with a large measure of success, to set the matter right.

As to the value of the privilege guaranteed to the foreign merchant by treaty of carrying his goods into the interior markets, personally or by an agent, there can be no question, but experience proves that this right, indiscriminately granted, may be productive of great mischief. To insure a moderate amount of success in the interior a knowledge of the spoken language of the country is necessary, entire honesty of character is indispensable, good sense and some acquaintance

with native usages are likewise required. But, unfortunately, the class of merchants who are most likely to avail themselves of the privilege referred to are exactly the sort of people most defective in these respects. The consequence is obvious; a misunderstanding arises between the foreign traders and the natives, the intervention of the local authorities is requested, the local authorities, when not corrupt, are generally stupid, and endless troubles and complications are thus generated, which it requires months to settle. Trade, of course, under such circumstances, is not to be thought of. Both foreigners and Chinese within this district are at present far too ignorant of each other to render the operation of this right of access into the interior of much importance to the merchant. The employment of Cantonese as agents to conduct goods into the interior is impracticable. The northern people are jealous of their ascendancy, and entertain no great respect for their character.

The Mongolian provinces of the empire might furnish wool and hides in large quantities; but a knowledge of the Mongolian language is a pre-requisite to any one who wishes to engage, with the least prospect of success, in this trade. Shansi agents sent into the desert to effect purchases would make the trade of no value either to the Mongolians or to foreigners.

The privilege, therefore, of free entrance into the interior, although of not much value to the trader at the present moment, may in the course of time, when he has acquired a knowledge of the language of the country, enable him to carry on his mercantile operations with advantage at such marts as Lama-miau, Chang-chia-kow, and Kwei-hua-cheng.

Gold mines are said to exist in this district, but they are no longer worked. Gold is found in small quantities in the north of the province of Chi-li; also in Shansi; but the bulk of the gold brought into the market is the product of Kwan-tung (Manchuria), and of districts lying beyond the Great Wall.

Coal mines exist in the hill ranges to the westward of Peking. There are also numerous coal mines beyond the inner Great Wall in the neighbourhood of Hsüen-hua-fu. The coal turned out is generally of very fair quality, but the mining operations are conducted very sluggishly and unscientifically. I paid a visit to the coal mines of Hsüen-hua-fu in February, 1862. The coal I saw being turned out was not very good, but this was easily accounted for by the preference the miners showed for the surface seams. The miners in one or two places, indeed, were working coal of vile quality, apparently just because it was easily reached. Some of the mines (very likely the more valuable ones) had been recently abandoned on account of a little water, which a small engine would have cleared out in two hours. Even on the flanks of the mountains, where the seam of coal might easily have been struck obliquely, and the water allowed to drain itself away without difficulty, the miners had sunk perpendicular shafts. I asked two miners what they would do in case they cut in upon a spring.

They replied, "When the waters rush in, the miners rush out." The tools of the miners, and the general economy of the mines, were defective in the last degree.

There is, however, no doubt but that excellent coal exists in several localities in the north of this province, and that even the mining I saw in force at Hsüen-hua-fu, prosecuted with a little more energy, would turn out great quantities of coal suitable for the use of steamers. The ordinary coal consumed by people in their houses, a hard shaley variety, is altogether unfit for steam purposes; but good steam-coal has been found both in the hills west of Peking and in the neighbourhood of Hsüen-hua-fu. The coal mines further eastwards, in the direction of Jehol, are reported to be productive; the quality of the coal is said to be good; it burns freely, being very bituminous, but throws off a great quantity of smoke, and is therefore not very well adapted for the use of steamers. There is water carriage the whole way between the Jehol mines and Taku. The coal can be laid down at the latter place for seven or eight dollars a ton. In the absence of better, this coal would fetch at Taku ten or twelve dollars a ton.

Specimens of the following kinds of coal have been sent me by a Tien-tsin coal merchant for examination, and all have been found on trial to be good, viz., 1st, an anthracitic coal of superior quality; 2nd, a caking coal, very bituminous, said to resemble the Jehol coal, and which burned remarkably well in the grate; 3rd, a kind of coal not unlike "splint," but more bituminous; and 4th, a kind of cannel coal, rather coarse and gritty.

Coal mines in North China, and especially in this particular district, are likely soon to become of great importance. The steamers which trade between this port and Shanghae often require a supply of coal, and the large prices the masters of these vessels are willing to give for good steam-coal has excited the cupidity of certain speculative natives. A company has been formed at Tien-tsin to open a trade in coal. The local government have given these persons every encouragement to prosecute their enterprise, and it is probable that in the course of a year or two a considerable trade in coal will be done here. The great drawback to the success of the undertaking consists in the want of proper transport between the western mines, where the best steam-coal is procured, and the city of Tung-chow, whence the coal can be conveyed cheaply and expeditiously to Tien-tsin by water. Camels are the only transport available between Tung-chow and the coal mines. How very unsatisfactory these animals are as a means of transporting baggage, even on a sandy plain, every one knows who has had any experience of them. The hard uneven roads between Tung-chow and the mines will cut their soft fleshy feet to pieces; casualties innumerable will take place among them; new relays will have to be provided at much expense; and the coal in consequence, instead of being laid down at Tien-tsin for sale, as it would be if there was a good tramway between Tung-chow and the mines, at 9 or 10 dollars a ton, will probably not cost less than 11 or 12 dollars a ton. Still,

if the coal prove useful for steam purposes, a good trade may be done in the article even at these high rates.

The people of this district are mainly employed in agricultural pursuits. The district produces no manufactures. The merchants who purchase foreign stuffs at Tien-tsin are, generally speaking, natives of other provinces; a great many of them come from Shan-si.

The population of this district is, upon the whole, very poor. Much unmixed suffering prevails among the lower orders, especially during the winter. No efficient system of public relief is held out to the poor; private benevolence, however, which the Chinese practise to an extent (their means considered) quite as great as the English, does much to ameliorate the wretchedness that prevails; but notwithstanding private efforts, and notwithstanding the fact that the means of living are procurable at a very cheap rate, mendicants are numerous. Probably there is not a single wealthy family (in the English acceptance of the expression) in the whole of this neighbourhood. The wholesale division of property which ensues upon the father's death among the different members of his family, partly accounts for the general poverty of the Chinese; but it is, no doubt, owing still more to the bad civil administration under which the people live. The natives generally content themselves with the acquisition merely of a moderate subsistence. If, with small exertion, they are able to secure sufficient for their daily wants, they gladly avoid those extraordinary efforts of perseverance which insure the accumulation of a fortune; not because they are an indolent people, nor because they do not appreciate the conveniences and luxuries which wealth commands, but because their wealth would be certain to lay them open to the extortions of the officials with all the troubles which these involve. The Imperial Government, it is true, taxes lightly, but the rapacity of the civil officers discourages the accumulation of wealth in private hands, by subjecting its possessors to unmitigated oppression and spoliation.

Royal National Life-Boat Institution.

A meeting of this institution was held on Thursday, January 5th, 1865, at its house, John Street, Adelphi, Thomas Chapman, Esq., F.R.S., Vice-President, in the chair.

The minutes of the previous meeting having been read, a reward of £25 was voted to the crew of the Yarmouth (large) lifeboat of the institution, for going off on the night of the 7th of December, and saving the crew of twelve men from the Austrian brig *Zornizza*, of Lucine, which struck, and afterwards became a total wreck, on the Scroby Sands, during a strong wind from the S.S.W. The sea was terrific, and one of the beachmen's yawls, the *Bravo*, was damaged to such an extent that the crew all left her, and got into the lifeboat, fearing she would sink, till she was clear of the Scroby Sands.

Also £14 to the crew of the Parsee lifeboat, stationed at Palling, on the Norfolk coast, for going off in reply to signals of distress, and saving the crew of six men from the French schooner *Idas*, of Nantes, which was wrecked during a gale of wind opposite Palling Gap about midnight on the 22ud of December. The poor shipwrecked foreigners were very much exhausaed when brought ashore.

The cost of this lifeboat, togethes with a sum amounting in all to £2,000, was munificently presented to the institution by Messrs. Cama and Co., Parsee merchants, of Bombay and London.

Voted also £7 to the crew of the Penmon lifeboat, for putting off and bringing ashore the crews of the smacks *Pearl* and *Speedwell*, of Carnarvon, which were in distress near the Dutchman's Bank, Anglesey, during a heavy gale of wind on the 11th of December. The vessels fortunately held together during the night, and the next morning the crews were again put on board them.

Also £8 10s. to the crew of the *Sisters* memorial lifeboat of the institution at Llandudno, for going off and rescuing the flat *Morning Star* and her crew of three men from a very perilous position near the Little Orme Head, during a strong wind, on the 7th of December.

Also £45 18s. to pay the expenses of the lifeboats of the institution at Caistor, Pakefield, Filey, Teignmouth, and Kirkcudbright, for different services on occasions of wreck. It was also reported that the Pakefield lifeboat had gone off during a strong gale of wind, and had assisted, in conjunction with a steam-tug, to save the barque *Jenny Lemelia*, of Quebec, and her crew of nine men, from destruction.

It was stated that the Cape of Good Hope lifeboat, stationed at Port Elizabeth, had been instrumental in saving a shipwrecked crew during a heavy gale of wind in October last. This lifeboat was built in London about four years ago by the Messrs. Forrestt, sunder the superintendence of the institution.

The silver medal of the institution and a copy of its vote on parchment, were presented to Mr. Andrew Lusk, farmer, near Kirkcudbright; and £5 to his five servants, in admiration of their noble conduct in wading into the surf at considerable risk of life, and attempting to rescue the schooner *Havelock's* crew, of Preston, who, however, unhappily perished. One of the salvors, named M'Quin, with a rope in his hand, plunged into the sea and reached a rock, caught a line thrown from the wreck, and was in the act of making it fast, when a fierce wave came upon him and swept him, alas! away. He has left a widow and several children. The institution voted £10 in aid of the local subscription now making for their relief.

A reward of £10 was also voted to the crews of the smack *Breeze* and a dredge-boat, both of Tenby, for their gallant services in going off during a heavy gale of wind and saving the crews, consisting of twelve men, from the brig *Union*, of Milford, and the schooner *Sydney Trader*, of Cork, which were wrecked in Caldy Roads, off Tenby, on the 18th of November last.

A reward of £6 was also voted to the crew of a fishing coble for pulling off and rescuing the crew of four men from the schooner *Eu-*

phemia, of Aberdeen, which was wrecked during a very heavy gale of wind near Fife Ness. The crew of the coble pulled off gallantly, at the imminent risk of their own lives, to rescue the shipwrecked crew, who had abandoned all hope of being saved. In returning to shore the coble struck heavily on a rock, and it was thought all had perished. They, however, succeeded in reaching the land in safety, the coble having sustained considerable damage in the service.

Various rewards were also granted to the crews of fishing-boats and others for either saving or attempting to save life from different wrecks on the coasts of the United Kingdom.

The committee expressed their deep regret at the lamented death of A. W. Jaffray, Esq., Vice-President, of St. Mildred's Court, who had given the cost of four lifeboats to the institution, and who was a munificent contributor to its funds.

It was reported that two lifeboats, built under the superintendence of the institution, had been sent to the lifeboat societies in South Holland and Marseilles.

The Governor of New Zealand, in a letter to the institution of the 7th of October, stated that the valuable instructions of the institution for the restoration of the apparently drowned would be extensively circulated throughout that colony. It is probable that a French translation of those instructions will be circulated throughout the French navy and on the coast of France, on the solicitation of the Shipwreck and Humane Society at Boulogne.

Legacies of £400 from the late Hon. Mrs. Fitz Roy; £100 from Mr. J. Marchant, of Guildford; and £19 19s. from Mr. C. King, of the National Debt Office, had recently been left to the institution. Dr. Watson, of Derby, had sent to the institution the cost of a lifeboat promised by his late sister, Miss Watson, of that town, who had died intestate and somewhat suddenly.

During the past month the institution had sent new lifeboats to Piel, Lancashire, and to New Quay, Cardiganshire. The cost of the former boat had been collected by the commercial travellers, and that of the latter by the Ancient Order of Foresters. Lifeboats were also ready to be forwarded to Poole, Dorset; Girvan, Ayrshire; and Tramore, county Waterford. Messrs. Forrestt, of Limehouse, had lifeboats building for the institution, the cost of which was between £2,000 and £3,000. The expense of a lifeboat station was altogether £600, and £50 a year was required to maintain it in a state of efficiency. New lifeboats are ordered to be stationed at Sunderland and Maryport, Cumberland.

Public Meetings had recently been held at Manchester, Derby, and Henley to promote the object of the institution, and some friends of it had suggested that the volunteers throughout the country might contribute one penny per man, which, according to the inspector-general, would produce a sufficient sum to buy a "Volunteer" lifeboat.

Reports were read from the Inspector and the Assistant-Inspector of Lifeboats to the Institution on their recent visits to the lifeboats of the society on the coasts of North Wales, Cornwall, and Devon.

Everywhere they found the boats in excellent order, and their crews perfectly satisfied with them. During the past year the lifeboats of the institution had on all occasions been manned by above 6,000 persons, and 700 lives had been rescued from shipwrecks during the same period by its lifeboats and fishing-boats, for which services the institution had granted rewards, amounting altogether to £1,595, in addition to having expended during the past year nearly £20,000 in lifeboat establishments. The society has now one hundred and forty lifeboat stations under its management—a noble fleet, reflecting as it does honour on the philanthropy of the age in which we live, and appealing strongly for continued support from the humane.

Payments amounting to nearly £1,400 were ordered to be made on various lifeboat establishments.

The accounts of the institution for the past year were ordered to be sent to Mr. Begbie, public accountant, Coleman Street, who has been its auditor for the past twelve years.

Cordial votes of thanks were given by the committee to Mr. Chapman, the able acting chairman of the institution, and to Sir Edward Perrott, Bart., the zealous chairman of its preparatory committees. The committee also expressed their high appreciation of the ability and assiduity of the secretary and of the inspectors of lifeboats of the institution.

The proceedings then terminated.

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

Particulars of Lights Recently Established.

(Continued from page 50.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
70. Sea-cow Head	St Lawrence Gulf	46° 19′ N., 63°48·5′W.	F.	80	14	Est. recently. Prince Edward Island: Salutation Point.
1. Gibraltar New Mole	.....	.....	..	..	..	Est. 31st Dec., 1864. Light at end of mole, as before. Red light is no longer shown. (*a.*)
2. Nab Light-ship	.....	.....	..	..	..	Est. Jan., 1865. Position altered in pursuance of No. 50. (*b.*)
3. Hesselo Island	Cattegat	56° 11·8′ N., 11°42·8′ E	F.	115	16	Est. 1st Feb., 1865. Instead of the present light.
Spotsbierg Sealand	Ise Fiord	Altered to	Ffl.	123	11	Est. 1st Feb., 1865. Flash every 15 seconds. *Query*—Is not this a revolving light?

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a.) 1.—This temporary *fixed* light is near the extremity of the mole, as heretofore, which shows,—*red* to the southward, *white* to the westward, *green* to the northward.

The new mole extension pier should not be approached whilst the *red* light is visible, and vessels should not attempt to enter the mole until the *green* light is in sight. A wide berth should be given to the end of the pier.

The light being adapted for local purposes, and not easily distinguished by strangers, the mariner is warned that it is dangerous to approach the extension pier in bad weather or dark nights.

(b.) 2.—The Nab Light-vessel has been removed 1¼ miles to the eastward of her former position, and is now moored in 5¼ fathoms at low water springs, with the following marks:—Portsmouth Church tower in line with Southsea Castle light, N.b.W.¼W.; Kickergill tower in line with the East end of Monkton Fort, N.N.W.¼W.; North tower of Osborne just open of the easternmost trees near Ryde, N.W.¼W.

A *red buoy*, also marked Nab, has been placed about one cable westward of the former position of the light-vessel.

REPORTED ROCKS—*in the South Atlantic.*

Under the title of *Rocks in the Pacific*, in the *Shipping and Mercantile Gazette* of the 21st inst., appears the following letter:—

London, January 17th, 1865.

"I beg to inform you that on my passage from Callao to Ceylon, I sighted three rocks which were not in my chart; but having one of Mr. Poole's best chronometers on board, I am quite certain of their position, which is, lat. 53° 40′ S. and long. 43° 30′ W. Moreover, on my arrival I found the said chronometer perfectly correct. The rocks appeared to bear North and South from each other at about half a mile apart: they are pinnacle shaped, about 150 feet high, and quite black. I shall be much obliged by your causing the above information to be forwarded to the proper authorities."

C. VAUX, *Sub-Lieutenant, R.N.R.*

The term "*Pacific*" seems to have been erroneously attached to the foregoing instead of the term "*Atlantic*," for the position assigned to these rocks by Captain Vaux places them between the island of South Georgia and the Falkland Islands,—so close to the Shag Rocks that they are no doubt one and the same. But we may observe, that a ship making a passage from Callao to Ceylon, which she would naturally do by Cape Horn and the Cape of Good Hope, (first, from this being the shortest distance, and next, from the advantage she would have of westerly winds,) we are very much surprised that she had not the beautiful chart of the South Polar Sea, (No. 1,240,) published by the Admiralty, and drawn up with the most scrupulous care in the Hydrographic Office. Had Captain Vaux had this chart on board, which as a careful navigator might have been expected of him, he would have saved himself the unnecessary trouble of making this report, for he would have seen at once that the rocks are laid down near Cook's and Bellinghausen's tracks, and if he had happened to run against them in the night, we should have had another loss of a valuable ship for the sake of three shillings and sixpence. We have already re-

corded a case of a ship lost in the Eastern Seas for the sake of half a crown, and it is more by good luck, perhaps, than good management that Captain Vaux has not contributed another, which in such a case would never have been heard of more. Perhaps our merchant shipping will find out the propriety of these things being attended to when sufficient of them are lost to bring the subject to notice.

DISASTERS AT SEA.

Calamities which we have been deploring in our recent numbers of the loss of life among our mercantile shipping from the want of a refuge harbour on our eastern coast, we deeply regret to find have extended to our ships of war. Not from the want of a refuge harbour, but from one of those strange vicissitudes to which they are always exposed, but which is happily of rare occurrence. The destruction of a large line of battle ship by fire, such as has occurred to H.M.S. *Bombay* off Monte Video, is without parallel in the naval history of our day. The loss of H.M.S. *Racehorse* on the coast of China, has arisen from one of those causes to which the best officers are liable, and unhappily it has been attended with as much loss of life as that of the *Bombay*. Our limited space enables us only to find room for the immediate reports of these two sad events, the appalling circumstances of which were met with that cool collected resignation and observance of duty which characterizes the British sailor. The losses of both these ships have been purely accidental. How the fire originated which has destroyed the *Bombay*, is likely to remain a matter of speculation, but we preserve the hurried accounts of both these catastrophes for the present, as we shall no doubt have to return to them in a future number.

H.M.S. Stromboli, Monte Video,
December 15th, 1864, *8h. a.m.*

Sir,—I much regret that I have to report the total loss by fire of H.M.S. *Bombay*.

She left this anchorage under sail at 7h. a.m. yesterday, when I transferred my flag to the *Triton*. About 5h. 5m. p.m. of the same day I received intelligence that the *Bombay* was on fire near the English Bank, or Flores Island, about thirteen miles from this place. I immediately dispatched the *Stromboli* to her assistance, and proceeded myself in the *Triton;* but so rapidly had the fire extended, that the ship had been deserted long before assistance could reach them.

The ship's company had been at general quarters in the afternoon until a little after 3h. p.m., the foremost lower deck guns were then told off for divisional exercise, but firing had not commenced from them, when about ten minutes after the retreat had been beat fire was reported to have broken out in the after part of the ship about the after hold; the fire bell was immediately rung, and with the greatest

order and promptness an abundant supply of water was obtained, but the fire appears at once to have spread with uncontrollable rapidity, which gives me impression that it originated very close to the spirit room, and that the spirit casks must almost immediately have burst and ignited.

At 3h. 35m. p.m. the fire was reported. At 3h. 52m., finding the fire was quickly gaining, the boats were hoisted out. At 4h. p.m. the boats were out with the exception of the second launch, when the flames coming up the hatchways, the awnings and sails having been burnt, rendered it impossible for men to work. The sick had already been passed into the boats, and the rest of the ship's company now followed. At a quarter past four the mainmast went over the side, the boats then being scarcely clear of the ship, and many officers and men were still holding on to ropes alongside and to the fore part of the ship, and others floating on the spars, &c. Soon after the mainmast fell, the stoppers of the anchors being burnt through, the anchors fell, and it seems many men who were upon or near them must have lost their lives.

The ship was under sail, hove to, when the fire occurred, steam not having been up.

At 8h. 25m. the after magazine blew up, and the ship sunk in about eight fathoms.

Among the officers Mr. John K. Smallhorn, Assistant-Surgeon, is the only one missing, and who was drowned alongside.

The French mail packet being at this moment on the point of departure I am not able to give a more detailed report; but I am endeavouring to ascertain the number and names of men missing, which, I am sorry to say, amounts to about 93; but, the boats having been picked up by vessels proceeding to different places, we cannot as yet get a correct return.

I have, &c.,

CHAS. G. J. B. ELLIOT,

Rear-Admiral and Commander-in-Chief.

To the Secretary of the Admiralty.

No list of names has yet been received at the Admiralty, but whenever any further information is received it will be made public.

The *Navy List* represents the *Bombay* as 2,782 tons (flagship) and 400 horse power. Her officers were—Rear-Admiral the Hon. Charles G. J. B. Elliot, C.B.; Flag-Lieutenant Henry N. Hippisley; Secretary, Stephen H. Moore; Clerk to Secretary, Charles E. Collins; Assistant-Paymaster, Charles R. Drew; Captain Colin A. Campbell; Commander, Charles Wells; Lieutenants, Edward Kelly, Francis Sterling, Charles A. Vidal, Henry J. Carr, James Buchanan; Additional Lieutenants, for disposal, Charles R. Forrest and John R. T. Fullarton; Master, James S. Watts; Captain of the Marines, William A. Delacombe; First Lieutenant of Marines, Cyril Frampton; Second Lieutenant of the Marine Artillery, James S. Bird; Chaplain, Rev. John Erskine, M.A.; Surgeon, Frederick W. Blake; Paymaster,

James D. Gilpin; Naval Instructor, Thomas H. Johnson; Chief Engineer, Robert J. Hay; Sub-Lieutenants, Edward F. Keppel, Henry A. Mandeville, Arthur S. Phillpots; Second Master, Frederick Hunter; Assistant-Surgeons, John R. Samuelson and John Simpson; and Assistant-Paymaster, Henry M. Harrison.

A private letter, received at Plymouth from an officer at Rio Janeiro, gives a few further particulars of the loss of the *Bombay*. At 3h. 30m. p.m. one watch was piped to quarters to exercise in firing. On the man whose duty it was to hand up shell going below he discovered the fire. The fire-bell was immediately rung, and the pumps rigged and played on the fire, but the flames burst up the hatchways, and in a few minutes all communication between quarterdeck and forecastle was effectually stopped. The order was then given to out all boats, and in eight minutes they were in the water, with the exception of the launch, and when that boat was being lifted the flames coming up the after hatch burnt the stay and she came down by the run. The greatest order, coolness, and intrepidity were displayed by all, Mr. Watts, the master, taking time of every occurrence with watch and notebook in hand. The mainmast soon went over the side. The order was then given to everyone to look out for themselves. They immediately jumped overboard and swam to the boats lying off, those who could not swim holding on by ropes; some fell and were drowned. Orders had been given for no boats to go near the burning ship, but the jollyboat, manned by volunteers, pulled in three or four times and brought away everyone they could see. At 7h. p.m. the ship blew up, not a particle of her remaining. The boat arrived at Monte Video at 11h. p.m. Dr. Smallhorn, Mr. Franklin, boatswain, and about ninety men are lost; and the admiral's secretary, flag secretary, and clerks are all at Monte Video.

The *Bombay* left Monte Video on the morning of the 14th of December, for target practice. She was about fourteen miles away, when a man handing shells in the shell-room perceived a little jet of steam coming up from the after hold, and immediately gave the alarm. This was between two and three o'clock. The pumps were instantly set to work, and all worked well. But the men were suffocated and could hardly remain to work them, and the fire could not be kept under. On one side of the fire was the spirit-room, on the other the magazine. The spirit-room took fire, the casks burst, and the spirits ran all over the ship, which became one mass of flame. The order was given to lower the boats and escape. Some boats could not be lowered from the tackle being on fire. However, most of them were got out, but had to be kept at a good distance from the ship on account of the fire; therefore all had to jump in and swim off from the ship to reach the boats. All the officers could swim more or less; many of the men could not, which accounts for the great loss of life among them.

Mr. Stirling says he swims himself very badly, and was an hour and

a half in the water before he could be picked up. Many of the men clinging to bits of the ship were killed too, he believed, by the cables falling away red hot among them, and by the melted lead, of which there seems to have been a great deal in different parts of the ship, for pipes, I think, and on the bowsprit. The melting lead pouring down upon them made them loosen their hold of whatever they were holding by and go down. The great anchors, too, when their ropes were burned, fell and crushed them. The mainmast went over at a quarter to four, only three-quarters of an hour after the first alarm of fire. By five o'clock I think the crew were all either lost or saved. The magazine blew up about seven o'clock, and the ship went down, leaving not a vestige behind. Not an article of any sort was saved but the clothes in which the officers and crew jumped into the sea, and most of them had thrown off jackets, &c., to jump in and swim. The behaviour of the men was perfect all through.

The origin of the fire is quite unaccounted for. The regulations about fire, matches, &c., were very strict; neither petroleum nor inflammable oils were used on board. The after hold contained biscuits, salt pork, &c., but nothing of a more dangerous character. The *Bombay* was only under sail at the time the fire was discovered; had she been steaming there would have been a much better chance by turning on the engines and getting the fire under. The weather was, happily, very fine, and the boats could therefore be reached and filled in a way that would have been impossible in less fine weather, such as they almost invariably had up to that time.

The *Bombay* was too far away from Monte Video for the fire to be easily discovered there. But I think about five o'clock it was telegraphed by the *Stromboli* to Admiral Elliot, who went off in her towards the scene. He arrived in time to see her blow up. They got back to Monte Video about ten o'clock at night. Admiral Elliot had only time to write a hurried despatch.

Loss of H.M.S. "Racehorse," with nearly all on board.

H.M.S. "Tartar," Shanghae, November 14th, 1864.

My Lord,—It is my painful duty to report direct for the information of the Lords Commissioners of the Admiralty that H.M.S. *Racehorse* was wrecked on the night of the 4th inst., at 8h. 30m. p.m., about five leagues S.E. of Chefoo Cape, and about two miles E.S.E. from White Rock. Only nine of her crew have been saved—three officers and six men.

I beg to enclose a copy of a letter I have received from Lieutenant Nicolas, of the *Insolent*, giving, as nearly as he could, by desire of Commander Boxer, a description of this melancholy accident.

A list of officers drowned and saved is also attached.

The *Racehorse*, in pursuance of orders from the Commander-in-Chief, was on her way to Chefoo from this port. She left here on the 1st inst.

Immediately on receiving this intelligence I despatched H.M.S.

Rattler to the assistance of Commander Boxer, and now await Commander Webb's report.

I am, &c.,
J. M. HAYES, *Captain and Senior Officer North China Division.*

To Lord Clarence Paget, C.B., Admiralty.

H.M. gunboat "Insolent," Teutai, November 8th, 1864.

Sir,—I am ordered by Captain Boxer to report that H.M.S. *Racehorse* was wrecked on the night of Friday, 4th of November, at 8h. 30m. p.m., about five leagues to the S.E. of Chefoo Cape, and about two miles E.S.E. from White Rock, and only nine of her crew saved.

At the time of the ship striking it was comparatively smooth, boats were lowered, stream anchor and cable placed in cutters ready to lay out, when heavy rollers set in, swamping both cutters and gig, and breaking entirely over the ship; the masts were then cut away, and the ship steamed full speed on shore, endeavouring to save life, but the wind increasing to a gale, the rollers washed away all skylights and filled the ship.

The ship's company was then sent aft, told the position of the ship, and that if they held on till daylight there was every hope of all hands being saved. Unfortunately, the endurance of only a few was equal to this, the poor fellows dropping off one by one from the effects of the cold and the force of the sea.

A list of those saved and lost is enclosed.

Captain Boxer desires me to add that the conduct of the officers and men during this frightful night was most cool and collected, obeying every order smartly and energetically, especially by the first lieutenant, master, and boatswain.

I have, &c.,
G. TOUP NICOLAS, *Lieutenant-Commanding.*

To Captain Hayes, H.M.S. Tartar, Shanghae.

Officers and Men Saved.—The following is a list of officers and men who were saved:—Commander Boxer; Mr. W. H. Thompson, Paymaster; Mr. W. Loulett, boatswain; John Hollis, boatswain's mate; Omer Roberts, A.B.; Wm. Eaton, A.B.; Wm. Pugh, gunner, R.M.A.; Wm. Washington, private, R.M.; John Nicholls, stoker; — Richardson, stoker, left at Shanghae, sick in the hospital.

Officers Lost.—The bodies of those whose names are marked * have been recovered and buried.—*Lieutenant W. Farquhar; Lieutenant A. G. C. Tait; Master T. Dobbin; Surgeon J. E. Fawcett; Chief-Engineer G. M. Dooley; *Assistant-Paymaster Richard Crabbe; Assistant-Engineer Phillips; Assistant-Engineer Tapping; Assistant-Engineer Tickle.

To Join "Insolent."—Mr. Roberts, Second-Master, (from *Swallow*); Gunner James Porter; Gunner David Gingle.

The loss of the *Racehorse* suggests the great importance of a proper

system of lights for the coast of China, and we throw out the proposal in hope that it will be taken up in earnest by the merchants of Shanghae, for we believe that with the exception of the light-vessel off Fushan in the Yang-tse, and occasional light at the Pescadores, and one on Double Island at the River Han, the whole China coast remains in its primitive darkness; a state of things which should not be allowed to remain on a coast in which ports have been opened by treaty especially for the benefit of trade. A good beginning would be made at the ports themselves, and we would call the attention of our consuls, as well as merchants generally, to urge the subject on the attention of the Chinese Government, and especially on that of Prince Kung, who seems to have some seeds of progress in his disposition. We are fully persuaded that the day will come when we shall see this coast lighted as well as any other,—but we tell our merchants and consuls that this day might be hastened in its arrival by their united exertions. A beginning should be made with the treaty ports, which would very soon pay the expense, and others would naturally follow. Had a light been established at Chefoo, or on Sukia Head, off which is the White Rock, the loss of the *Racehorse* and the valuable lives gone with her, must have been saved, and such an error as is said to have occasioned her loss of mistaking the latter for the former, could not possibly have been made.

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EDWARD DUNSTERVILLE, *Commander, R.N.*

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The Peninsular and Oriental Co., the Royal West India Mail Co., the Pacific Steam Navigation Co., Royal Cape Mail Packet Co., Australian Steam Navigation Co., &c., &c., continue to use Messrs. Peacock and Buchan's Composition on the bottoms of their magnificent Iron Fleets, in preference to all others,—after repeated trials.

Several Compositions for Ships' bottoms having been patented within the last few years containing *copper* (the Patentees being doubtless in ignorance of the injurious effects of copper on iron), Messrs. Peacock and Buchan conceive it to be their duty to inform the public of the results of their experiments with preparations of copper commenced upwards of *twenty-eight* years ago, and laid aside in 1847.*

The **British Admiralty** are now using Messrs. Peacock and Buchan's Composition on *many* of the Iron Ships of the Royal Navy, and the reports are very favourable in comparison with the numerous applications they are patriotically and periodically trying from other inventors: most of whom use *copper* as a base.

The **Spanish Admiralty**, after repeated trials of *copper preparations* and other pigments, which have proved destructive to the plates and rivets, have decided on adopting it exclusively in their Royal Navy, and Transport Service, and have entered into a contract with Messrs. Peacock and Buchan to supply the royal arsenals of Cadiz and Ferrol, to which ports large orders have lately been shipped.

Competing trials in voyages to the West Indies and Egypt have been made during the last two years on the bottoms of several Iron Government and Royal Mail Steamers with various new preparations, *said to be* anti-fouling and anti-galvanic, against Peacock and Buchan's Composition, and the results have invariably proved favourable to their improved Number 2 Composition: the reports from India and Australia still continue very satisfactory, and large quantities have been shipped to their depôts in India, China and Australia during this last year, by order of the Board, for the use of the Peninsular and Oriental Company's magnificent Iron Fleet in the Eastern seas.

The following letters have also been received from the Marine Superintendent of the Royal West India Mail Company.

Royal Mail Steam Packet Company, Southampton, 24th Dec. 1863.

Messrs. PEACOCK AND BUCHAN, *Southampton.*

Dear Sirs,—In reply to your letter of this date I beg to state that we still continue exclusively to use your paint for our ships, which I believe to be the best composition at present in use for Iron Ships bottoms.—I am, Dear Sirs, yours truly,

(Signed) WILLIAM VINCENT, *Superintendent.*

* See Pamphlet pages 1 and 2 and 92 to 103.

PEACOCK & BUCHAN'S IMPROVED COMPOSITIONS.

Certificates, &c., Continued.

Royal Mail Steam Packet Company, Southampton, 19th December, 1864.

Messrs. PEACOCK AND BUCHAN.

Gentlemen,—In reply to your letter I can only confirm the observations made in my last note to you, dated 24th December, 1863.—I am, Gentlemen, your obedient servant,

(Signed) WILLIAM VINCENT, *Superintendent, Royal Mail S. P. Co.*

From Captain George Grahame, of the iron sailing ship *City of Madras*, belonging to Messrs. Smith, Shipowners, Glasgow.

London, 14th December, 1864.

Messrs. PEACOCK AND BUCHAN, *Southampton.*

Gentlemen,—Having this day, in Messrs. Fletchers' graving dock, examined the bottom of the *City of Madras*, under my command, which was coated with your Genuine Composition (Improved No. 2) nine months since, over red lead, I have to state that the bottom was found to be in a very clean and satisfactory condition—there were no barnacles or grass, merely a little slimy matter.

We have made very good passages both out and home to India; the bottom was also free from rust, &c., and the vessel is to be recoated with your Composition as before.—I am, Gentlemen, your obedient servant,

(Signed) GEORGE GRAHAME, *Commanding the City of Madras.*

Southampton Dock Company, Dock-House, Southampton, 20th December, 1864.

Messrs. PEACOCK AND BUCHAN.

Dear Sirs,—In reply to your letter, I do not know how I can add to or withdraw anything that I have said on previous occasions as to your composition paints. I have not seen anything used for coating ships' bottoms at this port to compete with your Composition, which, I may say, is *now* the *only* paint in use here.

I have noticed from time to time during the last two years various other preparations being used in *competition*, but as far as I can learn they have *all* proved to be *failures*.

I have used your No. 2 Composition for coating our *iron caisson* with great success, and I have recently had our new *iron sheers* painted with your No 3 stone colour paint, and the result is highly satisfactory.

My experience of the valuable properties of your Composition extends over a period of more than *ten years*, and I see no reason to alter my opinion as to its still being the best thing extant for keeping clean and protecting the plates and rivets,—I am, Dear Sirs, your obedient servant,

(Signed) PHILIP HEDGER, *Dock Superintendent.*

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Private notes equally expressive of high approval have been received from the following gentlemen:—Admiral W. H. Smyth, F.R.S., &c,; the Astronomer Royal; Charles Back, Esq.; E. H. Rodd, Esq., and Lieut.-Colonel Macdonald.

It should also be remarked that a poem on a Portrait of the LIBERATOR OF ITALY is contained in the work.

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THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

MARCH, 1865.

A Run from Auckland to Australia.

Outward.

"A ship from Auckland, o'er the deep impell'd,
'Gainst strong head winds her course for Sydney held."

It is, perhaps, a trite remark that the human, equally with the vegetable creation, becomes improved by occasional transplantation. Of that fact, as far as animal matter is concerned, the "Cruiser" who ventures to request you to "lend him your ear" entertains the most absolute conviction, morally, socially, and *personally*. To the truth of that axiom he has been a subscriber—it is needless to say for how many years. The fact is that, with a roving bump of extensive development, and with an intense thirst to revisit "scenes of other days," no logic could convince him to the contrary that mind as well as matter is invariably improved by periodical change of place and position.

That intellect, as well as thews and sinews, becomes strengthened by reciprocal interchange of ideas and sentiments with one's friends and neighbours is "Cruiser's" creed. He imagines that he has frequently authenticated that creed, and that he himself has been able to demonstrate (at least to his own individual satisfaction) that he who desires to maintain a progressive knowledge of this advancing world must not remain for ever *vegetating* in one soil, but must now and then "move on," in order that he may learn what is doing beyond his own chosen garden of Eden.

Notwithstanding this, for more than sixteen anxious years, the "Cruizer" remained moored, head and stern, in this our promising city of Auckland; although, during his previous erratic career, no portion of her Majesty's dominions could at any time claim him as the resident of a single lustre. Body and brain may, natheless, be stretched too far. His, he thought, were beginning to "give in." He was firmly persuaded that, to him, "the sovereign'st thing" was "blue water." And as appliances by sail or steam were equally rife, he resolved to snatch a long needed holiday. Antiquated prejudices induced him to prefer canvas to "smoke-jack." The probabilities, he thought, were that he would *enjoy* more of "a life on the ocean wave" under canvas than under coal. And with this impression, on the 4th of June last, he embarked at Auckland on board the good ship *Day Dawn*, of 400 tons register, commanded and owned by Philip Jones, an esteemed friend of twenty years' standing, commodore of the Auckland and Sydney fleet.

It was but a few minutes after five o'clock of a bright starlight winter's morning, when the ship was reached. Not a breath of air disturbed the serenity of the atmosphere. Had Auckland possessed even the most insignificant of steam tugs, in five or ten minutes the ship would have been set at large. As it was, what with hauling upon one shore, fast veering away upon another, and performing an infinity of evolutions—technically recognised as *club* or *box* hauling,—it was a quarter to eight o'clock, or fully two hours and a half, before, from her intricate situation, she could be warped clear of the dolphin and sundry small craft lying off the eastern point of the Queen-street wharf.

Having mastered this weary process, with the aid of the ebb, the ship began to drift down harbour. An occasional cat's-paw obviated the performance of a nautical waltz, and in an hour the North Head was rounded. Day broke in beauty, but it wore tediously. The colonial steam gunboat *Sandfly*, Captain Hannibal Marks; H.M.S. *Curaçoa*, 23 guns, Commodore Sir William Wiseman, Bart.; the barque *Forres*, from California; and ship *Adelaide Bell*, from Newcastle, all passed inwards as the *Day Dawn* was struggling outwards, the steamers blowing their heavy clouds, the sailing craft whistling vainly for the breeze that would not blow.

Next *day dawn* found our good ship close aboard the island of Kawau, since memorable as the head-quarters of Maori emancipation. There was barely a breath to lull the fretful canvas to rest. But as day wore one or two very light north-easterly puffs were felt; and these gradually freshening, at 1h. 40h. p.m., the Little Barrier Island was passed to the westward, colours at the same time being exchanged with an inward bound brig, whilst a second brig was seen off Cape Colville.

Between three and four p.m. the wind increased and hauled towards the north, causing the ship to break off, so that midnight had passed before she cleared the Hen and Chicken group of islands, and found herself in the open sea. It was teasing work, veering and hauling

amongst these islands; and one could not but admire the unwearied vigilance of her commander. No wonder that he should have acquired the celebrity he so richly deserves. How, indeed, could it be otherwise, studying, as he does, every alternation of barometer, sky, and ocean, and trimming his canvas to every spirt or flaw of wind, however gossamer in lightness?

During the night the wind increased to a strong breeze, and as the Cruizer's bunk was on the port and weather side, he and his bed-clothes had some difficulty in maintaining an *enteinte cordiale*, until a lee-board was shipped and their unity secured.

In these days of universal voyaging, Robinson Crusoe would himself be puzzled to invest an inter-colonial trip with interest. The trip we treat of was accomplished under the customary variations of light airs and fresh breezes, attended with heavy downpours of rain, the concomitants of the wintry season of the year—winter,—such, at least, as is called winter in our summer latitudes; but very different indeed from the stormy blasts of hyperborean regions.

On the ninth day out, June 13th, the wind, that during the previous night had blown hard, increased to a fierce gale, rain falling in torrents, ship rolling heavily. At 3h. a.m. the canvas was reduced to lower fore and main topsails (the ship being fitted with double topsail yards), reefed fore course and fore topmast staysail—running twelve knots. From nine a.m. until ten it blew a perfect hurricane—a hurricane which, as we subsequently were made aware, strewed the Australian coasts with wrecks. At ten the tempest appeared to concentrate its fury, inasmuch as it expended all its violence in one terrific blast, instantaneously subsiding into the most perfect calm—the rain ceasing, the horizon clearing, the sun breaking out bland and brilliant, the wind—a light air—shifting to the north-western board, so that the frantic barque, that had been striving and straining like a racer in full career, fell at once into a jog-trot, rolling and lurching,—wind spent, sea heaving and sending, the canvas with expanded wings, flapping, thrashing, and tearing itself in pitiable irritation, with yards now laid square, now braced by, to woo each coy flaw, until, towards midnight, a fine steady E.S.E. breeze woke up to drive us rejoicing on our course.

During the next four days our progress was good, and although the wind was at times puffy, with flying showers, still the weather was bright and genial, and we had run nearly 800 miles, bringing us within 120 miles of Port Jackson Heads at noon of the 16th. Between one and two of the morning of the 17th, the light was announced to be in sight, so I turned out to greet it as I would a dear old friend, whom I had frequently before been rejoiced to behold. It was now some nine or ten miles distant on the port and lee bow. The wind, a fresh breeze, still continued favourable, but the rain poured down—as it can do in New South Wales—a deluge.

We entered the harbour, the South Head, Middle Head, and floating lights showing a clear and brilliant course. Those lights have been supplemented by an additional light on Pinchgut Island, under

whose guiding rays we picked up a berth off the mouth of Sydney Cove, after a very fair and pleasant passage of some four hours less than thirteen days.

Sydney in 1864.

"I'll view the manners of the town,
Peruse the traders, gaze upon the buildings,
And then return, and sleep within mine inn."
Shakspeare.

"The *Phryne* lay in the beautiful man-of-war anchorage in Farm Cove. . . . . A handsome close carriage whirled me rapidly across Hyde Park, through Woolloomoollo, and along the picturesque road towards South Head. Nothing could transcend the beauty of the numberless bights and bays, their bright blue waters flashing and flickering in the golden sunlight. The natural infertility of soil was shamed by prodigal luxuriance of vegetation. The bush was a wilderness of flowering magnificence, the unequalled warratah with his stately head of brilliant vermilion lording it proudly over a countless host of minor but scarce less lovely 'natives.' The wealth and industry of creative man were busy in conversion. His untiring energies had 'softened rocks' and forced the arid sand to bloom. Villas and mansions were rising on every hand, and parks and gardens springing into life. Beautiful Sydney! Fair and lovely as you now are, what surpassing charms will not your noble environs in half a century present, when nature's numberless beauty spots shall be embellished by the hand of wealth and taste."—*Emma Mordaunt.*

Sydney *is* marvellously "embellished" since the time at which the above quotation was penned. Gold!—that magic working agent—has poured in upon her, pushing her a century forward in the course of a single decade. Few have had a more lengthened or intimate acquaintance with Sydney than I. In company with Mr. Joseph Docker, one of the Australian Commissioners now engaged in the selection of a suitable capital for New Zealand "somewhere in Cook Strait," I first landed at the Queen's Wharf, from the barque *Calista*, Captain John Hawkins, on Monday the 14th day of April, 1828. My next visit, which was followed by a residence of nearly four years, was made in the beginning of August, 1844. My present arrival dates from the 17th of June, 1864; and as my last departure was in April, 1848, an interval of sixteen years occurs between each trip, thereby enabling me to note with more striking effect the grand strides that have been made by the first maritime city of the Southern Pacific. Of those changes and improvements I shall have occasion to treat in their natural order, reverting at present to my rough notes, and to the good ship *Day Dawn.*

On turning out on the morning of the 17th June, we found H.M.S. *Salamander*, Hon. John Carnegie, commander (a sometime shipmate, by the way), and a French man-of-war schooner at anchor in Farm Cove; whilst Sydney Cove was crowded with a large and fine class of shipping. Our own good ship sought out a berth at the Grafton Wharf in Darling Harbour. She experienced no difficulty or delay in reaching that berth, for Sydney teems with an active fleet of accommodating steamers, and so, for a moderate "consideration," she

was taken in tow by the *Breadalbane;* by whom she was walked up to her wharf in no time. In Auckland, hours would elapse before a ship could accomplish the like, although a very diminutive steamer would suffice, earning a fair remuneration, and rendering the utmost service to the less locomotive sailing ship.

There is no part of Sydney more altered and improved than the landing places and wharves in continuation of the Circular Quay. From Campbell's to Fort Macquarie there is no obstruction in the chain of berths for shipping. In 1828 the wavelets of the cove broke upon the beach at the confluence with the tank stream. Then Campbell's and the Queen's, with room for but two or three vessels, were the only wharves; and even in 1848 the accommodation at the Circular Quay was circumscribed, and the chain from Campbell's obstructed by the interposition of a dog-hole misnamed the dockyard, and by a sort of quagmire which interposed its fetid abominations between the Queen's Wharf and the Circular Quay. Now, however, the dockyard has disappeared. The tank—that once beautiful stream by whose pellucid waters Governor Phillips first pitched his camp—is no longer visible. Latterly, like the Fleet of London, it had derogated into a ditch. Like its Metropolitan it is now covered over, and Pitt Street, with its road and tramway, occupies much of its former unsightly course. The swamp is piled and metalled; and Pitt, Phillip, and other streets debouch upon Circular Quay, one of the finest, most accessible, substantial, and elegant of any havens to be found in any quarter of the globe.

The weather had been frightful; the country was in a state of flood, inundation had followed inundation with a destruction never previously experienced. The coast was strewn with wrecks,—one vessel, the *Pacific*, a fine barque, which sailed from Auckland only a few days previously to our own, having gone to pieces at Shoalhaven. On landing at Campbell's Wharf, tramping through mire and sludge, we passed into the city by Macquarie Place. Near this, in the earlier days, the old Government House, the government offices, and some of the dwellings of the high officials were situated. All this is changed. Old Government House has been cast down nearly a quarter of a century. Its noble lawns and pastures have been hewn into warehouses, streets, and offices of commerce. One enclosure, in which, in the *classic* days of *convict* supremacy, the fair and lordly of the land were wont to hold weekly carnival, to be regaled with the stirring tones of martial melody,—in 1828 they were those of the 39th and 57th; this once chosen spot, whose pleasant memories I can never quite forget, is now a small triangular depot of metal, where the hammers of the road-makers furnish the only music that awakes the neighbouring echoes.

The obelisk, erected by the good Macquarie, whence all the distances from Sydney are measured, yet retains its place. The fountain, once a myth but now a reality, spouts forth refreshing jets of crystal fluid. But of the "Lawn" and its surroundings, without the aid of imperishable reminiscences, or by inhalation of John Chinaman's

ethereal inspirer, there is nothing to tell how they of the "Primus in Indis," of the "Diehards," with their noble chiefs—the Lindsay and the Shadforth, gave life and animation to an animated picture. The opiate is strong upon me, and, in spirit, it carries me back full seven lustres. I hear the swelling notes of the "Diehards." The promenade is thronged with beauty. Conspicuous amidst the throng shines the queen-like Betsy Balcombe. She who, at the St. Helena Briars, when in the buoyance of girlhood, snatched the sword of the mighty Napoleon, and *pinning* him in a corner of the drawing-room, boasted of holding the greatest hero of modern times at her mercy, protesting that she would never release him until he bowed submissive to her will. The day-dream has vanished! Napoleon slumbers in the Invalides, and Betsy Balcombe, with her legion of adoring worshippers,—Where is she?

From the seventh heaven to sloppy streets the descent is not the most enchanting; but it is imperative if I desire to acquaint old Australasians who, like myself, have been of migratory habits, of the chances and changes that have and are taking place in once familiar spots.

The enlargement and the improvement of Sydney in every direction is very great. Not in the city only, but in all its outlets and suburbs. In the city the numerous banking corporations and other public associations have erected a succession of magnificent palaces, each vieing in envious competition with its neighbour. Pitt, Castlereagh, Elizabeth, and even George Street—which I can recollect as chiefly of mean woodon structures, such as our Auckland of to-day, have in a great measure been replaced by the more enduring materials of brick and stone. Edifices that would adorn almost any city are now numerous in Sydney. Like soldiers in line, the streets have "dressed up," gaps have disappeared, and even in the altitude of the buildings there is a growing amount of harmony.

So far well. But Sydney, like Auckland, has little to thank the surveyors for who originally laid it out. The streets of Sydney are even narrower than those of Auckland. They are also more tortuous, and their drainage, in the first instance, has been as little considered, though now that matter is engaging due care and consideration. Water, too, not very long since a matter of anxious moment, has been abundantly provided to every householder. The supply is derived from a reservoir at Botany Swamp, from whence it is distributed throughout the city. The charge, as I was informed, is at the rate of 5s. per annum according to the number of apartments in a house; as thus,—a four-roomed house is charged 20s., an eight-roomed 40s. a year, and so on. It was very wet during my stay in Australia; at that time the supply of water for every purpose was more than plentiful, but from every inquiry that I made I was given to understand that even in the driest seasons there is no deficiency. In such a city as Sydney the water supply is a matter of the last consequence; and to those who can recollect the fabulous prices which, not very many years since, in times of drought, a bucket of the pure element com-

manded, an unfailing stream must be regarded as one of the greatest blessings,—a blessing of which it is heartily to be hoped Auckland may not much longer be deprived.

My first Sunday I attended service at St. Philip's. It is a new building,—I am not learned enough to say of what architectural order,—but at all events a good-looking church outside, with a square tower, in which are hung a sonorous, but somewhat clamorous, peal of bells; which on the anniversary of the natal day of the gentleman who presented them, are most eloquent in expression of their gratitude. The new is a substitution for the old St. Philip's Church, the first religious edifice erected in New South Wales, and of which for a prolonged term the good and venerable Archdeacon Cowper was the incumbent. Under his ministry I was for several years a parishioner, and I naturally felt some anxiety to see the new church which had replaced the quaint old structure of the times of "the first fleet." Its interior, with unpainted, unpanelled, dull, stony walls, struck me as cold and comfortless in the extreme; and its narrow windows, however much in consonance with much of the Church of England architecture of Austral-colonial approval, were altogether opposed to my taste, which has no sympathy for "dim religious light."

Sydney is, emphatically, a maritime city. In whatever pertains to maritime grandeur she is all but unrivalled. Slowly, silently, but surely, she has compassed the proud position of naval arsenal, not only for the royal and mercantile marine of Great Britain, but for that of every country and colony that "goes down to the sea in ships." This proud and prosperous pre-eminence has been by no means an achievement of legislatorial intelligence. To this invaluable pre-eminence a majority of the statesmen of the day were blind, deaf, and dumb. Dry docks, patent slips, and the like maritime appliances were, in their wisdom, matters for the consideration of future times. They, therefore, opposed their construction as wanton and worthless expenditures; and in furtherance of their views of the question, they nominated one of the most incompetent *select* committees, in which ignorance of the simplest nautical facts, combined with miserly closure of the public purse, had nearly given the *coup de grace* to the establishment of a naval arsenal,—the now nearly sole but certain means that enables Sydney to maintain her questionable supremacy—Melbourne, otherwise, in commercial, agricultural, and social superiority rapidly outstripping her.

The harbour of Sydney is not merely beautiful to look upon,—it is of unrivalled excellence for its convenience, security, and naval facilities of almost every description. Artificers, artisans, engineers—men of keen perception and true ability—have never been slow in discovering this. So that, notwithstanding the stupor of the colonial government and the proverbial ignorance and indifference of that wretched branch of a great national department—the * * * * *—the industry, intelligence, and fearless energy of English mechanics has been successful in rendering Sydney the great nautical emporium of the South Pacific.

In November, 1845, *Le Rhin*, a French *corvette de charge*, commanded by Commodore Berard, arrived in Sydney. She was leaky, had been some years in the Pacific, and required to be overhauled and refitted. There was then but one patent slip—Fotheringham's, at the corner of King and Sussex Streets,—and it was unequal to receive a ship of a greater capacity than 500 tons. *Le Rhin* measured about 1,000 tons. There was no dry-dock,—consequently, there remained no other alternative than to have her hove down, which was effected, at considerable cost and difficulty, at Moore's Wharf.

At this time the Cockatoo dry-dock was a subject of tolerably acrimonious discussion. It was nearly pooh-poohed in the Legislative Council. The Admiralty were disposed to give it a qualified support, such as would enable the sailing "donkeys" of that day to enter—no provision being made for the "screws" of a short sixteen years' creation. It was reserved for the writer of these reminiscences to demonstrate that through a forty-five feet entrance—the width of Admiralty restriction—even the *Juno*, a small paddle-wheeler, the property of the late Mr. Benjamin Boyd, could not effect a passage. There are now docks, slips, and arsenals of a very superior degree; and of these I proceed to speak, not in rotation, but according to the date in which I was enabled to make my tour of inspection.

The first of these is a floating dock, which is moored in the vicinity of the gas works. The *City of Melbourne* barque, a well known Auckland and Sydney trader, was there, and then being stripped, recaulked, and re-coppered. This dock can accommodate a ship of 400 tons. It is dry and convenient, and has engines attached to pump out the water when the vessel has been taken in and blocked. This operation is performed by opening the valves and submerging the dock. When the ship is in position the valves are closed, the water discharged, and then the dock and ship rise to the line of flotation. The arrangement is simple, expeditious, and economical. The entire cost of the dock is something under £10,000. It is perfectly watertight; lies in shore and in immediate contiguity with the timber yard and artificers' shops of its proprietors. Such a dock would be of inappreciable service in the port of Auckland; and I am informed by Captain Rountree, constructor of Mr. Mort's dry dock at Waterview, that a floating dock capable of receiving ships of 2,000 tons, could be built and stationed in this port, fitted with all working essentials, for a sum of £25,000.

Speaking of Mort's dock, it is a splendid one, situated at the head of Waterview Bay, hewn out of the solid freestone rock. It is 360 feet in length, 26 feet deep, and 72 feet wide at the entrance, which is closed by a wooden caisson. Waterview Bay is the rendezvous of the Peninsular and Oriental Company's steam fleet; and there they have other appliances besides the dock for the repair and refit of their own and other ships. Waterview Dock is leased to this company, and they in turn have sublet it to Mr. Cuthbert, shipbuilder, Miller's Point, who, in conjunction with the eminent engineering firm of Messrs. P. N. Russell & Co., executes the various works that come under the

denomination of mercantile marine repairs. To this end the Messrs. Russell have an extensive branch of their iron foundry, with all modern means and appliances, placed on the immediate confines of this magnificent dock, which is pumped dry on an average in six hours by powerful steam machinery that lifts twenty tons per minute. There is ample space for a ship of 2,000 tons register; and so frequently has more accommodation been demanded, that the Messrs. Russell have it in contemplation to erect a patent slip of the largest dimensions in immediate contiguity. The charge is one shilling per ton for sponsible, on the implied condition that their policy should have a fair trial. There was no docking,—sixpence per ton for each succeeding day. The in coming mail ship remains her month in Waterview Bay, where she is docked, cleaned, and ready to take her next month's mail in apple-pie order. On occasion of my second visit to this quarter, I found the *Northam* preparing to be docked, the *Madras* ready to take her departure with the August mail. There is another very important establishment of the P. and O. Company here. It is a washhouse, where all the bed and table linen of the company's ships is washed, dried, and made up by steam. They have, likewise, an extensive range of buildings for various descriptions of ship and other stores. Every facility is afforded to visitors, and a steamboat constantly plies between the Phœnix Wharf and the bay, the fare being threepence either way.

Having cursorily spoken of the branch engineering establishment of Messrs. P. N. Russell & Co., it may be as well to say that I was afforded the opportunity of inspecting their great iron foundry in Sussex Street. It is an immense establishment, possessing almost endless resources, whether in the raw or manufactured articles of iron and brass, such as would be apt to astound even Tubal Cain himself. Steam-engines, steam-hammers, *steam-slaves* of every sort, size, and shape, are incessantly at work constructing and converting. Three hundred and twenty men are in constant and full employment; and the system devised for keeping account of the time they labour is as simple as it is efficient. Iron here is moulded with equal facility either into a ship or a slop-pail. Mechanism of every kind surrounds you. Here there is a plate-cutter paring and pruning to pattern. There there are rollers twisting and bending the material into given form; holes are punched, rivets blocked out, and gigantic masses of metal planed and drilled; whilst steam-hammers, striking from ten pounds to fifteen hundred weight, fly up and down. One steam dredge for Newcastle was ready for launching. Another for Brisbane was far advanced. And the requisites for our Tanaki Bridge, which were to be completed in the course of five months, had then been put in hand. I have had the satisfaction of visiting most of the English dockyards; I have seen Fawcett's great Liverpool workshops, the Carron works, and many like establishments in the old country, and I cannot but think that for regularity, good order, and efficiency that of Messrs. Russell may bear honourable comparison. Their stock of used up models is enormous, estimated to have cost upwards of £50,000.

From Russell's Foundry I went to the Royal Mint. I expected to have found it a very inferior affair to that of Tower Hill, which I went through in 1838. It is not so, however. In the arrangements of its details it is quite a model establishment, furnished with furnaces, presses, and machinery of the newest and most approved construction. They had coined to the extent of £126,000 the previous week, although they complained that gold was coming in but slowly.

The dock at Cockatoo Island is another of those establishments which conduce so materially to the maritime ascendancy and mercantile prosperity of Sydney. It has been a work of many years, and constructed mainly by the labour of the convicts of that penal settlement. I paid it two visits—H.M.S. *Falcon* being docked on the first, and H.M.S. *Esk* on the second occasion. Vast changes and very great improvements have taken place within the last sixteen years. The island is cut down in many quarters, whilst a grand and spacious quay has been formed by the *debris*. This quay extends on all sides. The prisoners' barracks have been enlarged—new edifices for officers and guards have arisen; but it is more than questionable if the free and felon labour that is necessarily brought into contact in such an arsenal can be employed without prejudice to both parties. There are some 200 felons of the worst stamp detained there; and the turbulence of such characters keeps the solitary cells—hewn out of the solid rock, and entered by a ladder from above—in constant occupation. Such an institution is an odious blot on the fair face of the Parramata River, and becoming prison discipline cannot possibly be maintained in an establishment open to all ships that stand in need of repair.

Cockatoo Dock is now in full working order. Its present length is 330 feet; but excavations are rapidly pushing forward by which it will be extended to 400 feet. It is some 80 feet in width; but the entrance gate (closed by an iron caisson) is much too narrow, being but 60 feet. Even this limited width is due to the sound sense of Captain Mann, the resident engineer, who, disregarding injudicious obstructions, added 15 feet to the original Admiralty plan, which restricted the gateway to 45 feet. In other respects the dock is admirable, with a splendid row of workshops, furnished with the finest machinery for engineering purposes attached. The arsenal is the property of the New South Wales Government: H.M. ships are privileged to the gratuitous use of it and its appliances. All repairs, nevertheless, are performed by contract with Sydney shipwrights, the mechanics being daily conveyed to and from the island. Merchant ships are also permitted the use of the dock, the scale of charges being the same as at Waterview. The pumps for discharging the water are very powerful, the dock being freed in the course of three hours.

It is docks, slips, wharves, steam-tugs, and other superabundant maritime subsidiaries that constitute the true riches of Sydney. These are multiplied in every form and in every direction. Were Auckland only to attempt a movement in a similar manner, she could not fail to develope a material progress and prosperity of the last consequence to her as a growing naval and mercantile emporium.

There is no better managed and, probably, no more important maritime institution south of the equator than the Australasian Steam Navigation Company; whether they be regarded as navigators, constructors, or refitters, excellence is the aim in all their undertakings. Their ships are of the highest class,—their commanders are picked seamen and gentlemen,—their servants are civil and attentive,—their tables are well furnished,—and nothing that can conduce to the comfort and convenience of passengers is omitted. New ships of the most approved design and of the greatest speed continue to arrive from Britain, or are turned out, of equal beauty, stability, and capacity, from their own arsenal; which, for completeness, extent, and the skill of its artificers may honestly compare with many of the high class establishments of the old country.

Commencing business, not a very great many years back, as the Hunter River Steam Navigation Company, this co-partnery has swiftly and surely worked its successful way, until now it commands the traffic of nearly the entire Australian coast. Six and thirty years ago, an old Margate hoy sufficed for the goods and passenger trade of Sydney and the Hunter. The hoy was succeeded by the *Sophia Jane*, a sometime Gravesend steamer; she in turn gave place to the *Rose*, *Thistle*, and *Shamrock*, the latter doing the Melbourne and Launceston work. They were marvellous boats in their time, and strove hard to make it "pay." They have disappeared before a fleet of such power and capacity that one of the number—a smaller one—proved competent to take the mail service to Galle in hand.

The Australasian Company's Works are most complete in every department of maritme construction and refit. The patent slip was laid down at a heavy cost—close upon £100,000. It takes up ships of 1,000 tons register, and would, I believe, receive even larger. It is rarely without some occupants, whether in construction or repair. The *City of Adelaide*, at the time of one of my frequent visits, a powerful and splendid ship, fresh from the factories of Greenock or Port Glasgow, was being repainted and put in trim for the Melbourne line; and the ribs and several sections of the plating of a light draught paddle steamer, of some 600 tons, designed by Mr. McArthur, the company's engineer and superintendent—a gentleman of great and approved ability—had their respective stations at the tail and head of this magnificent maritime railway. It was on this spot that the Waikato gunboat *Pioneer* was built; and it is at this spot that the vast preponderance of the steam marine of Australia take their turn of cleansing and refit. It would be quite foreign to the intention of these sketches to enter into minute description of this or any similar colonial arsenal. Suffice it that the Australian Company have omitted no means of improvement, mental, mechanical, or material, in rendering this, their grand maritime *entrepot*, the most perfect and efficient of any of the colonial dependencies of Great Britain.

Of the ships that constitute the superb fleet of this enterprising company I shall have individually occasion to speak hereafter.

(To be continued.)

SHIP "JOHN TEMPERLEY,"—*Sydney to China by Torres Straits, Bligh Entrance.**

Sir,—Being at Sydney in May last and bound for Hong Kong, I could not for some time make up my mind what passage to take. Some said go eastward by all means; some, don't go that way by any means, &c. At last (and not until I had been some days at sea) I determined on Torres Straits. Then came the question, what passage in the straits to take? I had been through three times previously, but always by the passages near Raine Island. Having heard a great deal while in Sydney about the great N.E. or Bligh Channel, and looking over my old *Nauticals*, I came across your November No. for 1860, wherein I found an account of a passage through, made by Captain Kennedy in the *Medway*, which at once determined me to try that route, and I am very glad indeed I did so.

So fully convinced am I how very much superior it is in comparison with any other passage I had previously seen, that had I to go through fifty times, I should never think of going by any other, and am also convinced that if it was once generally known, you might advertise Raine Island Beacon to let. I consider there is less danger in navigating a ship between Bramble Cay and the Three Sisters, than there is in running up or down the English Channel, for there is no hidden danger whatever, and you have anchorage all the way. The only dangers (in my opinion) are when you join the common track that all ships pass whatever entrance they take, *i.e.*, Prince of Wales Channel or Endeavour Strait.

I send you an abstract of my journal; if you think it or any part of it worth a place in your blue book, please insert it. The abstract is continued on to Hong Kong, so you may insert as much or as little as you please.

I quite agree with Captain Kennedy that a few tracks marked on the charts of the Coral Sea would greatly enhance their value, and I think they may be very easily obtained, with little or no expense to the government. I would suggest that circulars should be issued at the Australian ports, inviting shipmasters proceeding by that route to send in abstracts of their journals up to Booby Island. If so, I think very few would neglect doing so, and most of the ships in this trade have chronometers that can be depended upon, for that time at least, more especially as they are always rated at Sydney, either by time ball or on shore. My longitudes are from the mean of three first rate chronometers by Poole, which did not differ half a mile up to the time of my passing through the straits. The charts I had were, Coral Sea two sheets, No. 2,763 and 2,764; N.E. Passages, No. 2,422; Torres Strait, sheet I., No. 2,375; and General Chart of Northern Australia, No. 2,759.

* In the previous volume, 1859, will be found further remarks on this subject, which is fully treated on in the *Winds, &c., and Directions for the Indian Ocean*, published by Potter, 31, Poultry.

Sydney, Saturday, May 14*th*, 1864.—At daylight proceeded to get underway. It falling calm we signalized for steam tug; shortly after the *Breadalbane* came down and took us in tow. Towed to sea, and at 8h. 30m. a.m. steamtug and pilot left the ship. Made sail to the eastward to gain an offing. At noon the South Head Lighthouse bore W.S.W., distance about eighteen miles. P.M. squally, with rain, thunder, and lightning. In all small sails. At midnight the wind flew round suddenly to S.W. in a most furious squall, and continued blowing. Ship scudding under lower topsails and foresail.

16*th*.—First part of do. weather, very heavy sea. Middle part, moderating. Latter part, fine. Lat. 29° 52′ S.; long. 155° 14′ E. Course, N. 31°, 199 miles. Bar. 29·93 to 30·10; ther. 65° to 70°; current, N. 28° W., fifteen miles.

17*th*.—Wind, S.W. to N.W., fine throughout. Lat. 28° 9′; long. 155° 27′ E. Course, N.b.E., 103; var. per az. 6° 45′ E.; bar. 30·09 to 30·14; ther. 68° to 72°; current, N. 10° E., ten miles.

18*th*.—Light and fine throughout. Wind, W.N.W., S.S.W., South, and East. Lat. 26° 50′ S.; long. 155° 55′ E. Course, N. 17° E., eighty-four miles. Current, N. 45° W., eleven miles; var. per az. 9° 14′ E.; bar. 30·09 to 30·24; ther. 69° to 70°.

19*th*.—Do. wind, S.E. to E.N.E. Lat. 25° 39′ S.; long. 155° 38′ E. Course, N. 12° W., seventy-three miles: current, N. 30° W., thirty miles; bar. 30·20 to 30·16; ther. 72°; var. per az. 9° 14′ E.

20*th*.—First part, moderate. Middle and latter parts, hard squalls with thick rainy weather. Lat. 22° 47′ S.; long. 156° 6′ E. Course, N. 9° E., 173 miles; bar. 30·20 to 30·10; ther. 72° to 74°. Wind, East to S.E. Current, North, six miles. Noon, passed a whaling barque under British colours, standing same way under small sails, showing his longitude chalked on a board as we passed him. We replied by the same means, (concluding he has no signals on board,) agreeing within two or three miles.

21*st*.—Wind East to S.E. with squalls and showers throughout. Lat. 19° 58′ S.; long. 156° E. Course, N. 2° W., 170 miles; current, N. 35° E., distance seventeen miles. Var. obs. 9° 27′ E.; bar. 30·08 to 30·12; ther. 72° to 79°.

22*nd*.—Wind, S.E. to E.S.E., moderate and showery throughout. Lat. 18° 6′ S.; long. 155° 6′ E. Course, N. 24° W., 123 miles. Var. per az. 8° 45′ E.; current, N. 53° E., eighteen miles; bar. 30·03 to 30·08; ther. 78° to 81°.

23*rd*.—Light, steady Trades throughout with occasional showers. Wind, S.E.b.E. Lat. 16° 21′ S.; long. 152° 48′ E. Course, N. 51° E., 166 miles; current, N. 57° W., twenty-one miles. Var. per az. 7° 41′ E.; bar. 30·00; ther. 79° to 82°.

24*th*.—Wind, S.E. to E.S.E. with hard squalls at times and dark, rainy weather. Lat. 15° S.; long. 151° 8′ E. Course, N. 50° W., 126 miles; current, N. 67° W., sixteen miles. Var. per az. 6° 50′ E.; bar. 29·90 to 30·02; ther. 79° to 80°.

25*th*.—Wind and weather same as yesterday. Lat. 13° 9′ S.; long.

148° 46′ E. Current, S. 73° W., eleven miles. Var. per az. 6° 30′ E.; bar. 30·00; ther. 78° to 82°.

26*th*.—Strong winds with hard squalls and thick rainy weather throughout. Occasional breaks in the sky, enabling us to get observations both for latitude and longitude. Lat. 10° 34′ S.; long. 146° 40′ E. Current, N. 49° W., thirteen miles. Wind, S.E. to E.S.E.; bar. 29·96 to 30·00; ther. 80°.

27*th*.—Squally with showers during the night. A.M. a steady S.E. breeze and clear weather; got several meridian altitudes of stars, and at 4h. 45m. got moon's meridional altitude, which gave latitude twelve miles North of account. Daylight, made all sail and stood on, having been going easy all night. At 11h. a.m. made Bramble Cay, (the first land seen since leaving Sydney,) bearing W.S.W., distance five to six miles. At noon, the Cay bore N.E.; hauled round into the channel and stood on. Whether it was the glare of the sun and thick state of the atmosphere, I do not know, but the rocks S.E. of Bramble Cay did not appear to me near so large as Captain Kennedy's account led me to expect. Shortly after rounding the cay saw the other black rocks; stood on to the westward of them. At 1h. 30m. p.m. saw Stephens Island. Two vessels in sight on the lee bow. 3h. p.m. passed Stephens and Campbell Islands, and the two vessels, one a barque the other a brig, both under easy sail, and they being so far to leeward, I passed without being able to make out what they were. They appeared to be steering for Dalrymple Island, where we afterwards saw them anchor. At 6h. p.m. came to anchor under Rennell Island in 13 fathoms, coral and sand, with small bower and 75 fathoms cable. Fine weather to the end.

N.B. The holding ground under Rennell Island seems very bad indeed, as we had to pay out to 50 fathoms chain before the ship brought up, though our anchor (one of Rodger's small palmed 45 cwt.) grips at anything. I never saw it so long catching hold. And again the following morning, when getting underway, before we had any sails loose the anchor came home with 25 fathoms chain out, and the ship drove away to leeward, broadside on, for a considerable distance before we got sail on her.

I would therefore caution commanders of vessels anchoring there to give their vessels *plenty* of chain, as a squall off the island in the night might start their anchors, when they would probably lose a great deal of ground before they brought up again.

28*th*.—Wind rather fresh, and hazy. Did not way until 7h. a.m. Made sail, and proceeded; at 10h. passed Cocoanut Island; this is the first island we have seen any natives on; they seemed very numerous, waving to us as we passed. Saw also several apparently large canoes hauled up on the beach. Noon, rounded Nine Pin Rock; 3h. p.m. passed Double Island; 4h. p.m. passed Hammond Rock, tide or current strong in our favour, passed it at the rate of 12 to 14 knots. 5h. p.m. abreast of Booby Island, too late to land and get off with daylight, so stood quite close and fired a gun right at the island. Quite satisfied

ourselves there was not a living soul there. Then bore up and proceeded on our voyage, having been twenty-nine hours from Bramble Cay to Booby Island, fourteen of which at anchor, and fourteen days from Sydney.

Sunday, 29th.—Squally, with occasional showers throughout the day. Lat. 10° 36′ S.; long. 138° 50′ E. Course and dist. in eighteen hours, S. 85° W., 183 miles; current, West, twenty-four miles in same time; bar. 29·96 to 30·05; ther. 78° to 81°. Wind, S.E. to E.S.E.

30th.—Cloudy, with occasional showers throughout. Lat. 9° 58′ S.; long. 135° E. Course, N. 80° E., 222 miles; current, N. 85° W., thirty miles. Var. per. az. 3° 55′ E.

31st.—Weather more settled, latter part fine. Lat. 9° 13′ S.; long. 131° 40′ E. Course, N. 80° W., 208 miles; current, N. 87° W., twenty-nine miles. Wind, S.E.; bar. 80·00 to 80·05; ther. 81° to 84°. At 2h. p.m. passed within two or three miles of the assigned position of the Victoria Shoal, keeping a good look out at mast-head and deck, but unable to see anything.

June 1st.—Fine steady breeze and moderate throughout. Wind, S.E. and S.S.E. Daylight, made the Baba Group of Islands, N.W. of Timor Laut. At 8h. a.m. abreast of Wetang. Lat. 7° 38′ S.; long. 129° 9′ E. Course, N. 58° W., 176 miles; current, N. 59° W., thirty-three miles; bar. 29·98 to 30·02. 6h. p.m. abreast of Damma Island, three miles distant.

2nd.—Light breeze and fine pleasant weather throughout. Wind, S.E. Lat. 4° 36′ S.; long. 129° 10′ E. Course, North, 182 miles; current, N 41° E., eighteen miles.

3rd.—First part light winds and cloudy. 4h. a.m. made S.W. part of Amboina Island, bearing N.N.E. Noon, in the strait of Manipa, North end of Manipa Island bearing N.N.E. Latter part, light winds and fine clear weather. Course, N. 56° W., 143 miles; current, N. 75° W., sixteen miles.

4th.—First part, light and fine. 4h. a.m. made the East end of Xulla Island, bearing N.W. Middle part, hot, sultry weather. Lat. 1° 10′ S.; long. 126° 12′ E. Course, N. 27° W., fifteen miles; current, N. 41° W., fifty-seven miles. 6h. p.m. saw a whale blowing, the first seen since leaving Sydney.

5th.—First and middle parts light and fine; latter part variable and cloudy, with lightning, rain, &c. Lat. 0° 43′ N.; long. 125° 32′ E. Course, N. 20° W., 120 miles; current, N. 29° W., thirty-three miles. Wind, S.S.E. and S.W. 6h. p.m. made the high land of Celebes, bearing N.W. Towards midnight (it being too thick to get the latitude correctly) shortened sail and stood off to north-eastward until morning.

6th.—First part hazy, with rain, lightning, &c. 4h. a.m. made sail and stood to north-westward. 5h. a.m. saw an island ahead, which at daylight proved to be Scio. Stood on to pass between it and the rocks to the northward. 8h. 30m. a.m., the peak of Scio bearing S.W., distance three miles. I saw one of the grandest sights I ever beheld.

The peak had been covered with clouds all the morning until a few minutes previous, when in an instant it burst forth an *immense mass of dense smoke*, of a dark fiery colour. It rose perpendicularly for 200 or 600 feet, seeming too dense and impenetrable for the wind to make any impression on it; but looked like a magnified dome of St. Paul's ascending to the heavens. I have seen Vesuvius emitting smoke many times, but never anything to be compared to what I saw on the present occasion. At noon, the North end of the island bore S.E., distance about five leagues. Current the past twenty-four hours, N. 7° E., forth-nine miles; bar. 30·00; ther. 84°.

On the Admiralty chart I have of this part, No. 2,575, there is an island to the West of Scio, named Macalara, and another to the N.W. named Macquilere. Now this is evidently a mistake, as the latter does not exist, at least not within *many miles* of where it is placed on the chart. I took careful cross bearings, and sailed over the marked position, without being able to see or feel anything. The weather was perfectly clear at the time, and look out at mast-head and deck. The position of the first named island seems to agree with that marked on the chart.

Latter part calm and cloudy, with lightning all around.

7th.—First part calm; after sunrise a light air sprung up from the southward, and continued light South to S.E. Lat. 4° 3′ N.; long. 124° 37′ E. Course, N. 36° W., eighty-three miles; current, N. 21° E.. twenty-three miles.

8th.—Do. weather. Wind, S.W., N.E., variable. Lat. 5° 5′ N.; long. 122° 52′ E. Current, N. 57° W., twenty-seven miles.

9th.—Light airs and very variable throughout, with a great deal of thunder and lightning. P.M. saw the high land of Basseelan to north-north-westward.

10th.—A.M. a light air from S.W. At 3h. p.m. passed the N.E. point of Basseelan, distance a mile and a half. In consequence of the very light airs and contrary tides (or current) we did not reach an anchorage until 11h. p.m., when we came to in the bay on the N.E. side of Basseelan, in 16 fathoms, with the small bower and 60 fathoms chain.

11th.—A.M. light winds and variables, with thick, rainy weather. At 7h. 30m. a.m. the S.E. stream of tide that had been running since 3h. a.m. seemed to be slackening: we wayed and proceeded with a light air from N.E. Noon, East end of St. Crux Island, bearing N.E.b.N. ½ N. and Ballangarron Point, N.N.W. As we got over to the North side of the strait, kept the lead constantly going. At 3h. the tide changed and set to the S.E. It being calm at the time, the ship was drifted back towards the shoals of St. Crux Island. At 4h. 30m. came suddenly on the shoal. Let go the anchor at once, when the ship was brought up with 20 fathoms chain out. Had 3½ fathoms under the stern and 4 fathoms under the bows. Bottom visible quite plain. As we were only drawing 16 feet, and the water perfectly smooth, we had quite sufficient.

Bearings taken while at anchor:—Caldera Point, N.W.b.N.; St. Cruz Island, (N.W. extreme of,) N.E.b.E. ½ E.; Coco or Manil, E.b.S. ½ S.

At 6h. p.m. a light breeze from S.W., sufficient to stem the tide, wayed and made sail. 7h. 30m. wind shifted in a squall from north-westward: made several short boards, but finding we were not making any progress came to an anchor at 9h. 30m. p.m. in 9 fathoms, with the small bower and 45 fathoms chain.

12th.—At 7h. 30m. a.m. wayed and proceeded. From this time until the 21st inst. (when we cleared Northumberland Strait) it would be useless to give an abstract log. Suffice it to say it was a succession of squalls and variable winds, thunder, lightning, heavy rains, scorching sun, in fact, complete doldrum weather the whole time.

21st.—Cleared Northumberland Strait: a very strong S.W. wind throughout.

22nd.—Wind, S.S.W. to W.S.W. First and middle part, strong gales: latter part moderating, a very confused sea, ship labouring much. Lat. 14° 31′ N.; long. 119° 11′ E.; bar. 29·80 to 29·90; ther. 80° to 81°.

24th.—Wind, S.W. to W.S.W. Fresh breezes and cloudy, with occasional showers, throughout the twenty-four hours. Lat. 16° 3′ N.; long. 118° 12′ E.; bar. 29·90 to 29·82; ther. 84° and 88°.

25th.—Wind, S.W., moderate wind and fine weather throughout. Lat. 17° 47′ N.; long. 115° 58′ E.; bar. 29·79 to 29·85; ther. 85° to 90°.

26th.—Wind, S.W. to South. Most part moderate and hazy, with some squalls and showers. Lat. 19° 35′ N.; long. 113° 39′ E.; bar. 29·83 to 29·86; ther. 86°.

27th.—Wind, South. First part moderate and fine. 8h. a.m. boarded by a Chinese pilot. Noon, made the Kypong and Lemu Islands. 5h. p.m. in Taitama Channel it fell calm: the current setting strong to the north-eastward, driving the ship towards Taitama Island. Let go the anchor in 20 fathoms, and veered to 45 fathoms chain. 6h. a light breeze sprung up, wayed and stood on.

Memo.—Always pass in to the westward of Gap Rock during the S.W. monsoon.

8h. p.m. passed Ling Ting. 9h. 30m. found the current setting out strong, came to an anchor for the night outside Green Island. Forty-four days from Sydney.

RALPH R. LIDDLE, R.N.R.,
Commander "John Temperley."

To the Editor of the Nautical Magazine.

The Safety of Iron Ships and Steamers, etc.—*By S. M. Saxby, Esq., R.N.*

January, 1865.

Sir,—I believe it is a pretty well recognised rule, that when a man attempts to proclaim his disinterestedness, his weather eye is looking well "to windward." I propose, however, as a no less truthful axiom, that a fair average of philanthropy is quite compatible with an equally fair average regard for "number one;" not that in a mere exercise of consideration for the social "unit," we sin against society, since a man in regulating his actions has not only to consult his individual interest, but also his obligations as one entrusted with the claims with which domestic ties bind him.

With this in our memories, I venture once more to ask the favour of a page or two in the *Nautical*, in which to place on record a few remarks upon a subject which has suddenly sprung up before the nautical world, as from the past.

Your readers will remember that, years since, many pages of the *Nautical* were devoted, by your kind impartiality, to the birth of a supposed almost-automaton performer, which was to effect great changes in navigation, &c.;—was to teach a "royal road" to aspirants in nautical astronomy;—was to lead, as it were, the sun, moon, and stars (I had almost forgotten to say the planets also) into bondage to the quarter decks and cabins of our mercantile marine, there to minister to the imperative and constantly recurring needs of navigators; in a slavery far more servile than that of the Carolinas:—indeed the celestial orbs were supposed thenceforward, by their subservience, to be about to release us from all calculations as to their positions, and motions, by the agency of a certain "medium" which I had evoked, and had thought convenient to "patent" and call a "Spherograph."

No one can tell *where* I should have been, nor *what* I might by this time have been,—nor to what order and discipline and subjection I might have reduced these brilliant accessories, in their coadjuvancy of my patented "pet," had not a circumstance occurred which suddenly disbanded and emancipated the whole fraternity of luminaries, and left my poor blighted instrument to slumber in threatened oblivion! It is true that in honour of the departed an occasional apotheosis in the form of a learned society's gratuitous medal would be announced,—or an *immortelle* in the form of spontaneous testimonial from friendly hands, would seem to rest like a chaplet upon its sepulchre, and to hallow its memory!

To think that the once coveted and dearly paid for impress of the great seal of England, dangling by its daintily crimson silken tether, *could* ever have been consigned to a garret or an orlop;—that all the imposing national emblems of power and greatness which could be crowdedly stamped on an imperishable seal of no ordinary dimensions, could be lost in the obscurity of a mere store cabin!—and this because

an hereditary loyalty had led me to believe all to be gold that glittered:—and thus had induced me to become an atom of the host who serve in our time honoured and noble navy of Britain!

Oh those patents!—Could the multitude only know the drag those fascinations become upon the affections,—how they entangle themselves among the gear and heartstrings of the pitiable "inventor,"—how they test and try his judgment,—divert his perceptions,—impair his vision,—sound and exhaust his purse,—paint and gild and adorn the very last lingering rags and tatters of hope, until even *these* are made to simulate the very golden robes of success;—who, I would ask, would be a patentee!

Not that the above was precisely my case—for I coolly, but *confidingly*, tore myself from my incipient triumphs as a patentee and (not without many a sigh and regret) consigned that which had been the labour of nearly thirty years to, as I thought, the shades below!—with, however, the solace that I was about to enter the immediate service of my Sovereign, and, also, that when it should please God Almighty to take me aloft, the words—"Inventor of the Spherograph," should be read by surviving mortals in my epitaph.

Seven years, sir, is a long time in which to be brooding over regrets which strengthen with age:—but enough—— the spherograph once more sees the light of day! Disasters among shipping, which of late have in both our navies been so distressing, have roused underwriters, shipowners, and merchant captains of Great Britain into healthy agitation. Your own respected voice, sir, in the last *Nautical*, told us, or rather reminded us, of the truth that "*ships must be navigated by the sun and stars as of old*," since the tricks of the compass are not found to be controllable by any known means of previous mechanical adjustment—indeed you quote that "few Liverpool pilots *ever trust* to them in running from Point Lynas to Liverpool during a fog!"

The very last occasion on which (in 1858, see page 275,) I mentioned the spherograph in the *Nautical*, was in urging that no seaman in charge of a passenger ship should rely on any corrections but those immediately derived from heavenly bodies:—and the circumstance was singular which I quoted in illustration—for I mentioned that one of the finest ships of the Cunard line had been put *forty miles* out of her course, and nearly lost, with her costly cargo and large number of passengers, because a lady passenger had innocently and habitually seated herself daily near the binnacle compass:—whatever might have been the personal attractions of the lady herself as regards fellow passengers does not concern us, but true it is that the attractions of the steel hoops of her "crinoline" fairly "turned the head" of the poor compass! So that it was recommended to all shipowners that in their future advertisements as to the departure of their ships, special notice should be given to the public that they not only "carried a surgeon" but also a "Saxby's Patent Spherograph." (N.B. The commander of the packet referred to would never after sail without one.)

The cause of the so sudden "revival" of the spherograph, will be plain from the following. I showed all becoming hesitation before

again troubling the public, but as proved to be a question of humanity it is now beyond my control.

No sooner had the festivities of the past Christmas given place to that return of (slightly interrupted) routine, which to one living on board ship in winter among hundreds of acres of Medway mud can be so *very* easily re-established, (and especially when the sight of snow-covered dreary levels, and the sweeping of northerly blasts across them remind us of Fahrenheit and freezing points,) than a distinguished naval officer, who had seen the spherograph, kindly drew my attention to the letter to which you refer from Lieutenant J. F. Trivett, R.N.R. (recently in command of the *Worcester* training frigate,) in which letter he had called attention to the value and simplicity of the spherograph *as the one all-sufficient remedy* for the dangers besetting the compass, more especially of an iron ship. The value of his opinion (for he is well known by London shipowners and at Liverpool also, as a man of the very highest repute, as an accomplished navigator, and experienced merchant captain,) is best shown by the steps which were promptly taken by shipowners, &c. I was requested to meet them or their representatives at a concise lecture from me at the Jerusalem Coffee House, Cornhill, in explanation of what the real capabilities of the spherograph were:—the result was the immediate and *eager* adoption of the instrument:—the question even arising as to the consistency of continuing to underwrite iron ships unless provided with this essential safeguard to their compasses. I trust, therefore, that in re-issuing the spherograph, I am justified in not refusing to do a public act of general benefit, merely because I have a small personal interest in the sale of a very cheap instrument.

During my nearly seven years' residence at Sheerness (afloat) ample testimony of the value of the spherograph has been afforded by naval officers, even by a commander-in-chief:—but so little have I thrust it forward that I verily believe that the first of the captains of the steam reserve, during his three years' commission, never saw it. But as a solace to my regret, I have taken pleasure occasionally in testing changes in her Majesty's ships when the temporary removal of armament, &c., rendered it likely the compass would feel such removal. As an instance,—some three years since, when the *Meeanee* lay near the *Devonshire* in the stream,—on hearing that her quarter deck guns were all displaced and standing in various positions abaft the main-mast while stouter ringbolts were being substituted for those originally built in her. I offered her well known and able master (Mr. Norway) to meet him and others of his brother masters, R.N., around the standard compass, and to give him in a very few seconds its error:—when we, accordingly, met, he purposely withheld from me a sight of his correcting card until I gave him my figures. I need only say that the detected change in his standard compass was found to be so correct in amount (about half a point) that he on the spot offered me a strongly written memorandum of satisfaction (which I still possess). Of course a table of azimuths would have been equally useful at Sheerness *in day time*, but in the spherograph Mr. Norway recognised an

instrument suitable for all places upon the earth's surface,—at all times of day or night,—and with like facilities for every celestial body.

And again, only a few days since a note unexpectedly and unasked for reached me from Commander Calver (one who is well known to the service as one of its most able and accomplished surveyors). He says therein, (and I have permission to quote,)—"The spherograph is a useful instrument, I shall be glad to point out its merits whenever I can." I could refer to officers of the *very* highest naval rank who have purposely and approvingly tested its value on shipboard afloat, but am not at all desirous of troubling the service upon it. I would only ask leave to remark that the prejudices which had so long existed against the introduction of diagrams or tables which might serve to lessen the labour of calculation at sea, are now fairly broken down by the issue of the excellent and useful tables of sun azimuths to which you allude, and which are calculated for latitudes between 48° and 56°. Now the main difference between all "tables" and the spherograph is in the important consideration that in the working from tables no intimation is conveyed of the process by which certain numbers have been derived; whereas in the spherograph one uses the very lines of the sphere themselves, which thus illustrate the "why and the wherefore." Now this is an advantage which is not even derivable from the actual working out by calculation of the usual spheric formulæ, since what the lines of a spheric triangle are intended to represent cannot as a rule be detected in merely looking at spheric triangles,—and especially as such triangles for convenience of computation are sometimes formed of "complements" of data, and sometimes of data themselves. Hence, in the hands of students as well as of officers, the spherograph becomes a highly important and desirable adjunct to educational progress:—*without* a spherograph a navigator may through many years work diligently his daily round of observations, and yet actually be *forgetting a knowledge of spherics*, but *with* a spherograph, such knowledge becomes a more deeply rooted attainment, *never to be forgotten*. Hence its importance to the nautical world.

Now it is notorious that even as regards the English Channel in winter days of mist, haze, and obscurity, these days are very frequently succeeded by nights in which the thickness of the weather is often interrupted by breaks in the sky, when even a glance at any known heavenly body whatever *ought* to be a boon to a commander,—and the more so if all that we desire with that body is available without an altitude (which in the spherograph is not required). It may be said with truth that whatever the spherograph can do, calculation can do with equal accuracy, but it must be remembered that unless a sextant be fitted with such a valuable addition as a reliable and *lighted* artificial horizon, (such as Captain Becher's,) not much dependence can be placed upon a star altitude:—but another great advantage of the spherograph is that the working of an azimuth from any object, or the finding of the apparent time, or the latitude, is done with such rapidity, in a few mere seconds of time, that the mean of twenty observations could be obtained while working out one by calculation; and with greatly

diminished chance of error. Moreover in the spherograph, we are not confined to observations of the sun, for the one general rule applies to all heavenly bodies alike, with *very slight* additional notice for the moon and planets. It is a great thing when nearing any land to be able to convert the hazy and indistinct indication of the position of the moon or Venus, Jupiter, &c., (and without any loss of time by calculation,) into a watch dog for the compass, *wherever* it may be placed or *whatever* may surround it. No insidious agencies can in such case deceive the mariner,—there exists no need for remembrance of previous corrections or adjustments, or previous vagaries, the error of the compass is given *at once as it stands*, and in one correction, *even if its position be on the shank of the anchor!*—Is not this important?

But after all, what does the navigator really want, as regards his compasses, in order to ensure the most perfect safety of an iron or "composite" ship or steamer? Simply this,—he would like, if possible, (but it is impossible,) to be able when merely looking at *any* heavenly body, to see the circles of the spheres *ready drawn through it and nicely graduated, so that he could at once read off* its altitude or azimuth, or apparent time, or declination, &c. Now surely the next thing to this impossibility is the being able *to do so artificially*, as we can do in the spherograph, which, *just at the very moment of our need*, may be considered as a reflection of the heavens and of the real position of the body we are desirous of using, with the "nicely graduated" circles all drawn and ready for our "reading off" an azimuth or indeed anything else required by the navigator.

For when we look at, say, the sun, and consider the circles which astronomers assume as passing through the centre of heavenly bodies, we may very easily perceive that these spheric circles may be resolved into two classes, viz., fixed and moveable. For azimuth circles *always* lead from the zenith perpendicularly to the horizon; while parallels of declination, hour circles, &c., *always* vary their position with the latitude of the place of observation. Thus in nature we have one assumed sphere revolving upon another; and such (constituting its immense power) they do in my spherograph. Simplicity and accuracy combined.

Considering an iron ship as surrounded by a saline fluid which is capable of generating (even in a Smee's battery of one cell) a current of electricity or galvanism, strong enough to cause chemical decomposition of a fluid, and that combinations of such currents must be prevalent in various directions, in no two ships alike, each current developing its well known concomitant magnetic influence,—How can we expect or look for stability in the compass of an iron ship? And then again we have a disturbing element at work,—when the "funnel up" or "funnel down." or "fires lighted" or "fires out" perplexities are in operation,—in short, the navigator requires the simplest and readiest means of instant compass correction. It is useless (except in the prosecution of science) to puzzle him with intricacies. The vigilance and ability of officers may have detected certain facts, and may have deduced from them certain interesting laws, but after all where is still the compass question? (I mean of course as regards merchant ship-

ping.) Such laws are either so little understood, or so little adapted to general needs, that do we not almost weekly read of magnificent ships with costly cargoes and numerous passengers being wrecked? not wrecked in storm and hurricane but in *thick weather!*

Now I would ask, what business has a ship (for example) bound out from Liverpool, with a clear fairway before her of at least thirty miles wide, to be found on the Arklow Banks? unless driven by stress of weather. The Irish Sea is no new track for shipping,—one half of the wealth of Britain has for years made it a highway; thanks to the hydrographic skill of the official department, our charts are irreproachable:—navigators were never more competent:—but how is it that of late *some of our ablest navigators have been among the unfortunate commanders of stranded ships?*

And again, let me ask, what business has a ship moving with a cargo valued at hundred of thousands of pounds sterling, leaving the dangers of the straits of Dover, and bound down Channel with a fairway of at least fifty miles wide before her, to be picked up by the French coast? Can we for a moment suppose that with such immense responsibilities, men of known competency and carefulness would through neglect run their ships into dangers periling their own lives? and this too upon the well known, well lighted, great highway of nations? Thick weather forsooth!—When caught by heavy gales, one knows in most cases what to do, but to be lost in an almost-calm through an invidious secret influence, which still baffles the skill of philosophers, working upon that to which we are accustomed to look as our guide and reliance,—this is grief and calamity indeed!—one not to be palliated by after surmises as to the unknown strength of probably unknown currents, sets of tides, &c. In a word, mechanical adjustments of the compass ought to be only viewed as of use in the *intervals of observations*—mere substitutes—to be cast aside *when any heavenly body appears;* even in its extreme obscurity. Mybelief is these wrecks must generally be attributed either to currents or compass errors: now if we can prove the former (?) the work of the coasting navigator in channels is still but one of doubt and dangerous speculation:—while in the latter case, things are worse still! There appear then to be two remedies, one for each case. In the first, regular and more frequent sounding. In the second case, regularity in frequently checking the compass: nor can I see any more difficulty in checking the compass *every watch*, or oftener, by the spherograph, than in the periodical heavings of the lead or log. It is with the spherograph so simple and rapid an operation (a celestial body being visible) that the only work, of say a junior mate, in performing it would be at stated times to take the bearing of such body by compass,—to enter it on the log board, noting against it the time of observing (as urged by Captain Trivett). The commander then could at his first leisure check these in his cabin by the spherograph. (It would not take a shipmaster five minutes to check these for a whole day.)

Let this, Sir, be the practice of merchant passenger ships, and accepted as the routine in royal mail steamers, or even be enforced by

the Board of Trade, and I venture to predict the saving of more valuable lives annually than are rescued by the noble Lifeboat Institution,—the preventing of immense losses to underwriters,—the comfort and *confidence* of those who are compelled to traverse the mighty ocean,—and, "though last not least," an unspeakable release and comfort to those fine fellows who command in our glorious English merchant navy, who are (thanks to the personal energy of the noble secretary at Whitehall) so gallantly enrolling their names in the list of future defenders of our country, and whose worth as a class I have through so many years had ample opportunities of both testing and attesting.

I have, &c.,

S. M. SAXBY.

To the Editor of the Nautical Magazine.

WAVES.

I am never weary of watching and noting the changes in my favourite element. Often on the edge of the Tropic of Cancer, in the calms of autumn, have I looked on the long rolling swell of the Atlantic as it travelled southward, with a feeling of awe and wonder. The crests of these ridges are then often seen apparently a quarter of a mile apart. As they roll on further from their source the distance between them increases, their height diminishes, and, finally, all trace of their existence is lost in the sea of the N.E. Trade wind.

When we look at these immense undulating bodies of water it scarcely seems possible that a strictly horizontal force, such as the wind is, could pile up so huge a mass, and endue it with a momentum which should last for days over an immense area of the ocean.

The height and size of storm waves in the heavy gales of the North Atlantic off the Capes of Good Hope and Horn, are calculated to astound the voyager, or even the seaman who looks upon them for the first time, for no one who has not beheld them at such a season can form an idea of their awful grandeur. Often, in a ship three hundred feet in length, I have observed one breaking in advance of the jibboom end, while the next was still following far astern, rolling towards us like an avalanche, with its crest of snow. Apparently, it must roll over the taffrail, but in a fast steamer, with sail to help, this seldom happens; the vessel rises to the summit, shoots along like an arrow, and gradually it passes before her.

At times, after passing the stern, it rises on either side far above the rails; the ship is literally between two walls of water. Then is the moment for steady steering; the slightest yaw will bring a cataract on deck, the mark of which is often rudely left on broken bulwarks and smashed houses.

Various opinions have been given about the height of waves, but

so much discrepancy appears in the measurements, that none, up to the present day appears to be accepted unchallenged. One of the first authorities gives sixty-four feet as the maximum; while another, a civil engineer of note, asserts that "the summit of no wave can be more than *five* feet above the sea level, since the penetrating power of wind cannot reach below that depth!" I cannot agree with the last gentleman, because, during the hurricanes in the West Indies, rocks have been torn from the bottom of the ocean in six fathoms and hurled on the beach! What would he say to that?

My own experience gives thirty-two feet as the depth of the hollow from an imaginary line joining the two crests of the waves. I came to this conclusion after closely watching the waves in the heavy gales of November and December, 1863, between Cape Race and Ireland. The means I resorted to were ascending the rigging, measuring the altitude of a cloud, and by observing from a known height above the deck, the number of ratlines up where the crests apparently cut as they rolled by on either side in scudding. Then, by noting how many feet of the red paint on the bottom was visible in the hollow, gave what I considered to be the height from hollow to crest.

There is a curious fact in connection with waves deserving attention, viz., the enormous space they require for their full development. A thousand miles is not sufficient for them in which to gather up their strength.

In the Mediterranean, where there is a drift exceeding that distance, they are not to be compared with those of the Atlantic. The space between their crests is short, and for small vessels exceedingly mischievous; but they never attain an equal magnitude, and a few hours after the wind has ceased, the sea becomes perfectly tranquil. The momentum acquired was too insignificant to keep the mass in motion.

Far different is it in the broad expanse of the Atlantic, with a fetch of three thousand miles. There they roll on from the place of their birth until they break on the western shores of Europe, or branching off southward are lost in the region of the Trade winds.

On the western coast of Ireland after a gale, it is a grand sight to see the long swells breaking with a noise like thunder against the cliffs and islands at the entrance of Galway Bay. In passing in, the ship is not unfrequently at the seaward edge of a swell whose crest is flying in foam over the shore, and the seaman feels an involuntary shrinking come over him as he looks on the scene; for the thought is present that the strongest creations of his skill and genius would be shivered in a moment to fragments if it drifted on the cliff against which the ocean breaks in vain for ages.

Any one who closely observes this swell near the tropic, will perceive that it is coming from the North and N.E. Now it is well known that these winds seldom or never blow with a violence sufficiently great to create such a movement. I am therefore of opinion that the wave originally commences from a N.W. direction; but in travelling southward the centrifugal force of the earth deflects it from its

course. We know that this force affects the winds. Why not the waves?

The most vicious waves I have ever met were in the neighbourhood of the Azores. In moderate weather it is often astonishing to see the enormous quantity of water which will suddenly leap up and fall with a crushing force inboard. Two seas appear to meet from opposite directions, and rising up from their mutual check like two wild animals on their hind legs, struggle for a moment,—take a twisting motion,—and fall.

I attribute this to the temporary check the Gulf Stream receives here from local currents. Waters of different densities have a repugnance to mix, hence when an easterly current of a high temperature encounters one of a low temperature running in an opposite direction or across its course, a struggle for mastery ensues.

This explanation may not be the correct one, but I cannot give any other.

In concluding these remarks I wish to call attention to the facts I have noticed with respect to the N.W. and S.W. gales of the Atlantic. The heaviest of the former I have found to be in about lat. 49° N., long. 40° W. The latter on the same parallel of latitude, and long. 30° W.

The difference between the height of the waves of these gales and the sudden manner in which those of the N.W. rise, is extraordinary. In an incredible short space of time after the commencement of the wind the sea is up.

With a S.W. gale and an apparent equal force of wind, not only do the waves require more time to form, but they never attain the magnitude of those from the N.W., although they have a longer space to gather up their strength.

Does this arise from the fact that actually the extent they travel over is less than those from the other quarter? or does the Gulf Stream, by running in the same direction, pass over them like a smoothing iron?

W. W. KIDDLE,
Commander W. I. and Pacific s.s. Mexican.

Our correspondent mentions a circumstance in his correspondence that may not be common, but it is very well known that the scent of the land has been frequently detected by seamen when they were many miles from it. The earliest notice of this kind is to be found in *Columbus's Landfall* on his first voyage. In that voyage any indication of land was of importance; but this occurred about the Crooked Islands, and in his journal frequent observations are entered on the delicious perfumes with which the air was loaded. He had named an island Isabella, from which the scent of delicious flowers had come; and the Queen being his patroness. this was considered not unlikely to

have added still more to their fragrance. Indeed, so great was this, that they well deserved the name of the Fragrant Islands. Certainly no other land which Columbus saw afterwards drew from him so much encomium on account of its fragrance as the Crooked Islands. The following is the remark to which we have alluded.

Phenomenon off the Coast of New Granada.

I mention the following singular phenomenon because I have never heard of a similar occurring under the same circumstances.

I sailed from Carthagena (New Granada) on the 31st of July, 1864, at 8h. a.m. with a fresh breeze from the N.E., which increased during the day to a moderate gale.

At 7h. p.m., being in latitude 10° 16′ N., long. 77° 40′ W., I perceived a strong perfume of the land, such as seamen are familiar with when the first puff of the land wind comes off shore in tropical countries. I called the attention of several people to the fact, but it was so palpable that many had previously noticed it.

The nearest land was seventy miles distant and dead to leeward. I presume the perfume must have been occasioned by the sinking of a heavy counter-current from the mountains though the lighter stratum of air.

W. W. Kiddle.

What is to be the Port of Calcutta?

In our number for December last we recorded the disastrous effects of the 5th of October previous on the shipping lying in the Hooghly, as well as the destruction which had been occasioned by the sea along the coasts. Such a gale as that was, although not of a day's duration, could not but be productive of the most serious effects, not only where the sea overflowed the shores to the depth of several feet; but also in the channel of the River Hooghly, where, besides throwing ships from their moorings in masses on each other, sinking some and stranding others, producing changes in the channel, throwing up sand banks, and rendering it impossible for them to lie in the river as formerly. In fact, the port of Calcutta appears to have been rendered inapproachable by the mass of shipping to which it has long been accustomed, the usual moorings will not be found, and ships should they go there will have not only to depend on their own tackle, but will find themselves badly berthed. This for a laden ship will prove a serious consideration, besides which, in using their own ground tackle in many cases it will be fouled by that left by the hurricane.

Even this quiet riding may last through the fine weather season. But let the ships be riding thus in the next hurricane season. What can be expected then but that one half will break adrift and falling on the rest drag them also to their destruction. The following from the

Daily News places these matters in a light that shows something must be done, and the sooner the better.

Calcutta, December 21st, 1864.

The commercial community of Calcutta are now turning their attention in earnest to the consideration of what measures are best adapted to prevent the next cyclone being equally destructive with the last. We have now made up our minds that a cyclone of terrific violence is to be expected every ten years. No means are apparent for lessening its destructive effects on land, save the very obvious one of due warning. The hurricane of October 5th last reached Saugor six hours before it arrived at Calcutta, but for want of scientific observations and those precautions now so universally taken along the British coasts, the shipping in Calcutta were neither forewarned nor forearmed, and the result was, that out of 195 ships which crowded the port only twenty-three escaped damage, and only one remained at her moorings.

Allow me to give your readers some faint idea of the condition of the Hoogly. By courtesy we speak of the port of Calcutta, but it is a port the entrance into which is considered by captains "the worst part of the voyage." If a vessel reaches the pilot boat at nightfall, she must immediately anchor until daylight, even in the clearest and brightest moonlight. She has then six shoals, of an average length of upwards of two miles each, and about fifteen miles distant from each other, which she can only cross at high water. The result is that, even with steam, she can only cross one or two shoals in each tide, and then has to anchor until the next tide enables her to get over one or two more. As the ebb is very much more rapid then the flood, a steamer which will get up to Calcutta in twenty-four hours, is often three days in getting out to sea.

That the entrance to the Hoogly was becoming more and more difficult was evident before the cyclone. Two of the lower channels were completely closed, leaving only the most dangerous one open. In 1862 the river was said, by those best acquainted with it, to have silted up three feet five inches in three years, and that it has silted up is proved by the gradually diminishiug velocity of the flood tide The embankments which have been made are considered to impede the action of the tide, and thus assist the deterioration of the river, for dangerous as the rush of the tide has been, and still is, yet it is the one great means by which the river has hitherto been kept open, for the deposit increases in proportion to the slackness of the ebb and flow.

Large ships can only get to sea, at spring tides, and they are obliged to use steam, so that the charges on a ship of 1,000 tons are reckoned at about £150 for the inward, and about £200 for the outward trip.

When the ship has reached Calcutta she finds moorings for only 174 vessels, and these moorings are proved totally insufficient to withstand a gale, by the fact, that only one ship remained at her moorings on the evening of the 5th of October. So far back as 1858 the

Chamber of Commerce had been driven to recommend that "ships should only be allowed to tenant moorings for a given time, and then give them up to others."

It is now recommended that additional moorings should be sent out from home, but the President of the Chamber of Commerce objects with reason, that there is no room for them, except at an inconvenient distance from the centre of trade. Not only, therefore, has the new comer little chance of moorings, but she has to unload her merchandise into native boats. It is then carried on coolies' heads up the muddy banks, and conveyed away on small creaking and groaning carts, each drawn by two miserable little bullocks. There are no jetties, no wharves, no other means whatever for unloading or loading, and the loss from pilfering during the transit of goods in this primitive and barbarous fashion is estimated at one per cent. on both imports and exports.

This is the present condition of the port, or rather was so before the late cyclone. That awful visitation has already destroyed the anchorage at Kedgeree. Where formerly large ships rode at ease, there is now only eight feet water. A shoal above Calcutta, formerly covered at high water is now dry at all times, and what further damage has been done to the river can only be ascertained by time. I, myself, saw a ship, the *Botanist*, in imminent danger of being sucked into a quicksand more than two months after the cyclone in the very midst of the port. She was only saved by discharging her cargo.

The trade of Calcutta is increasing most rapidly, and the tonnage is increasing in much greater proportion than the number of the ships. Larger vessels are found to pay better than small ones, but from the above facts you will see that Calcutta is every year becoming less and less adapted to ships of large tonnage.

A great coasting trade has lately sprung up. About seventy vesssels are now loading for Bombay alone, while fifteen years ago it was difficult to find one. The railways will bring enormous quantities of up-country produce to Calcutta. The export of cotton, tea, and jute is only in its infancy. Now, just at this moment, when so vast a future is opening for the commerce of Bengal, the sad conviction has been forced upon us, that in addition to the ordinary dangers of the river—such as freshes, tides which run like a sluice,and, worst of all, the "bore"—we visited (probably in May or October) by a hurricane which will disable three-fourths of the shipping in port, close up the graving-docks, turn a ship inside one of them keel upwards, and cause a loss of life estimated at 60,000 persons, besides innumerable cattle. The question which forces itself on every mind is the simple one—What is to be done? Fifty-nine of the chief firms in Calcutta presented an address to the viceroy a few days since, praying that he would at once declare Mutlah an auxiliary port to Calcutta. His excellency, who is supposed to have been prejudiced against the Mutlah by the military head of the Board of Public Works, Colonel Lerachey, evaded compliance with this very simple request, on the plea of want

of funds, and the expediency of waiting for the report of a committee concerning the proposed wet docks.

The Chamber of Commerce (a more united body then than it is now) called the attention of Lord Dalhousie in 1853 to the very great importance of opening some new channel between the sea and Calcutta, and recommended the Mutlah as affording the means of communication wanted. That able and far-seeing statesman at once ordered a survey of the Mutlah, when the following facts were established:—1. That the channel has not altered since 1839. 2. That the least water is four fathoms at low water spring tide. 3. That there are no shoals. 4. That there is no "bore;" and 5. The tides never run stronger than three and a half to four miles an hour. Sir Frederick Halliday, late Lieutenant-Governor of Bengal, is allowed by all to have been a man of clear perceptions and great judgment in his written opinions, whatever may be thought of his acts. In a minute dated 16th Oct., 1858, he speaks of the project of a canal as "only increasing the plethora in the Calcutta port," and declared his conviction that "the rapidly increasing inconvenience of crowding in the Calcutta port could only be removed by the establishment of an auxiliary port." In words which now read like a prophecy he continued:—

Nor ought a day to be lost in forwarding a measure indispensable to the increase of the Calcutta trade, and the safety of the vast shipping now belonging to it. To avoid this auxiliary port I hold to be an impossibility. Sooner or later it will be forced upon us, perhaps by some great calamity among the shipping. Till we have the rail we shall have no auxiliary port. And till we have an auxiliary port, we shall have more and more dangerous crowding of ships in the Hoogly, to the great hindrance of trade and hazard to property.

Now we have the rail, and government is bound to pay five per cent. on the capital, which interest amounts to £23,000 per annum, for 99 years. One would expect that they would be eager to fulfil their share of the conditions requisite to make Canningtown available as the so much needed auxiliary port. They agreed to make roads, dig tanks, and render the lots fit for building upon. They have done nothing. The railway is complete, the river has been properly surveyed and buoyed off, a light-vessel has been stationed at the entrance, pilots appointed, three jetties are ready, alongside of which the water is thirty feet deep at the lowest ebb. Ships load or unload by a gangway into the railway trucks, which convey the cargo in an hour to Calcutta. So that a very small amount of encouragement from government is all that is needed to create the town. I consider wet docks a very imperfect remedy for many reasons. To say nothing of the time they would take to construct, and the immense outlay, which is estimated at a million and a half sterling, and granting that the proposed company may succeed in overcoming the immense difficulty of the soil, which, sixteen feet below the surface, is like a sponge, suppose the docks constructed, still they will not hold all the shipping of Calcutta. And had the committee now sitting on these wet docks been composed of men practically acquainted with the subject, they

would be aware of the serious difficulty, that owing to the velocity of the tide ships can neither get in nor out of dock in Calcutta save at the turn of the tide. Vessels would, therefore, have to wait for days for their turn of ingress or egress. Suppose these docks held 200 ships they might all be shut up for six weeks by a cyclone, as one of the graving docks at Hourah was. Added to the difficulty of the soil is that of silt. Anyone who has seen the enormous quantity of sediment deposited by a pitcher full of Hoogly water will easily understand what the deposit in a dock must be. But again I say, these difficulties concern the company more than the government. That which does concern both government and the public is this, where will a ship be on leaving the said wet docks, if so be that they ever are constructed? I answer in the Hoogly, *i. e.* out of the frying-pan into the fire—exposed to all the dangers of shoals, tides, and bore, in a river getting worse yearly, and where she can by no possibility run out to sea at the approach of bad weather.

I confess that I share the opinion of one of the ablest engineers in the country, one thoroughly acquainted with the Hoogly, who considers the difficulties in the way of constructing the wet docks to be quite insuperable; yet supposing, for the sake of argument, that they may be successfully completed, it will take at the best several years to do so, and when they are finished the remedy will be insufficient. They may improve the port of Calcutta, but that port is already crammed to overflowing, and nothing can render it sufficient for the rapidly increasing commerce of the country. Nothing can render the Hoogly safe. If capitalists like to invest their money on wet docks, by all means let them do so, but give us the Mutlah as an auxiliary port also.

The government has sanctioned the Mutlah scheme, and has guaranteed its railway funds, but has done nothing more. All that government has done is—1. To send home Mr. Leonard, superintending engineer, to consult about the state of the Hoogly, and then to leave him for a considerable period without any instructions whatever. 2. To appoint a committee of engineers, who have no special knowledge of docks or of the river, to report on the wet dock scheme. 3. To "recommend the construction of a steamer for the work of dredging the bed of the river," the whole delta having been brought down and turned into dry land at no distant period. 4. To guarantee the dividends on the Mutlah railway, and then to do nothing else whatever with a magnificent sheet of water within twenty-eight miles of Calcutta, all ready for the largest fleet of merchantmen that can ever come to India.

It may be as well to mention that the late cyclone was scarcely felt by the shipping at Mutlah, so that Calcutta was obliged to borrow pilot vessels from Mutlah. Those firms which have sent ships to the Mutlah have expressed strong opinions of its advantages. Captains of ships, including those of the Peninsular and Oriental Steam Company and the Messageries Imperiales, are anxious to make it their port, and the President of the Chamber of Commerce, who has hitherto

opposed the scheme, has publicly confessed that the late cyclone had made him more favourable to it than he ever was before. It is, as I have said, all ready for ships, and within an hour of Calcutta.

Why does not Sir Charles Wood consult Mr. Leonard, in whose district the Mutlah lies, and who has been practically acquainted with it for the last six or seven years?

It must be confessed that our Indian government has scarcely yet attained to the home estimate of the vital importance of all that relates to commerce and navigation.

The Cyclone at Calcutta.—Sir J. Elphinstone asked the Secretary of State for India if anything as yet had been determined on towards replacing the defective moorings that were carried away bodily during the cyclone of October last in the Calcutta river, and whether some more efficient plan or appliance ought not now to be tried, in order to prevent, as far as possible, the recurrence of similar shipping disasters?

Sir C. Wood said that the matter had been referred to a committee of officers of the Indian navy, and when government had received their report the necessary measures would be taken.

Mr. W. E. Baxter, M.P., on the American Rebellion.

Mr. Baxter, after a few words of personal explanation, observed,—It may naturally enough be urged that one man's opinion is as good as another's on this great struggle, and you may inquire what claims I have for a hearing. My reply is that, having been twice in the United States, having travelled over the greater part of them, and studied their history and politics with the closest attention, I am anxious to throw out a few hints for consideration, which you are not likely to find in the *Times* newspaper, or in those other journals which seem to get their information solely from *that quarter;* and I have a right to assert my impartiality, because in former years I published my views as freely about the faults of the Northern people and their institutions as about their excellencies, and because I suffered a great deal of odium on the part of British abolitionists—some of them, by the way, now the most vehement, although not the best informed, advocates of the Southern Confederacy—for maintaining that a slave-owner could be a Christian. More than two years ago, when addressing a Dundee audience on the "Social Condition of the Southern States," in which a feeble attempt was made to prove that these states had not the elements out of which to make a great nation, and did not deserve our sympathy, I closed as follows:—"What I want to bring out now is, that there can be no safety, much less good government and progress, in any country based upon such a programme

as that adopted by the Confederacy; nor do I believe any peace or settlement worth six months' purchase as long as the fountain-head and origin of the evil is not removed."

Permit me now to take up the question at that point, and endeavour to give you good reasons for supporting the Republican party, and the general policy of Mr. Lincoln's administration. It was, if I mistake not, in this very hall that Earl Russell made the announcement, since become famous, that the majority of the people in this country were on the side of the North. Every one who knows the working classes knows also that the statement of the noble lord is quite correct; but he might also have added with truth that the bulk of the territorial aristocracy and the grandees of commerce are on the other side. They regard the United States with feelings of jealousy, if not of alarm; they complain of their past arrogance* and present insincerity, and wish to see their pride humbled along with the crippling of their power. Into the merits of the present controversy very few of these Southern sympathisers have, to do them justice, entered at all. My belief and prayer is that, before this terrific struggle ends, many of them will see the matter in a very different light, and be able to rejoice in the failure of what I hold to be one of the most unwarrantable revolts in history.

But, to begin at the beginning, some of you may say that any of the United States, which constitute not a single republic but a mere federal union, had a perfect right to secede whenever it thought proper. Those who use this argument never could have read the historical documents or made themselves acquainted with the constitution. One of whose sections, as amended in 1789, is as follows:—"No state shall enter into any treaty, alliance, or confederation, grant letters of marque or reprisal, coin money, emit bills of credit," &c., and Mansfield says of this clause, in his *Political Manual*, "that it divested the separate states of national sovereignty."

Nor were these words hastily or inadvertently inserted. They, on the contrary, were adopted after congress had deliberated anxiously for six months, and on the recommendation of no less a man than George Washington, who foresaw the danger of giving the separate states too much power in any respect which involved the integrity of the Union, and whose language at the time was—"I am satisfied that, whatever particular system is to be adopted, it must be one that will create a national sovereignty, and give it the means of coercion." The recent secession of the Southern States was an act of rebellion. But, mark! I by no means ask you to condemn it on that account, for many rebellions have been justifiable, and many rebels have rightfully received the homage of all good men. It would be wasting your time to recount instances of the kind. The Netherlanders revolted against Spanish bigotry and rapacity; the Swiss threw off a

* Who does not remember the arrogance of Charleston in taking every black man out of every merchant ship that went there, and placing them in prison until her departure, by which measure their services were lost, and an expence incurred for labour?—Ed. *N. M.*

tyrannous yoke; our North American colonies did quite right in declaring themselves independent of a mother country which had refused to redress their serious and continued grievances; and who does not rejoice at the success of the uprising at Naples? Therefore, the South had a right not to secede, but to rebel.

But to rebel against what? Of what did they complain? Who oppressed them? Where were their wrongs? It could not have been the constitution of the United States which ground them down, for, with very trifling amendments, they have since adopted it as their own. Had the North abused that constitution in its working to Southern disadvantage? Why, the South had been dominant—mistress of the situation—from the beginning, and, thanks to the democratic party, almost all the time. She had, in fact, governed the North, and English philanthropists blamed the latter, in my opinion justly, for submitting to the dictation of the planters. . . .

Vice-President Stephens, on this question, before he decided to throw in his lot with the friends of Jefferson Davis, said, at the Georgian Convention:—"What right has the North assailed? What interest of the South has been invaded? What justice has been denied? What claim founded on justice and right has been withheld? Can either of you to-day name one governmental act of wrong deliberately and purposely done by the government of Washington of which the South has a right to complain? I challenge the answer. What have we to gain by this proposed change of our relation to the general government? We have always had the control of it, and can yet, if we remain in it and are as united as we have been. We have had a majority of the presidents chosen from the South, as well as the control of most of those chosen from the North. We have had sixty years of Southern presidents to their twenty-four. Countless millions of dollars you must expend in a war with the North, with tens of thousands of your sons and brothers slain in battle, offered up as sacrifices on the altar of your ambition—and for what? Is it for the overthrow of the American government, established by our common ancestry, cemented and built up by their sweat and blood, and founded on the broad principles of right, justice, and humanity? I must declare here, as I have often done before, that it is the best and freest government, the most equal in its rights, the most just in its decisions, the most lenient in its measures, and the most inspiring in its principles that the sun ever shone upon. Now, for you to attempt to overthrow such a government as this, in which we have gained our wealth, our standing as a nation, our domestic safety, with unbounded prosperity and rights unassailed, is the height of madness, folly, and wickedness, to which I can neither lend my sanction nor my vote."

Feeble, after an utterance like this, would be any words of mine; but all that I heard and saw in the country confirmed them, and every one who has taken the trouble to examine the constitution knows the undue and unfair advantages which it bestowed upon the South. He proceeded to maintain that slavery was the real root and cause of the secession—quoting on this point the ordinances of various states,

in which they set forth their reasons for seceding. Now, is it possible (he continued) still to say that these men are fighting for independence, nobly battling against oppression, fit successors of Wallace and William of Orange and George Washington? Why, the bare idea is an insult to patriotism. They are fighting, not to free themselves of shackles, but to rivet the shackles of the black-man; and it is not likely that He who "hath made of one blood all nations of men to dwell on the face of the earth" will permit the names of Jefferson Davis, John B. Floyd, Isaac Toncey, and Howell Cobb to be enrolled among the glorious few of whom the poet has said,—

> "In distant ages, sire to son
> Shall tell your tale of freedom won."

From the beginning of the strife, and altogether apart from the merits of the great question at issue, I never could feel sympathy for men who, while in office, having sworn fidelity to the United States, receiving pay as cabinet ministers, were actively plotting for the destruction of that very government, whose servants they were, emptying the Federal arsenals at the North, sending away all the war ships to distant seas, placing Southerners, implicated like themselves in the conspiracy, in command of all the posts of importance, and spending that time which they had vowed to devote to the service of the Union to its demolition.

If men are oppressed they have a right to throw off the yoke; but sooner or later retribution, I feel persuaded, will overtake men who without a grievance were guilty of treason. My first position, then, is that this great struggle is now in point of form, as it always has been in point of fact, a struggle between freedom and slavery. But, in my humble opinion, it is a great deal more, and I was rejoiced to observe Sir Charles Lyell term it the other day, in London, a contest between an inferior and a superior civilization. You have in the North every element which is required in order to create a great and prosperous nation—unrivalled industry, remarkable mechanical skill, flourishing manufactures and commerce, an influential literature, admirable common schools, religious bodies so active and liberal that they have done more in proportion for the spiritual wants of the people than any church establishment in Europe. Some of the cities in the distant west rival our old capitals in magnificence; one small station on the Illinois Central Railroad exports more wheat than is grown in all Scotland; there exists among the labouring class a greater amount of plenty and comfort than was ever enjoyed by working men or women in any country before, and you had lately presented to you the sublime spectacle of a country with a population of more than twenty millions, in a time of the greatest excitement and political danger, voting by universal suffrage for a chief magistrate without a single riot or the loss of a single life. My eyes are not blind to the faults of the American character, or to the defects of the American constitution; on the contrary, I have pointed them out

and animadverted upon them at length before now, but do not let us run away with the idea, because our friends in that great country are not perfect, that they cannot govern themselves, that their institutions are breaking down, that on account of a slaveowners' revolt, democracy has failed in America.

It amuses me very much to hear some of our politicians talking big words against republics in general, and the American republic in particular, at a time when we, the people of Great Britain, are as busy as we can be founding republics all over the world—in Canada, in South Africa, in Australia, in New Zealand. While thankful for the blessings which we enjoy under our own cherished institutions, do not let us imagine that all good things are in this little island of ours. Evils exist among us which, in my humble opinion, are quite as serious and dangerous as any which threaten society in the Northern States of America; and we, with such a mass of pauperism and so many remains of feudalism around us, are not in a position to lecture mankind.

Now just contrast for a moment the picture which I have drawn of the Northern States with the social condition of the South, even before the war. Except New Orleans, which is more French than American, they had no city worthy of the name. By the side of St. Louis, Cincinnati, and Chicago—Mobile, Charleston, and Savannah were mere decaying villages. The soil was miserably cultivated, the roads were execrable, the inns bad, the houses dilapidated. They had no system of schools, hardly any booksellers' shops, very few manufactories, and scarcely a ship. Their cleverest merchants and mechanics, their best teachers and tradesmen, all came from New England; and in respect to manners and morals, what could you expect under that plantation system whose long wail of misery has reached heaven, and called down the avenging judgments of God? I know very well that there were and are good men and women at the South; but on my conscience I believe that that social system which they have fostered, and are now seeking to perpetuate by force of arms, is worse than war. The alternative is a dire one I admit, and you may think me, it may be, fanatical or bloodthirsty, or both; but still I cannot help saying better a sharp, decisive end to this contest, than the continuation of a social fabric which would debase and brutalise and drive to atheism generations yet unborn. I have seen horrors in the Southern country which make my flesh creep even now; and if the result of this war should only be to put an end to the abominations of Virginia slave breeding, then the blood of many a brave man will not have been shed in vain.

I come now to my third position—perhaps the most important of all,—viz., that the success of this revolt would be a blow to free constitutional government. The foundation on which our own liberties rest is that the minority must submit to the majority, and every attempt to bring about a revolution where there are no wrongs, and where perfect freedom of action prevails, is a virtual attack on law

and order—on government and security of every kind all over the world. As long as the slaveholders could constitutionally predominate in congress, the republicans of the North submitted, although aware that their measures were a reproach to the nation; but as soon as the latter gained the elections the former rebelled. Just as well might the agricultural counties of England have revolted on the repeal of the corn laws, and with much more show of right might the party in Ireland opposed to the legislative union with England have declared their independence when that measure was passed.

It is quite true that the Federal government and people did not go to war to emancipate the slaves, and very questionable it is whether any nation is justified to go to war merely for the sake of humanity and to put down injustice. If that idea were acted upon, enlightened countries would be engaged in perpetual crusades; but if a people are not to go to war to prevent the dismemberment of their country—if it be understood that a political minority are justified at any time to sever the connection—I should like to know how the machine of government could be got to work at all. Disguise it as we please, for reasons best known to ourselves, that is the problem now being worked out on American soil; and for my part I have perfect confidence in the ability of the statesmen and people of the North to bring it to a most satisfactory solution.

There are, perhaps, a few present this evening who know that the address which I delivered to my constituents in September was honoured by two leading articles in the *Times* newspaper being devoted to it, especially in refutation of my views on the American question. I had quoted a good many prophecies from Mr. Roebuck, Mr. Lindsay, and the *Times* itself, which had of course not been verified, and the leading newspaper answered me by a series of new prophecies more unlikely even than their predecessors. "The democrats are, to all appearance, winning the elections of 1864." You know that they lost them in all the states but three, and, singularly enough, one of these three states which went for M'Clellan—viz., Kentucky—was the very state which this most unlucky *Times*, in the course of the autumn, said would turn the scale in favour of Lincoln, on account of the democrats in it being prevented from voting by an illegal oath of allegiance. The next new prophecy was in the following terms—"There is hardly a mail from America which does not indicate the possibility of the Western States setting up a third republic." Two months afterwards, with singular unanimity, these states voted for Lincoln and the war.

So much for the first article. Inconceivable as are the mistakes which the *Times* continually commits about America, I own to a feeling of surprise when I read the second article, the writer of which, misapprehending the purport of some rather ambiguous words which fell from Mr. Seward, actually wrote this sentence—"This puts the great body of the democrats and the political party of the republicans at one on the slavery question, and leaves between them the small section of sincere and thorough-going abolitionists without any power

whatever." It is really singular that the leading journal of England should entrust the writing of their leaders on the American question to some one who had evidently never read the Lincoln programme, announced at Baltimore on the 8th of June, one part of which was "the complete extirpation of slavery from the soil of the republic."

The war has not been a short one, nor is it yet over. I never believed in any of the foolish predictions that it would last only a few months. There was a territory containing more than 700,000 square miles to occupy, much of it covered with dense forests and swamps—the roads few in number and very bad—the climate itself a powerful defence against invasion. Then the Southerners had nearly all the officers, and, for soldiers, they had ready to hand several hundred thousand of the class called "Low Whites," or "White Trash"—the very best material for an army which had to be hastily raised and disciplined. They were better horsemen and better shots than the Northerners; they had many sympathisers among the democrats in the North and the merchants of New York, and last, but not least, they were greatly aided by the preparations which had been made for the revolt by the traitors in the cabinet of President Buchanan. But their armies cannot be recruited by immigration. Already the conscription has seized upon all males between sixteen and sixty capable of bearing arms; their railroads are wearing out; a great part of the sea coast has been occupied by the Federals; the Mississippi has been opened, and the Confederacy cut both from north to south and from east to west; the North seems more determined than ever to prevent secession, and it is very hard indeed to imagine a separate and prosperous future for a Confederacy thus hemmed in and pierced through, without a middle class, with very few artisans or tradesmen, and without a natural boundary to separate them from their enemy.

But some people think that they will arm and achieve their independence by means of the negroes. Are these people aware that 1,700,000 slaves have already found their way to the North, or been liberated by Northern armies? Do they know that two years ago nineteen negroes were executed at Charleston for buying arms, and that seventeen were hung in Virginia for being possessed of President Lincoln's emancipation proclamation? Did they ever hear of a secret league among the slaves—regularly organised—whose object is freedom, and whose leaders counsel perfect submission till the right moment arrives? Can they imagine that, numbering amongst them such a multitude of mulattos and quadroons, and people as well educated as their masters, they do not know perfectly well, and watch with the intensest interest, what is going on? Have they not read of the fury with which the negro regiments have fought for the North? The Southerners having fought so long and so gallantly are not likely to give in without adopting every possible measure at all likely to save the Confederacy, and it may be that, if reduced to extremity, they may arm at least a portion of the negroes as the forlorn hope against Northern domination; but it would be singular indeed if the coloured people, down-trodden and ignorant as they are, had not sufficient

spirit and knowledge left to take very good care that, whatever use they made of these arms, it would certainly not be in defence of a government based upon the perpetual bondage of their race.

Besides the extension of slavery, and the maintenance of the great principle that no political minority has a right to rebel when merely beaten at the poll, there are other important considerations which weigh with the American nation in refusing to listen to any overtures for peace involving disunion. For example, several of these very seceding states, such as Louisiana, Florida, and Texas, were actually purchased by the money of the whole Federation, and all the forts, arsenals, custom-houses, &c., in the South were erected by funds supplied by the general revenue. They know well, moreover, the danger of permitting the foundation of a separate government close to their own capital, established on hatred perhaps as deep-seated as ever existed between two nations, and without any natural line of demarcation to lessen the risk of constant collision. They feel that it is essential to the prosperity of the Western States that the mouth of the Mississippi should not be in the hands of, or its navigation liable to be interrupted by, any other power; they cannot help being aware that one successful secession may lead to others, and they saw at once that if the South were allowed to succeed in its object, they must necessarily keep up an enormous standing army, and continually run the risk of being dragged into desolating wars.

I invite your attention to the two prospects before us. One is the achievement of Southern independence, which, in my humble opinion, involves three things:—The indefinite extension of slavery, the re-opening of the African slave trade, and the substitution of disorder and anarchy for free constitutional government on the continent of North America. Of course there are people in this country who dispute these consequences; but I prefer the opinion of the Southern leaders themselves, who are both more honest and better informed. Without an extension of slave territory and cheaper slaves the Confederacy could not succeed. Cotton is pouring into England from China, from India, from Egypt, and, in fact, all parts of the earth; the American planters would have to contend against a keen competition, and, as their system wears out the soil, they could not get on without new fields and a better supply of labourers. Even before the secession they began to feel the scarcity of hands. The senate of South Carolina passed a resolution in favour of re-opening the slave-trade with Africa, and three or four cargoes were actually landed on the coast. It is true that the Federal government had seized the ships; but in the case of the *Wanderer*, the owner of the imported negroes came publicly and defiantly to the sale, thrashed the only man who ventured to bid against him, and was declared the purchaser for a mere trifle, amid the cheers of the crowd. Mr. Russell, the *Times'* correspondent, in his diary, points out very clearly this inevitable consequence of Southern success, and goes on to warn us of the complications which would arise out of this policy—meaning our being compelled to interfere by force of arms. We should have to

wage war with the South on the sea; and the North, no doubt, would fight rather than allow any enlargement of the slave territory on land. France and Mexico, too, would have something to say in the contest, and, instead of the great battle of freedom being now fought out on a limited area by the Americans themselves, you would extend it so as to set in flames the world.

The second prospect is the successful suppression of this revolt on the basis of re-union and emancipation, involving, it may be, much further shedding of blood, a long guerilla warfare, difficulties of no mean kind, arising from the subjugation and resettlement of the Southern States, the destruction of the plantation system, the substitution of free labour for slavery, and the entire remodelling of the whole social condition of the South—involving, it may be, much that one regrets, but still far preferable to the first prospect which I have endeavoured, shortly and very imperfectly, to lay before you. It is, therefore, my humble view of the matter that this daring revolt of the slaveowners should be put down now. I desire it in the interest of the black man, emancipated throughout the Union by the republican policy, condemned to perpetual bondage by the Confederate constitution,—I desire it in the interest of my country, which never could allow the re-opening of the African slave-trade, or the indefinite extension of slave territory,—I desire it in the interest of free constitutional government, endangered by the assertion of the right on the part of a minority when beaten to rebel,—I desire it in behalf of North America, threatened with opposing systems, constant secessions, continual wars,—I desire it because, looking to the future of other great federal republics now in process of formation by us in Canada, in Australia, in New Zealand, and in South Africa, it is to be hoped that their eldest sister will be able to vindicate her right and power to give effect to the opinion of a constitutional majority, and to prevent class interest asserting a sacred right of insurrection.

THE LOSS OF H.M.S. "BOMBAY."

Portsmouth, Monday.

The court, which was composed of Rear-Admiral S. C. Dacres, C.B. (president), and Captains Scott, C.B., A. C. Key, C.B., G. T. Hornby, H. Caldwell, G. Preedy, C.B., J. Seccombe, and E. Lacey. re-assembled at half-past nine this morning.

Several other witnesses were called, whose evidence was not material; and shortly after one o'clock the case for the prosecution terminated. At the request of Captain Campbell an hour and a half was allowed him to prepare his defence. On the court re-assembling, Captain Campbell read the following defence:—

"Mr. President and gentlemen of this Most Honourable Court,—If anything could alleviate the great pain which I feel at finding my-

self for the first time in my life, during a period of twenty years of service in the navy, in the position I now occupy before this court, it lies in the consoling reflection that the investigation which has just closed has not, I would most respectfully submit, elicited any fact which should oblige me to call the statement I am about to make a defence either of my own conduct or of that of the officers and crew under my command. Even this, however, fails to compensate for that distress of mind which the loss of the fine ship lately under my command and of so many valuable lives has caused me. I need scarcely assure the court, that did we not all feel that humanly speaking every possible exertion was made to save both the ship and those on board of her, and that the disaster is not traceable to any neglect of duty or carelessness on the part either of the officers or crew, that distress would have been most deeply aggravated. Prior to this inquiry no pains have been spared to arrive at the cause of the catastrophe, and the result of the present searching investigation will account for the failure of our efforts, and will prove to the court how unavailing all attempts to unravel this mystery must be. Our most earnest desire, throughout, has been to discover the origin of the fire, and with this view we have courted the fullest inquiry. I trust that the court will bear testimony to the willingness and openness with which all information has been afforded both by officers and crew, and that it will consider that the evidence so elicited as to the state of order the ship was in fully justifies the eulogium passed upon the *Bombay* by the admiral whose flag she carried in the report of inspection made only twelve days before she was destroyed I have not hesitated to place at the disposal of the court the whole of the written evidence obtained from the officers and crew of their individual conduct at the time of the disaster, given at the inquiry instituted by myself immediately afterwards, which, though not made with the view of being laid before any court, I am proud to think only serves to prove that no blame attaches to those under my command before the fire broke out, and that afterwards every officer and man was found at his station doing his duty, where he continued unflinchingly to perform it to the end. I may be permitted to allude with gratification to the fact that during the whole course of this inquiry there has never been a question raised as to the propriety of the measures taken to save both the ship and the crew during the fire. The responsibility of having to decide in a few moments at such a crisis between the possibility of saving the ship and the moral obligation not to sacrifice so many lives in the attempt was the most serious which can possibly devolve upon an officer. The fact that the launch was actually burnt upon the skids while we were endeavouring to hoist her out doubtless proved satisfactorily to the court that the other boats, though got out in less than half an hour after the fire was reported, were not ordered out before it was necessary. The heroic conduct and steady discipline of both the officers and men who remained on board the ship nobly doing their duty, under the momentary expectation of an explosion of the magazine, while large shells were bursting between decks, was only equalled by the

devotion displayed by many of those in the boats, who notwithstanding the fact that some of the guns were shotted, that some of the masts were falling over the sides, that the whole ship was wrapped in flames, and that an explosion was imminent, pulled in and picked off those who, unable to swim, were still clinging to the ship, thus saving, by means of the ship's boats alone, 525 lives out of 619. When it is remembered that in the year 1800 the *Queen Charlotte*, of 100 guns, carrying the flag of Lord Keith, was burnt off Leghorn, three or four leagues from the shore, and only 167 men were saved out of the whole crew, although many hours elapsed before they were compelled to desert the ship, and assistance was rendered from the shore, and that in 1807 the *Ajax*, 74, Captain the Hon. H. Blackwood, was burnt in the Dardanelles, close to the shore, when 250 men were lost, it will be apparent that, though, unfortunately, the disaster is not without parallel in the records of the navy, the ability and promptitude with which the necessary measures were carried out by the officers, and the order and discipline displayed by the crews of H.M. late ship *Bombay* have never been surpassed.

I have already alluded to those acts of gallantry which were more conspicuously displayed at a time when all were vieing with each other in doing their duty, and I will therefore now confidently leave it to the court to appreciate their conduct without recurring to details which have already been before it; but I cannot refrain from saying here that to Commander Wilson I am chiefly indebted for the admirable arrangements and excellent discipline which had prevailed previously, which I hope has been apparent to the court, and it is to his pertinent suggestions and noble self-devoted conduct that I mainly attribute, under Providence, the fact of our being enabled to save so many lives.

With reference to the remaining officers of H.M. late ship *Bombay*, and the ship's company generally, I feel that, in making this statement, if I have failed to create the favourable impression on their behalf which they deserve, it is due to no lack of desire on my part to represent their merit, but rather to the want of ability to express it. We have all been placed upon our trial, but it has devolved upon me alone to assure this court, which I now do, in the name of myself and of those whom I have the honour to command, that we are unconscious of any act of negligence to which the fire could be attributed, and that when this appalling disaster overtook us we endeavoured, in so far as in us lay, to do our duty as British officers and seamen.

The court was then cleared, and on being re-opened in about an hour,

The officiating Judge-Advocate read the judgment of the court, which was as follows:—"The court having heard the narrative of Captain Colin A. Campbell of the circumstances relating to the loss of the *Bombay*, find that H.M. ship *Bombay* was, on the 14th December, 1864, destroyed by fire off Flores Light, in the Plate River; but after a patient and careful investigation, extending over five days, are of opinion that there is no evidence among the surviving officers and crew of the said ship by which the origin of such fire can be traced,

and do therefore adjudge the said Captain Colin A. Campbell, and all the surviving officers and ship's company of H.M. late ship *Bombay*, to be acquitted of the blame in respect thereof. The court are of opinion that after the fire was discovered all efforts were made to subdue it, but proved unavailing, in consequence of the extremely complete state of the ventilation of the ship, causing the fire to gain ground with extraordinary rapidity; that the ship was not abandoned till all hopes of saving her were at an end, and the officers and crew forced overboard by the flames; that the steadiness and discipline displayed and maintained under the very trying circumstances were very creditable to the captain, officers, and ship's company, and that the saving of so large a number of the ship's company was mainly due to the foresight with which the preparations were made, and the promptitude with which the boats were hoisted out; that the said Captain C. A. Campbell and the surviving officers and the ship's company are hereby acquitted of all blame accordingly. The court cannot separate without calling attention to the mode of ventilating the spirit room, in H.M late ship *Bombay*, whereby easy access was afforded to the spirit room, and are of opinion that every precaution should be taken to secure the spirit-room against such accident. The court considers it its duty to call the attention of the Lords of the Admiralty to the many instances of heroism and devotion exhibited by the officers aud men in the numerous cases that have been mentioned in these proceedings; and that the example set by all the officers must have contributed largely to the saving of so many lives."

The inquiry, which had occupied five days, during which nearly fifty witnesses have been examined, without throwing the least light on the origin of the fire, then closed shortly before five o'clock.

Royal National Life-Boat Institution.

The last monthly meeting of this institution was held on the 2nd February, at its house, John Street, Adelphi, Thomas Chapman, Esq. F.R.S., V.P., in the Chair. Mr. Lewis, the Secretary, having read the minutes of the previous meeting, a gratifying communication was read from General Knollys, expressing the extreme satisfaction of their Royal Highnesses the Prince and Princess of Wales, on being informed of the important services rendered a few days ago by the *Albert Victor* lifeboat of the Institution, stationed at Berwick-on-Tweed, in rescuing the crew of six fishermen from drowning.

A reward of £10 was voted to the crew of the institution's life boat at Tramore, County Waterford, for putting off in reply to signals of distress from the brig *Stefarria*, of Palermo, which was observed in a very perilous position during thick weather on the night of the 3rd of January, and bringing the vessel from her dangerous position to a place of safety.

A reward of £5 was also voted to the crew of the Society's lifeboat at Rosslare, County Wexford, for going off during a heavy gale of wind, and saving the crew of five men, and a pilot, from the schooner *Thomas*, of Liverpool, which was totally wrecked on the Dogger Bank on the 14th of January. When the lifeboat arrived at the wreck the sea was sweeping over her, and her crew were every moment expecting to be swept overboard.

The Silver Medal of the Institution and a copy of its vote on parchment were voted to Capt. T. H. Fellowes, R.N., Inspecting Commander of the Coastguard at Penzance, and £10 15*s*. to the crew of the life boat belonging to the institution at that place, for going off and rescuing the crew of eight men from the brig *Willie Ridley*, of Plymouth, which was observed dragging her anchors during stormy weather from the south and a very heavy sea. Captain Fellowes, and the crew of the lifeboat behaved most gallantly on the occasion.

Also £4 10*s*. to the crew of the Fowey lifeboat of the society for putting off in reply to signals of distress, and rescuing from destruction the French lugger *La Maria François*, *Le Père Samson*, and her crew of four men. The vessel was observed, with signals of distress flying, on a lee shore in St. Austell's Bay, during a gale of wind and a heavy sea.

It was reported that the Southwold lifeboat of the society had also been instrumental in saving the brig *Elizabeth*, of Lowestoft, and her crew of seven men, from destruction. When the lifeboat crew boarded the vessel, she had seven feet of water in her hold, but the captain implored them to try to save his vessel. The effort was made, and after great exertions, the lifeboat men succeeded in getting the vessel safely into Harwich. It was also stated that the Ramsgate lifeboat had been instrumental, in conjunction with a steam-tug, in bringing safely into harbour the brig *Les Trois Hermanos*, of Hamburg, which was in distress on the Goodwin Sands, during a heavy snow-storm, on the night of the 27th of January.

The institution voted £99 15s. 6d., to pay the expenses of the lifeboats of the society at Bude Haven, New Brighton, Walmer, Tenby, Middlesborough, Wexford, Cahore, Arklow, and St. Andrew's, for different services during the recent stormy weather.

The silver medal of the institution and a copy of its vote on parchment were also voted to Major Festing, of the Royal Marine Artillery, who, with twelve fishermen of Hayling Island, put off in a boat and rescued, at the imminent risk of their lives, two of the crew of the schooner *Ocean*, of Plymouth, which was totally wrecked during a fearful gale of wind on the Woolsiner sand banks, near the entrance of Langston Harbour, on the 14th of January. The fishermen had received a large sum from a local subscription for their gallant services.

Various other rewards were also granted to the crews of fishing-boats and others, for saving life from different wrecks on the coasts of the United Kingdom. Payments amounting to upwards of £2,000 were ordered to be made on various lifeboat establishments. The com-

mittee decided to give an annual payment to the assistant-cockswains of the lifeboats of the institution who had hitherto been unsalaried.

It was reported that the institution had sent during the past month new lifeboats to Poole, Dorset; Penzance, Cornwall; Bridlington, Yorkshire; Tramore, County Waterford; and Girvan, Ayrshire. The several Railway and Steam Packet Companies had as usual readily conveyed the lifeboats to their stations free of charge. Public demonstrations had taken place at most of the above places on the arrival of the lifeboats. New lifeboats built by Messrs. Forrestt and Son, under the superintendence of the institution, had also been recently forwarded to the Lifeboat Societies at South Holland and Marseilles. The General Steam Navigation Company had kindly given both boats a free conveyance on board their steamers.

Reports were read from the Inspector and the Assistant-Inspector of lifeboats of the institution on their recent visits to some of the lifeboat stations on the coast. It was stated that a legacy of £200 had been left to the institution by Mrs. Morgan of Cheltenham. Messrs. Leaf, Sons, & Co. of Old Change, had expressed their desire to present the institution with the whole expense of a lifeboat station. Henry Nixon, Esq., of Manchester, had also intimated his intention of defraying the entire cost of a lifeboat establishment. The commercial travellers had, through Mr. W. Bishop, of Boston, transmitted a contribution of £149 10s. 11d. to the institution in aid of the cost of their second lifeboat. The proceedings then terminated.

The Canadian Raiders.

Mr. Sumner is reported to have made the following very sensible observations on the Canadian raiders:—

Only a few weeks since the village of St. Alban's, in Vermont, was disturbed by a band of murderers, highwaymen, housebreakers, horse thieves, and robbers, coming from Canada. After breaking open the banks and obtaining a certain amount of spoil by the murder of a citizen, they succeeded in making their way to Canada, where they declared themselves to be agents of the rebel government. Such are the main facts. Now, Mr. President, does any one suppose that these agents of the rebel government were moved to their enterprise merely by considerations of plunder, that they risked everything merely to rob a bank or scale a house? No such thing. Their object was much higher and more-far-reaching. In one word, it was to embroil the government of the United States with the government of Great Britain. I cannot doubt that this was their object: to my mind it is plain as day. These agents, or rather the men behind them, who sent them in, knew the sensitiveness of our people, and how naturally they would be aroused against the foreign country in which the enterprise

had its origin. They saw excitement, anger, and passion on our part were inevitable, that out of these some complication or collision might ensue, and that any such complication or collision must necessarily help the rebellion more than a victory on the field of battle. All this they saw and acted accordingly. The whole proceeding was a trap in which to catch the government of this country. It was hoped that in this way the rebellion would gain that powerful British intervention which would help to restore its fallen fortunes. For myself, sir, I am determined not to be caught in any such trap. There are many things which Great Britain has done since the outbreak of our rebellion which to my mind are most unfriendly, but I am unwilling that anything shall be done on our side to furnish any seeming apology for that foreign intervention which has been so constantly menaced, and which was fore-shadowed in the most hasty and unjustifiable concession of ocean belligerency to rebel slave-mongers who had not a single port or prize court. Nobody sees the wrong we have suffered more clearly than I do; but I see other things also. While never ceasing to claim our just rights, and reminding this power always of the duties which it has plainly neglected, I cannot forget that we are engaged at this moment in a war for the suppression of a long continued and most virulent rebellion, which has thus far tasked our best energies. To this work let us now dedicate ourselves, without arousing another through whose alliance the rebellion may be encouraged and strengthened. Let us put down the rebellion. Do this and we shall do everything. Meanwhile I trust the Senate will not be moved by passion into any hasty action on any of the measures now before it, but that each will be considered carefully and calmly on its merits, according to the custom of this body. This surely is the dictate of prudence, and I cannot doubt that it is the dictate of patriotism too. Washington in his farewell address warns us against the insidious evils of foreign influence. But the insidious evils of our rebels seeking to embroil us with foreign powers are as deadly as any influence now brought against us. Forearmed, let us be steadfast against them.

Mr. Sherman said, the senator from Massachusetts (Mr. Sumner) had alluded to but one of the outrages committed by the rebels from Canada, He had probably forgotten the more serious affairs which took place on Lake Erie. He (Mr. Sherman) happened to be in Toledo at the time of their occurrence. One of our vessels, engaged in commerce between Detroit and Sandusky, was entered by men with arms concealed about their persons. When they had got into the vessel the arms suddenly appeared. The vessel was seized and manned, and at once became a vessel of war under the rebel flag. Thus the rebel flag was kept floating for some hours within sight of three respectable cities. Another vessel, the *Bay City*, also engaged in peaceful commerce, was seized on the same day, and lay off the harbour of Sandusky, within a few miles where rebel officers were held as prisoners of war, who were only kept from recapture and release by the steamer *Michigan*. There was a plan to seize that vessel also, and if they had done so, they might have laid under tribute Detroit, Sand-

usky, and Cleveland, and in twenty-four hours they might have destroyed a commerce equal to our entire commerce on the ocean. He (Mr. Sherman) desired that another fact should be remembered. For some reason not yet disclosed this plot failed. The murderers went into Canada, and the authorities shielded them and discharged them from arrest. It was not to be wondered at that people in whose midst such things occurred should feel alarm and anxiety, for if that plot had succeeded property to an untold amount would have been destroyed. They might have seized hundreds of vessels plying between Buffalo and Detroit had they succeeded in capturing the *Michigan*, as there was no armed vessel on the lakes except this one. Mr. Sherman then adverted to the repeal of the Reciprocity Treaty.

Seizure of the Chincha Islands.

The seizure, by a Spanish naval force, of the Peruvian Islands, with their extensive deposits of guano, is an event of special interest to the whole commercial world. They constituted an almost inexhaustible mine of wealth, not only to Peru, who derived nearly her entire revenue from this source, but to the agricultural and shipping interest of both the old and new world. At a very moderate charge to shippers, the income of the Peruvian Government from these guano deposits has averaged some 15,000,000 dollars annually, and it is estimated that at the present rate of consumption the supply would hold out at least three hundred years.

The bulk of these shipments goes to Europe to replenish the exhausted soil of that continent; Great Britain alone taking over one-half, and the United States less than one-third. Added to this product, the mineral wealth of Peru, consisting of rich gold and silver mines, and her exports of wool, sugar, tobacco, pepper, caoutchouc, balsam and cinchona bark, render her commerce of no little importance to the civilized world, who cannot well afford to have it wantonly destroyed or interrupted.

Notwithstanding these immense and varied resources, Peru is far from being a rich and really independent country. Her population is of an exceedingly mixed and incongruous character—Spanish, Indian, and Negro; and though her government is nominally republican, it is practically a military despotism, subject to such frequent revolutions that it is continually overwhelmed with debt, and a persistent borrower in the European money market. Its financial complications and bad faith to creditors are ostensibly the cause of this Spanish invasion. But there are other circumstances which give colour to the belief that this is merely a pretext for reconquest by the mother country, and the inauguration there of the French policy in Mexico.

What renders the Chincha Islands of more general importance is the fact that they are almost *sui generis*. There is nothing approxi-

mating to them in richness and extent of this peculiar fertilizing material in the known world; though a small group of guano islands was discovered some three or four years ago in the Pacific Ocean, off the coast of Central America, by a Yankee navigator, and taken possession of in the name of the United States, for some reason they have never been worked.

So long as the former remained in the possession of Peru, there was no danger of a monopoly of their product by any nation, or of any such burdensome restrictions as should render the guano trade of little practical value. But their seizure by a European power, especially one so selfish and avaricious as Spain, besides being an infringement of the Monroe doctrine, is regarded as adverse to the interests of commerce, and even looked upon with jealousy by Great Britain.

Though the Spanish naval authorities have given assurances that the guano trade will not be interrupted by them, yet the practical difficulty consists in the fact that the Peruvian Government will not recognise the validity of permits for the shipment of the article while the former remain in possession; and the fees paid by importers to the present custodians may hereafter have to be paid over again to the legitimate owners of the islands. The latter are determined not to submit tamely to the outrage which has been put upon them, and their congress have already voted an appropriation of 50,000,000 dollars to put their army and navy upon a war footing for the purpose of expelling the invader. The executive has also issued a proclamation, announcing that cargoes of guano purchased of the Spaniards will be seized in foreign ports by Peruvian consuls, on behalf of their government.—*Boston Commercial Bulletin.*

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

Particulars of Lights Recently Established.

(Continued from page 105.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
4. Trigos	France, N. coast	48° 52·3′ N., 3° 38·9′ W.	Ffl.	98	12	Est. 15th November, 1864. (*a.*)
Port Navalo	.....	.....	..	..	15	Improved. (*b.*)
5. Portland Harbour	United States	.....	..	101	17	See published notice.
6. Ascension	Timeball	.....	..	..	..	(*c.*)
7. Yang-tse River	Kiu T'oan Beacon	South side of Entrance	P.	70	5	Est. 5th Dec., 1864. Two lights. (*d.*)

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a.) 4.—On the Guen-Bras Rock of the Plateau de Triagoz, West of the Sept-Iles, department of the Côtes-du-Nord. Varied by white and *red flashes* alternately, at intervals of *thirty seconds*.

(b.) 4.—Port Navalo light, on the West coast of France, has been improved; and in clear weather is now seen in the direction of Teignouse light, at a distance of 15 miles.

(c.) 6.—The Time Ball is now dropped from a staff on Hayes Hill at 8h. a.m. and 1h. p.m. mean time at Ascension. The corresponding mean times at Greenwich will be 8h. 57m. 42. and 1h. 57m. 42s. respectively.

Should the ball fall at the wrong time, the negative pendant will be hoisted, and the ball will be again dropped at *ten minutes* after the times stated.

(d.) 7.—A lower *fixed red* light appears in the beacon at an elevation of 30 feet above the sea, intended to keep vessels clear of the dangerous spit off the beacon, and will not be visible from the deck, 15 feet above the sea, until she is in 18 feet, low water springs.

The beacon is chequered *red* and *white*, and surmounted by a bright brass ball.

Directions for Yang-tse Kiang—*China, East Coast.*

The following directions for entering the Yang-tse are by the commander of H.M.S. *Swallow*, from his late survey of the main channel of this river, from Gutzlaff Island and Shaweishan Island to nine miles above the Kiu T'oan Beacon.

The bearings are magnetic. Variation 1° 30′ W. in 1864.

Cape Yang-tse has no distinguishing mark. The *Swallow* anchored off it to obtain the position of the supposed beacon, of which the natives knew nothing.

Gutzlaff Island, 210 feet high, with a small islet half a mile from its northern extreme, is the southern conspicuous object at the entrance of the Yang-tse. The Hen and Chicks bear from it S.W. ¼ W., eight and a half miles, and may be mistaken for it only in thick weather; there is a good channel of deep water between them.

Amherst Rocks, 25 feet above high water, bear N.W. ¾ N., twenty-four and a half miles from N. Saddle Island, S.S.E., seventeen miles and three quarters from Isle Shaweishan, and N.N.E. ¾ E., twenty-four and a half miles from Gutzlaff. When first seen they are difficult to distinguish from fishing boats, which cruize about them.

Ariadne Rock, of 9 feet, is like the Amherst Rocks, from which it bears W.b.S., seven miles, and South seventeen miles and three quarters from Shaweishan Island. It has 5 fathoms close to. On the ebb tide, its place is discovered by discoloured water. The Amherst Rocks may be seen from it in clear weather.

The *Light-vessel*, painted red, with the word "Lightship" on her sides, is moored rather under the North bank, in 22 feet at low water. Her mast carries a large red ball, the top of which is 68 feet above the sea. A *fixed white* light, seen ten miles in fine weather, shows her position, which is lat. 31° 8′ N., long. 121° 58′ 40″ E.*

Pilots.—The Shanghai licensed piloting vessels are known by a

* Assuming Shanghai to be in 121° 28′ 26″ E.

black ball with number under it on their sails: their flag is *red* and *white horizontal.* Shipmasters should take no others.

Their cruizing stations are: Outermost station—between Leuconna Island, Barren Islands, and East Saddle Island; middle station—between North Saddle Island, Elliot Island, and Amherst Rocks; inside station—from the light-vessel to eight miles outside.

House Island, on the Tungsha Bank, is rapidly extending. The house on the East side of it bears East nine miles from Kiu T'oan Beacon, and N.W. $\frac{3}{4}$ N., nine and a half miles from the light-vessel; the bank from the West side of it is very steep to, and should be approached cautiously. Tungsha Bank is extending S.E. from this island, for where the survey of 1842 gives $3\frac{1}{2}$ fathoms, 10, 13, or 14 feet are now found.

Kiu T'oan Beacon, 70 feet high, formerly chequered red and white, is now of a light drab colour facing the sea. Formerly a large brass reflector on its summit rendered it conspicuous many miles before it would otherwise be visible, but little of this reflector remains.

Block-House Island bears N.N.W., seven miles from Kiu T'oan Beacon, and W.N.W., thirteen miles from House Island. Grass and low bushy trees cover it, and it seems to be getting larger every year. To the eastward about three miles is another island growing up. Block-house and House Islands will be connected before long, forming one large island.

Block-House Spit reaches two miles and three quarters southerly from Block-house Island, and on its South extreme are only 11 feet at low water, from which Kiu T'oan Beacon bears S.S.E. $\frac{1}{4}$ E., three miles and three quarters. This spit narrows the channel and is becoming inconvenient to large vessels; several have struck on it without knowing on which bank they were.

Tides.—It is H.W. full and change, at the light-vessel at 12h.; springs rises 16 feet; neaps 11 feet; and neaps range 7 feet. The tides to seaward of the light-vessel, both North and South of the Amherst Rocks, are rotary, but at the light-vessel the ebb and flood show with little variation, the direction of the river.

The streams turn quickly, flood at 1h. 30m after high water, ebb at 2h. 30m. after low water. There is very little slack, the ebb which runs seven hours, and at springs as much as twenty-four miles; the greatest velocity, five knots, being the fifth and sixth hours after high water. The flood runs five hours, seldom attaining a velocity of four knots, and fourteen miles during the whole tide.

To the southward of Gutzlaff the tides are also circular, but not so regular as about the Amherst Rocks. Their general direction is W.N.W. and E.S.E., at springs running five knots.

Entering the *River* from the South—having passed Gutzlaff in fine weather a vessel may safely stand in with the island bearing S.b.E.* astern, leading over the edge of the South bank in about 16 feet at low water, or 32 feet at high water springs; the light-vessel is scarcely seen from the deck (at seven miles off) whilst Gutzlaff is still in sight.

* With Gutzlaff bearing South, the least depth that will be passed over will be 19 feet at low water springs.

Shaweishan is the best landfall coming from the northward or eastward. By keeping it on a N.N.W. bearing it will lead towards the Amherst Rocks, which pass at half a mile on either side. These rocks bearing E.N.E. astern lead South of the Ariadne Rock; then steer for the vessel, allowing for the state of the tide. Should a vessel be set over to the Tungsha Bank, let her steer South for the channel and anchor.

The nature of the bottom is no guide, the soundings showed no difference between mid channel and the North and South banks; but sand with black specks *may* be found on the Tungsha Bank, but never on the South bank. A stranger must not expect that sand with dark specks is found on the North bank, for if so two or three successive casts of brown mud would then place him in doubt.

After passing the vessel steer N.W.b.W., which is a little to the northward of Kiu T'oan Beacon. The house and vessel are admirable marks for knowing the vessel's position till Kiu T'oan Beacon is seen. Pass this beacon at about a mile and a half, after which keep the South shoal close aboard, so as to avoid the South end of Block-house Spit. When clear of this spit, the *Hellespont* and *Ocean Mail* wrecks are *now* two guides to steer between, or inside the *Hellespont;* for near the *Ocean Mail* there are but 10 feet at low water springs.

The Pan Shoal,—*Strait of Rhio.*

We are sorry to see the loss reported of the French packet steamvessel *Hydaspe* in the columns of the *Shipping Gazette.* It is reported from Singapore, 3rd December:—

"The French mail steamer *Hydaspe*, hence for Batavia, which struck on the Pan Shoal, at the entrance of the Rhio Strait, November 24th, has been sold by auction for 2,100 dollars, it having been found impossible to get her off. The mails and a small quantity of cargo she had on board were saved."

The Pan Shoal is laid down on the chart towards the western side of the north entrance of the strait, with four fixed beacons on it. It would be important to seamen to know whether these are still in their places, or whether they have been washed away, to account for the wreck of the French steamer.

Casualty Reports.*

Loss of the Barque "Truro."

Shanghae Consulate, December, 1864.—The court of inquiry into the loss of this vessel decided that as the master (Thomas Haseltine)

* A correspondent has called our attention to this subject. His communications will find their place in the *Nautical.*

was ignorant of the position of his vessel, he should have taken more precaution in using the lead, and considers him to blame for getting her on shore. But attributes the loss of the vessel to the conduct of the natives, who scuttled her; otherwise, she might have been recovered.

Loss of the "Forfarshire."

Cape of Good Hope, September, 1864.—The court decided that, considering all the circumstances, the master (Henry Wall Mundy) should have his certificate suspended for six months. Which decision was confirmed by the governor.

Loss of the "Donna Anna."

Bangkok Consulate, December, 1864.—The court considered the loss of this vessel was occasioned by an unusual current in the China Sea, setting contrary to expectation in the N.E. monsoon; that no blame was attached to the master, who had done all in his power to save the ship.

Loss of the "Antoine."

British Kaffraria, October, 1864.—A Hamburg brig wrecked on the coast on the 18th of October. The court attributed her loss to the severity of the gale and the sea it produced; that her ground tackle was more than what was required by the regulations, and, considering the height of the sea, no blame could be attributed to her master (Scholz) on account of the vessel.

Stranding of the Barque "Ballarat."

Cape of Good Hope, October, 1864.—The court attributed the event to the insufficiency of the vessel's chain cable, which was below Lloyd's scale. Considered that no blame was attributable on any other account.

Loss of the Ship "Lady Hobart."

Liverpool, 10th February, 1865.—Before Mr. T. S. Raffles, Captains Harris and Baker.—The ship *Lady Hobart*, from Liverpool to Bermuda, with a cargo of 900 tons of coal, got embayed and wrecked on the Irish coast, and in the opinion of the court, the master, Mr. Louis Samuel Edward Richmond, did not exercise that nautical skill and seamanship incumbent upon him. Instead of making sail to stay his ship, he should have promptly put his helm up and wore round to the eastward when land was first reported. Certificate suspended for six months.

Loss of the "Armenian."

Liverpool, February 15th.—Before the same.—Loss of the ship attributed to the captain not taking prompt measures, when he came on deck, for her safety, in at once hauling off shore, and the helm not being immediately altered; the mates blamed for not calling the captain; and the lead had not been cast for three hours before she struck, in which interval a single cast would have sufficed to show the dan-

gerous position of the ship on the Irish coast. The court, therefore, pronounced him in default for the loss of the *Armenian*, and adjudged that the certificate of Captain Thomas Leamon, be suspended for nine calendar months.

COURT MARTIAL AT PLYMOUTH.—A court-martial was opened on Friday on board the *Royal Adelaide*, guardship at Hamoaze, for the trial of Charles Frederick Palmer, commander, and Colman Mark Hammond, master, of H.M.S. *Virago*. The charges brought against the prisoners were—First, negligently navigating the sloop *Virago*, in not causing to be taken sufficient soundings and sufficient observations in order to ascertain the position of the ship, in accordance with articles 1 and 15, chap. 19, of the Queen's regulations and Admiralty instructions for the government of H.M. naval service, and thereby hazarding the loss and stranding of the ship; second, for not entering in the ship's log the particulars enjoined by article 19 of chapter 46 of of the Queen's regulations and Admiralty instructions. The prosecution was closed on Saturday, and the court adjourned till Monday afternoon, and thence till Tuesday. On its meeting again long defences of the prisoners were read by their advocates. The substance of the defences was, in answer to the first charge, that the prisoners were in no way answerable by an overt act of commission or omission for the ship being placed in the critical position referred to in the charge; that it arose from the heavy weather and the crippled state in which the vessel was sent home; and the Admiralty regulations were duly carried out whenever the weather and other circumstances would permit. In answer to the second charge they urged that they had nothing to do with the entries in the log. They never directed or asked to have any omissions made. The court, considering the charges against the prisoners proved, adjudged Commander Palmer to be dismissed H M. navy, and Mr. Hammond to lose two years seniority of his rank, and to be severely reprimanded. The court was composed of Captain Ewart, of the *Cambridge;* Captain Lambert, *Liverpool;* Captain Willis, *Prince Consort;* Captain May, *Canopus*; Captain Phillimore, *Defence;* Captain Tremlett, *Impregnable;* Captain Vansittart, *Achilles;* and Captain Gordon, *Cadmus*. Commander Palmer was defended by Mr. Beer, solicitor, and Mr. Hammond by Mr. Hewitt.

THE FEDERAL IRONCLADS AND MONITORS IN ACTION.

Rear-Admiral Porter, after giving an account of the capture of Fort Fisher, makes the following official report of the conduct of the Monitors:—

North Atlantic Squadron, flag-ship Malvern, off Fort Fisher, North Carolina, January 15th.

Sir,—My late experience with the Monitor class of vessels under fire at sea and in riding out heavy gales justifies me in making a spe-

cial report in the matter. I feel the importance of the government's receiving accurate information in relation to a class of vessels about which there has been a difference of opinion, and of which we are building quite a number.

My experience has been with the *Monadnock*, *Saugus*, *Mahopac*, and *Canonicus*, all vessels of some difference of construction, and built. I believe, by different contractors.

Before leaving Hampton Roads, and while waiting for the army to provide troops for the land part of this expedition, I sent the monitors *Canonicus*, *Mahopac*, and *Saugus* up the James River, to try what they could do with the rebel batteries at Howlett's, and above that point. At Howlett's the enemy had a heavy gun mounted (a 200-pounder Brookes rifle), which was frequently fired at the monitors, but seldom hitting them. One of their shells or shot, however, struck the *Saugus* fair on the turret, and knocked out and loosened forty of the bolts.

This was owing to the bolts being driven from inside to out, instead of from outside to in. The turret was not materially injured, and was repaired again in about two weeks, and I have been using the *Saugus* here against these works, where she has done effective service.

The *Canonicus*, *Mahopac*, and *Monadnock* left Hampton Roads on the 18th ult., the former two in tow of steamers, the *Monadnock* going under steam with a steamer in company. The weather was quite rough, and at times the sea would go over the turrets and down the funnels, bnt I passed them while at sea, and they were making excellent weather of it. On asking their commanders afterwards how they got along, the answer was, "Oh, quite well, sir; only a little damp."

On arriving at Beaufort, North Carolina, I filled them up with coal and ammunition. I found a defect in a pump on board the *Canonicus* (a centrifugal pump they called it), which did not fetch the water until there was a foot or more in the vessel. This was a serious defect, and one for which the constructors were very culpable. The *Mahopac's* decks leaked considerably, and made the officers and crew very uncomfortable.

The monitors started from Beaufort on the 18th ult., the *Canonicus* and *Mahopac* being towed, the *Monadnock* declining such assistance. Indeed she did not require it, outrunning the largest vessels easily, and keeping ahead of all, excepting the very fastest.

On the 31st ult. it came on to blow hard from the S.W., and a very heavy sea commenced rolling in. The vessels were all anchored in 13 fathoms of water, with a long scope of chain out. Most of the large vessels dragged during the gale. The *Tuscarora* and *Juniata* put to sea (I think unnecessarily), while the monitors rode it out well. I was anchored quite near them, and witnessed their performance. I at first thought I had been imprudent, and had unnecessarily risked the lives of officers and men; but I went to sleep the first night of the gale quite easy in my mind in regard to the monitors.

I saw that they were making the best weather, and riding easier than any of the other vessels of the fleet. All the transports cut and run, though I think that was quite unnecessary. After the gale I

inquired of the commanders of the monitors how they passed through the ordeal, and they seemed to think they got along very well. The smaller monitors *Mahopac* and *Canonicus*, at times almost disappeared from view, and the commander of the former vessel complained of discomfort owing to the decks leaking, but the vessels were in no danger at any time. As to the *Monadnock*, she could ride out a gale at anchor in the Atlantic Ocean. She is certainly a most perfect success so far as the hull and machinery are concerned, and is only defective in some minor details, which in the building of these vessels require the superintendence of a thorough seaman and a practical ingenious man.

The *Monadnock* is capable of crossing the ocean alone (when her compasses are once adjusted properly), and could destroy any vessel in the French or British navy, lay their towns under contribution, and return again (provided she could pick up coal) without fear of being followed. She could certainly clear any harbour on our coast of blockaders in case we were at war with a foreign power. As strong and thick as the sides of this vessel are, one heavy shot from Fort Fisher indented the iron on her side armour, without, however, doing any material damage. These vessels have laid five days under a fire from Fort Fisher, anchored less than 800 yards off, and though fired at a great deal they were seldom hit, and received no injury except to boats and light matter about decks, which were pretty well cut to pieces. Compared with the ironsides their fire is very slow, and not at all calculated to silence heavy batteries, which requires a rapid and continuous fire to drive men from the guns, but they are famous coadjutors in a fight, and put in the heavy blows which tell on casemates and bombproofs.

The smaller class of monitors, as at present constructed, will always require the aid of a steamer to tow them and take care of them. In smooth weather they ought to go along by themselves, and when towed the tow-rope should never be less than 200 fathoms in length. It strains them very much to have a short tow-line.

I do not know yet what their real durability is or would be in a continuous fire against their turrets. Solid 11-inch or 200-pounder rifles are apt to break something when they strike, and I should be much better satisfied myself to be behind wooden bulwarks and take what comes, than be shut up in an iron turret not knowing whether it is properly constructed. This, though, is the prejudice of a sailor, and should have no weight whatever.

The commanders of the monitors seem to feel quite at home and safe in them, and apprehend no more danger at sea than in any other kind of vessel. Commander Parrott, of the *Monadnock*, remarked he did not see any difference between her and anything else. The *Saugas* joined me after the first day's fight, off Fort Fisher, and was towed round by the *Nereus*, in very rough weather. The vessel leaked a good deal through her bows, and some uneasiness was felt for her on that account; but her sea-going qualities were spoken of as good. The difficulty was a mechanical one, and in no way detracts from the

qualities of the vessel. There is no great amount of comfort on board these vessels at sea; that is conceded on all sides, but they are seldom at sea and only exposed when making a voyage. This is the first time, I believe, that the monitors have ridden out heavy gales in an open sea, at anchor, though they have ridden out gales in Charleston Roads.

I have only to remark that the principle is a good one, if the vessels are are all built like the *Monadnock*. The fire of these vessels continued, with the fire of such vessels as the *New Ironsides* and heavy frigates, is very effective, particularly against heavy plated vessels, bombproofs, and stone or brick walls. I have never yet seen a vessel that came up to my idea of what is required for offensive operations as much as the *Ironsides*. She combines very many good qualities. The most important is the comfort with which the people on board of her live, though she would be no match for the *Monadnock* in a fight, the latter having more speed.

The accuracy of the fire is, I think, in favour of the *Ironsides*, judging from what I have seen here. The turrets get filled with smoke, and do not clear as quick as the *Ironsides*, though that defect could be avoided by not firing both guns so near together. These impressions of mine are formed from a short experience with monitors, but I think they will be found correct, provided the monitors are properly built.

I have, &c.,

DAVID D. PORTER, *Rear-Admiral.*

Hon. Gideon Welles, Secretary of the Navy,
Washington, D.C.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, *in February*, 1865.

Scotland, West coast, Moidart Loch, Staff-Commander J. Jeffery, R.N., 1860, (2s. 6d.)

Mediterranean Sea, Spain, South coast, Valencia Port, Captain D. Juan D. Fungairino, 1864, (1s.)

Newfoundland, West coast, Good Bay and St. John Harbour, with views, French survey, 1859, (1s. 6d.)

West Indies, Caribbean Sea, St. Vincent Island, Kingstown, Greathead, Calliaqua Bays, and view, J. Parsons, Master, R.N., 1863, (1s. 6d.)

Light Books Corrected by Commander E. Dunsterville, to January, 1865.

French, Spanish, and Portuguese Lights (Atlantic), (1s.)
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EDWARD DUNSTERVILLE, *Commander R.N.*

Admiralty, Hydrographic Office, 20th February, 1865.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

APRIL, 1865.

British Merchant Ships and the Confederate Slave Port.

[Not many years ago a narrative of the proceedings of a British merchant ship appeared in the *Nautical Magazine*, from which we make the following extract. It contains a good illustration of a very common occurrence in those days that was often complained of, but with no avail. In fact it almost grew into an occasion of annual reproach of the government, being so frequently represented to ministers by complaints in parliament, but without producing any other effect than a recommedation to our shipmasters not to visit the port, as they knew what they had to expect.* The tyrannical actions of the Charleston authorities, however, which was the subject of these complaints have been happily quietly annihilated. Happily slavery is repudiated by the United States of America, and legitimate paid labour will hereafter form the attraction to Charleston when the trade of that place becomes re-established, free from fetters and the lash, to say nothing of the arbitrary and impudent proceeding of civil authorities boarding a ship without ceremony and carrying off by main force all the coloured people of her crew to prison, because they were born so, and keeping them on starvation diet until she was leaving the port! We congratulate our merchant captains, we say, on getting rid of this impudent nuisance. In regard to the *personelle* of the merchant service, although the ruinous effects of drinking to

* This on the last occasion was the recommendation of Lord Palmerston.

excess are shown up, we believe that the narrative applies rather to the state of affairs some years ago than to the present condition of that service and that such cases are far more limited in number now than they were in the days when that journal appeared.]

After discharging the cargo and taking in ballast, the master resolved to proceed to Charleston, South Carolina, for freight. Before we got ready the season had advanced considerably, October had arrived with its succession of gales and unsettled weather, and from the master's conduct and increased habits of drinking, it was no pleasant prospect to those of the crew who thought about it. There were, however, few of them who cared anything about it; sailors seldom calculate chances, or trouble themselves with the future, and it must be extraordinary circumstances, indeed, that can put them out of their usual course of conduct. The master was now frequently attacked with delirium, and many an inconsistency could be observed in his conduct.

We encountered very strong weather, indeed we had a succession of adverse gales, the brig being in light ballast trim, and a high-wall sided craft, made bad weather, and tumbled and kicked about amazingly, going to leeward as fast as she went a-head. During the height of one of these gales, orders were given to send down the top-gallant yards. The second mate and myself went up aloft, I wanted him to make fast a down-haul to the yard to steady it before slacking the yard-lashing, as from the lifts being seized to the rigging at the mast-head, the yard required to be hoisted up to the mast-head before the lift could be got off the yard-arm. In his usual blustering style, he condemned the plan, said it was all nonsense, and the yard would come down easy enough. Just as I expected, either from the fearful rolling of the vessel, under a close-reefed main-topsail, or the jerking of the braces by the men attending them, when they began to sway up the yard, the yard-lashing, which had been eased off, gave way altogether, and then ensued a scene not easily described. The yard kept thumping about from side to side, shaking the mast, causing confusion and rendering our situation dangerous in the extreme. The second mate kept roaring out for help, the mate was calling to the men to assist us, and Jemmy, who was on deck, bawling out, 'D— your eyes, if you will send the yard down that way, cut away the stays, and let it come down square,' After a vast amount of trouble, and shouting and swearing, it was got down safely, to the great risk of injury, however, to these engaged in the work, from the obstinacy and ignorance of the second mate. Many a valuable life is, from the same and such like causes, sacrificed; but where there was no skipper to direct, the whole affair was mismanaged.

After three weeks of a constant succession of gales of foul wind, we had reached the outer edge of the Gulf Stream, where the current caused an indescribably short, but deep sea, which caused the old brig, then under double reefed topsails, to plunge very heavily. It was just past four bells in the afternoon watch, the cabin dinner was

placed on the table, I was at the wheel, when after an extra plunge into a sea, I heard a crash amongst the dishes, the whole of which had gone flying to leeward off the table. Jemmy came running on deck, and aft to the binnacle, where he burst out with 'What the d—l are you doing with the ship, sir?' as he always liked and wished a prompt reply, I quickly said, 'I am trying to steer her, sir.' 'You are not, sir,' roars out the skipper, 'by —, sir, you are driving piles with her.' Had it been any of the other men the affair would not have ended so quietly—he went below where the plates had been replaced on the cabin table. Only a few minutes elapsed when, as if determined to annoy our chief, the brig gave another sudden plunge, and again the crash of crockery succeeded the shock. Again came the master, followed by the mate, to whom he went on venting his rage on the ship, wind, and helmsman, everything in fact, was sworn at except his own want of patience and reason; 'By Heavens, sir, I cannot rest day or night in this d—d craft.' The mate quietly replied, 'She will not answer her helm—she has too little way through the water.' 'I don't care, sir. Keep her away south-west till the sea fall.' Although almost exactly the contrary course to what we wished to pursue, discipline prevailed over the mate, he called the watch, squared away the yards, and south-west the vessel was steered, not, however, till the sea fell, but until another, and I suppose a stronger dose of brandy sent Master Jemmy to bed, when the brig was brought to the wind on her old course. 'Keep her S.W. till the the sea fall,' however, became a by-word amongst the men, which they never forgot to apply, on all future similar demonstrations on the master's part.

After the fourth week we neared the coast until we got into ten fathoms water, when the master invariably ordered the vessel to be put about, and stood out to sea, declaring his belief that she was not safe nearer the land, although on the coast it is very difficult to see it in that depth of water. After a fortnight's cruise in this way, when the patience of the mate was exhausted, and the men's fast going, from the evident incapacity and ridiculous conduct of the master, the weather moderated one evening, and standing in just before dark, the low coast was seen, and a building, evidently a light-house. Contrary to the mate's opinion, however, the skipper and his wife (who I never knew to interfere before on any occasion,) both averred it was a sail, the latter even declaring that, if she was a sailor, she could name the sails the vessel had set without ascertaining positively, or taking any proper bearings.

The night set in very dark and cloudy, no light was seen, the vessel was put about and ordered to be kept standing off. The wind, however, veered so as to permit the brig to lay along the land. The water was tolerably smooth and all sail set to a light breeze. During the middle watch, the mate (to whose watch I had been shifted) kept the lead constantly going, about one a.m. he had seven fathoms, and not five minutes afterwards, during my wheel, bump went the vessel on a bank, which afterwards proved to be the danger

ous shoals off Cape Roman. The night was dark, the season late in November, with the little swell that then existed she struck very heavy, and close aft. From hitting the rudder occasionally the wheel kept spinning round every now and again, in such a way as to render it dangerous to hold it. I consequently let it go, and stood by it. Only a few seconds elapsed before Jemmy came hurrying up, and placing his hands on the poop rail, he looked upwards at the sails, and cried out, 'Ay, ay, there she is at last, hard and fast by —.' He then went down into the cabin, where the steward, whom I begged to go down and prevent him drinking, found him with the brandy bottle in his hand drinking out of the bottle. He soon came on deck, followed by his wife and all hands, the mate meanwhile had been trying to get the vessel off by backing the sails, but not knowing how the banks might run, he desisted, hauled up the courses, and clued down the topsails, hauling out the reef tackles. The mate then burned several blue lights, as signals to any vessel that might have been near. None, however, answered them. He at once began with the crew to clear away the long boat, got tackles on the stays and yards to get her out, while the master's wife most nobly called the cook and steward, and assisted them to pack provisions for the boats. This done, she came on deck, and the excitement of preparation being over she burst into tears, while her stupidly intoxicated husband was parading about the front of the poop, pretending that the vessel was in stays, and roaring out, 'Why the d—l don't you fill that main-topsail?' This he kept reiterating at intervals, then he would turn to his wife and say, 'Now, my dear Jane, do go below—you'll cause me to do something desperate if you don't.' What the desperate act he contemplated was, or for what reason he said so, I never discovered. She replied as firmly as her situation enabled her, 'I will not go below, I will have a chance for my life with the others.'

While the skipper was raving about the deck, the crew were speculating on the chance of saving their lives. Some put on their best clothes, others took a stock of tobacco, all made up their minds to lose their clothes and wages; at length one fellow said, 'Well, I don't see the use of being miserable, we may as well have a blow out. I say, cook, get the galley fire underway, and let's cook that pig' (a well grown animal which had been killed the previous day for cabin use). The proposal was applauded by all hands, and when ready, we finished the porker, the only fresh meat we had tasted since we left Bermuda. The master excited by additional libations, every now and again would, with new and additional imprecations, call the crew to fill the main-topsail, while the mate would quietly desire us not to mind him, as he evidently did not know what he was about. At length the mate went aft, and very quietly said to him, 'Really, Captain M——, instead of swearing in that manner, you should be thankful that Divine Providence has hitherto preserved you.' 'D— you and —, too,' (indignantly replied Jemmy) 'You have one way of going to heaven and I've another—I expect to get there as soon as you.'

The night fortunately remained with little wind, although dark, and in the morning, shortly after daylight, much to our joy, the brig floated off the bank, the tide having very fortunately been out when she struck. We saw the coast, the mate took charge, and steering along towards the entrance of Charleston, we got a pilot on board, and after waiting tide got safely into harbour next day. When the newsboat came on board, the master, who was staggering about the poop dirty, unshaven, since we left Bermuda, haggard in his appearance, and his eye rolling about with a vacant sort of stare, in a most peremptory manner told the person who wanted to know his consignee, and get letters 'To go to the d—l out of the ship.' His wife and the mate coaxed him below; however, next day he removed on shore, to lodgings under the doctor's care, where he remained till the vessel was loaded and ready for sea, the mate chartering the vessel and transacting the necessary business. No report was made of the vessel being on shore, nor any examination of the damage sustained instituted. The consequence of this neglect developed themselves on the homeward passage, and taught me an excellent lesson on the many misfortunes that arise at sea, from misconduct and incapacity.

Before we hauled into the wharf we were visited by the custom-house boat and then by the police boat of this free and enlightened republic. Amongst our crew shipped in London, we had a young mulatto, born in London, of free parents, a fine spirited well educated youth, remarkably well liked by all his shipmates, and very steady and regular, in his habits. On this young man did these harpies seize, and without a fault, without a cause, other than the barbarian laws of a nation calling themselves free, hurry him from amongst his indignant shipmates, from under the protection of his national flag, against the remonstrances of the crew, and the offered bond of the mate, to the common jail, where he was thrust among common malefactors, and fed, I should rather say starved, upon jail allowance, until the vessel was ready to leave that miscalled land of freedom. I hold it perfectly competent for any people to make and enforce laws for their own protection, if any one should be found stirring up the slaves to insurrection, or intriguing with them, be he white or black, he should be amenable to punishment. I would even go further, and allow the existence of a law to prevent any free person of colour leaving the vessel in which he may come; but that a free born British subject, without fault or crime, simply because he has a shade of colour, or a curl of hair, should be treated like a felon, is an indelible disgrace to the nation that permits it. Tell me not of freedom, where such tyranny exists, name not liberty where it is not; equality where colour alone constitutes a difference, where man is deprived of his humanity, and degraded amongst the brutes—where laws exist, which the civilized world would blush to know, much more to act upon—where in the house of God even amongst all denominations of professing Christians, an unholy separation is maintained between the coloured and the white—where human beings are bred for sale, without remorse; will it be believed that this vile system

exists at the present day,* that a body of men calling themselves followers of our Saviour, who preached peace and good will to all men, who call themselves his successors in the holy ministry, in the dissemination of those pure and heavenly doctrines he inculcated, that such men have now at the present time, meeting together in a misnamed evangelical alliance, sanctioned this horrible system of slavery by a resolution containing a shameful compromise?—it is too monstrous to be submitted to in silence."

At length these tables are turned and the former proud city is so well represented by the *Daily News* in the picture so ably drawn of it in its present condition that we cannot resist making room for it in the very midst of the officer's journal we are reproducing. It runs thus:—

"Washington was illuminated on 'Washington's Day,' this year—on the great birthday, the 22nd of February, which is usually celebrated throughout the Republic. No doubt there was at least the customary ringing of bells, playing of bands, and popping of guns all over the Free States, because there were great victories to celebrate; yet to the good citizens there must have appeared something almost as mournful in the jubilation of the Northern towns and villages as in the desolation of the Southern cities, where the people had something else to think of than Washington's birthday. There must have been something mournful in the consciousness of how completely the first President's anxieties* were justified, and his most painful anticipations fulfilled. He had little enjoyment in the work of organizing the Republic, because he feared that it would come to a stop, or fall to pieces through the attachment of the Southern people to an institution which the North could not tolerate for ever, on account of its effect on their own liberties. During his life, and for half a century afterwards, every effort was made to preserve his work, and to exhibit it to the world as the most glorious of political spectacles; but the depraving influence of slavery was too strong to be counteracted. The self-will of the slaveholders and their ignorant neighbours became an insanity; their pride disqualified them for citizenship in a real republic; and when reduced from domination to equality, they broke loose from their political profession and oath, and, in an evil hour, fired the first shot of a civil war—thus bringing down on their heads the doom which Washington had dreaded for them before they were born. Of all mournful celebrations of his 'Day,' the saddest must have been that of last month, when the glory of his deeds was mixed up with rejoicings for victory over the citizens for whom, as yet unborn, he made provision as the first fruits of a great nation. It is a strange celebration of a father's birthday when his

* It must not be forgotten that this visit was made previous to the Presidency of Mr. Lincoln when the United States had a long unbroken string of Slave-Presidents—men who were placed in their position by the then overwhelming influence of the South. Happily this nightmare of sad realities has passed away, and the country will prosper hereafter under an accelerated commerce founded on free labour.

sons fight to the death over his grave; but so it is in the case of this wise father of a great country. The only comfort in the case is that the pains and penalties of the strife have so aroused the best part of the nature of the victorious party—and probably of the other also—that when peace does arrive, it must be one on which the blessing of the great Founder may be more fitly invoked than it ever could be before.

"The condition of South Carolina just now points the moral of the case only too clearly. In Washington's day Charleston had its special pride, as it has always had, from the day it was born. It was proud of its Huguenot or Cavalier descent, and of its land owning and cotton growing in distinction from trading and manufacturing. It was not then so behind the world as it has fallen since. It had scholars in its society, and a welcome for the world's literature. As time went on the Carolinians remained openhearted as to hospitality, and whenever they gave themselves the opportunity of being face to face with mankind; but they were growing narrow-minded as their curse of slavery deepened on them and closed them in. Midway between Washington's death and the present time they were prouder than when he dreaded everything from their pride. They had not yet claimed that their institution of slavery raised them above the rest of mankind; they still admitted that it was an evil, and refused to look forward to the end of it; but yet it affected their reason. They excluded literature because of its condemnation of slavery; they depressed the poor whites, upheld popular ignorance, and not only insisted on being the most privileged people in Christendom, but denied the happiness of everybody else, and of their Northern fellow-citizens especially. In those days they were proud of the very sand in their quiet streets, because it was distinctive of their city. And there was much to admire in city and country. The town-mansions, in walled gardens, where the yucca looked over into the street, and the pride-of-India shaded the roadway; the shade and coolness of the wide verandahs and the lofty rooms; the bloom and fragrance of the gardens, made a home which might well be dear. The negro market was a picturesque sight, not to be matched elsewhere. There was wealth on the wharf, wealth in the warehouse, wealth in the mansion, wealth on the plantation. But there was barbarism over it all; and the pride was itself a barbarism—sustained as it was under a deep gulf of fear. In those quiet streets there was a soldier at every corner. In the depth of night there was an anxious watch kept for fire; and day and night the negroes were numbered, and counted, and ticketed, and watched, as mischiefs which could not be forgotten for a moment. Day and night the whipping-post was in use, and the influences of that institution were at work in the minds of master and slave. On the plantation there were many charms: the wide fertility, the glades in the woods, the hedges of Cherokee roses, and the thickets of bloom in the forests, where the yellow jessamine and the trumpet honeysuckle made a wonderful contrast with the pure austerity of the pinebarrens, where limpid rills bubble out of the sand.

"Amidst their pride in these charms the Carolinians were mortified

by the external barbarisms of their bad roads, their ricketty fences, loose-hanging gates, mouldering bridges, and the sordid misery of the poor whites; but they did not see to what this tended. They could not but contrast their lines of rail, stretching to the vanishing point through unbroken forest, and trembling on precarious trestles over swamps, with the civilization of travel in the Free States; and what they could do, by hiring Northern skill and by expenditure of money, they attempted during the latter half of the time since Washington's death. But their slavery shut them in, and minds and manners became perverted, till in the same moment their pride intoxicated them to defiance of their free and flourishing fellow-citizens, and their selfishness degraded them so low as stealing the national defences, treasure, and stores.

"And now, when "Washington's Day" dawned, where were they? Their city was scarcely recognisable. Twice before it had been laid partially waste by fire, and now it had been fired again, its public edifices demolished, and its stores blown up, by soldiers or citizens on their own side. Not only were its forts and its harbour in Federal hands, but the city had been four days occupied by the enemy so madly challenged and so insultingly defied. The citizens who could not bear the sight were gone—to the country, or the army, or across some frontier, and the poor and the negroes were left hungry to welcome the strangers. Those of the strangers who had come overland had seen things as mournful as the city itself—the deserted plantation houses and fields, all weed and scrub; woods felled for defences, broken bridges, the ashes of cotton stores, and every sign of the complete dissolution of a vicious state of society.

"Yet there might be thoughtful men, soldiers or civilian observers, from both North and South, who might believe that even this was not the most fatal of Washington's days. That was the most fatal day which witnessed the adoption of the treason against Washington's work; and the present one may be as propitious as the very day which ushered him into life if it should be, as it well may be, the day of a new birth of the republic. The signs seen by the troops by the wayside, as well as those observed by statesmen in the political field, leave no doubt as to the willingness of a large proportion of the inhabitants to return to the form of self-government which they enjoyed before, released from the conditions which made the self-government a mere form, while a depraving despotism was the reality.

"If it should be so, Mr. Lincoln's destiny will stand in history as equal in intesest and grandeur to that of Washington himself. His election, constitutional and irreproachable as any other, was the immediate occasion of the secession and civil war. That war, unavoidable and purely patriotic, occupied his first term of office. If now, in entering, as he did last Saturday, on the second period of his government of the republic, he is to conduct the process of peace and regeneration, his will have been a political life as remarkable as ever was appointed to any man. It seems probable that this is the business which lies before him. He will take to it willingly, conscienti-

ously, and we may trust ably and effectually. Amidst the work of restoration, he and all of us may reasonably look forward to a Washington's day when the free and flourishing Carolinians may stand in their own fields, and look abroad from their own verandahs, pitying themselves or their fathers, not only for the sufferings of the war, but yet more for the bondage which that war broke through; the collisions of pride and poverty in society and in the household, and the conflicts of selfwill and fear which left them no peace. The Carolinians have yet to learn the blessings of reasonableness and tranquillity of spirit. It may be that they are nearer to these blessings than they ever were before."

Few can doubt this, but we will now resume the journal.

During our stay at Charleston, when any money was required by myself or any of the other youngsters on board for necessary expences, it could not be obtained from the master without my going to him with vouchers and documents to prove the necessity of the expenditure. I wrote not only my own bills for shoe mending, washing, and such like demands, but also those of my shipmates; and the interviews I had with the master proved him to be as insane as ever. He would keep me a whole hour on these occasions, asking a number of useless questions, and repeating them without any meaning.

At this time, and even up to the present time, a most infamous system of crimpage existed in all the Southern ports of the United States. A vessel was no sooner arrived than the crimps set to work, enticing the crew to their dens of drunkenness and dissipation, where their evil passions were inflamed through the most pernicious spirits and lewd company; they soon ceased to work, and frequently came on board the vessels openly, and took away their clothes, the master or officers on board not daring to prevent them. When the latter happened to be more courageous than usual, and attempted to resist such misconduct, they were either overpowered in open day by numbers, or the vessel was boarded at night and the object accomplished. Vessels have been frequently robbed of cargo in this manner by these crimps, assisted by the crew, without the possibility of redress, either through the supineness or inefficiency of the authorities. Deserters from the vessels walked on the wharves in open day in the presence of their masters without molestation, the police either unable or unwilling to interfere, and the whole police regulation, except in so far as related to the slaves, entirely useless. So soon as the men got into the power of the crimps, they were kept intoxicated until, in a few days, they were shipped off on board some vessel proceeding to sea, incapable of knowing either the vessel or the voyage, their month's advance pocketed by the crimp who had deluded them away. The most of our crew acted in the manner just described, and we received on board, when in the river ready for sea, a parcel of men in a senseless and beastly state of drunkenness, who, when they recovered their senses, neither knew the vessel nor the part of the world they were going to. Two of them had severe attacks of *delirium tremens*,

and were several days on board before they were able to perform their duty.

Our cargo of cotton was taken on board by the few who remained by thevessel, and stowed by negroes hired from the shore. I had seen so much of irregularity on board the brig, and heard so many fine stories about America and its liberal laws, glorious constitution, and high wages, as well as the facility with which I could get a certificate of citizenship, that I had made up my mind to try republicanism, and had my clothes ready packed to go on shore. My steady friend, the carpenter, however, prevented me, and pointing out the fallacies of the parties who were persuading me, induced me to remain under my national flag, a step for which I have ever since had much reason to be thankful.

There is nothing very interesting or agreeable about the neighbourhood of Charleston;—low, swampy, muddy ground, and a hot, stifling, unhealthy atmosphere giving everything a sickly tinge. The city itself is well built, possesses regular, wide streets, and some handsome public buildings and churches. Cotton and rice are the great staple articles of export; the ships receiving them lie moored to wooden wharves, projecting out into the river. The churches are were filled, but they are so few compared to the population that it is not decisive of their being a church-going people. As I have already mentioned, even here, in the house of God, do the abominable results of a depraved morality, from the effects of slave holding, present themselves prominently to view; one door and one side of the church being set apart for the white, and the other for the coloured population. Many free people of education and respectability are under the ban as well as their bond brethren. Such a system requires no comment; to the mind of every Christian it must be abhorrent, and no greater absurdity can well be imagined than a professing Christian proclaiming with one voice liberty and equality, and with the other ordering his fellow creatures, held in a degrading state of bondage, to be flogged.

When loaded and ready for sea, the brig was hauled into the stream and anchoredwhile we received on board the new crew and the master; the latter going below to his berth on arriving on board and there remaining. While lying at anchor, and clearing the decks for sea, some of the crew, whose bedding had been defiled by a mangy looking brute of a cat we had on board, put her in a bag and threw her overboard; some of the others remarking that such a thing was very unlucky, and that we should certainly meet some misfortune on the passage home. We sailed from Charleston the day before Christmas, bound for Liverpool, and proceeded on our passage during the first few days with light, baffling winds. Our new shipmates were incapable of performing their duty, from the effects of former dissipation, and it was dreadful to witness the state of the two who were attacked with *delirium tremens;* one in particular was very bad. He would in a moment jump from his hammock and run crouching into a corner of the forecastle, trembling as if in an ague, his eyeballs pro-

jecting from their sockets, and rolling about wildly, he would occasionally point into a corner and call out,—'There! don't you see him?' When asked what he saw, he would say,—'The devil, don't you see him throwing darts at me.' His gaze would then remain fixed to the spot for a few minutes, when he would burst out into a hoarse maniacal laugh, which made me shiver, but little accustomed as I then was to such scenes. Neither of these two men thoroughly recovered during the passage, and on many a bitter cold night, when blowing heavy, one of them, an old man, used to cry when sent aloft to reef topsails, never venturing further than the bunt of the sail, and in very bad weather lying down in the top till the sail was reefed.

One morning, a week after we left, we were running along with an increasing fair wind, the studding sails had been hauled down, and the crew and mates had gone to breakfast. I was at the wheel, which I had just relieved, when I found a tremulous sort of motion in the rudder that I had been unaccustomed to, and fancied the brig did not answer her helm as quickly as usual. I looked down the rudder case, where, to my astonishment, I observed the lower part of the rudder twisting about almost irrespective of the upper part within the rudder trunk. I made a signal to the cook, who was sitting in the galley door, taking his breakfast. He came aft, and without informing him what I wanted, I desired him to call the carpenter. When the old man came aft and saw the state of the rudder, his face changed colour for a moment, but he said nothing except,—'It is a bad job, I will call the mate.' The mate came up, and evidently not thinking it very bad, said,—'We will see about fishing the rudder-stock after breakfast.' Below they both went, and in less than five minutes the lower part of the rudder, up to within three feet of the rudder-head, broke right off from the upper part. The rudder-irons, previously broken, did not keep it fast, and weighed down by the weight of bolts and copper, it sank, and with it my spirits, presenting to me a long vista of difficulties and dangers, in the midst of a winter passage through a stormy ocean. Sail was quickly reduced, the brig hove to, and then the sailors began to smoke, and the mate to ruminate, the master never showing himself, and, as we understood from the steward, listening to the account of the loss with the greatest indifference and apparent want of any apprehension of the reality of our loss. Quiet, subdued looks succeeded to the usually jocund faces of the crew; the mate and carpenter seemed puzzled; their various consultations were conducted in whispers; the men were addressed in a quiet, kind, equality sort of tone, instead of the usual firm, decided word of command. Misfortune, the leveller of distinctions, had its due influence, and while we were all serious and subdued, no irregularity was committed, but the mate's orders were treated with the greatest respect, and to him alone the crew looked for assistance in the difficulty.

All the various manners of getting temporary rudders were thought of, but all seemed alike beyond the probability of realization from our want of means and materials. In the midst of the difficulty I recollected having seen, while a boy at school, an engraving and de-

scription of a temporary rudder by which H.M.S. *Ipswich* had been steered under similar circumstances. I got a piece of chalk and sketched the plan, describing it at the same time as a spare spar, having a weight attached to the outer end to cause it to sink, placed over the stern, the upper end secured on the taffrail, the outer end in the water, while guys fastened to spars rigged out on each quarter, and brought in board with tackle attached moved the spar and steered the vessel. With a spare mainyard we tried this plan, and watching a favourable opportunity got the spar overboard, the weather during the whole period being very bad. The brig being light, from the nature of her cargo, and having a high poop, there was a considerable space between her taffrail and the water, this and the same cause making her tumble about very much, caused the spar to be often out of the water, and it bumped so much against the stern, that, after a few hours' unsuccessful attempt to wear the ship by it, we were obliged to get it alongside, and happy to be enabled to get it on board.

Meanwhile days of continued westerly gales were passing away during which time we remained either lying to or when more moderate scudded under the close reefed main topsail and double reefed fore topsail and fore sail, keeping the jib and staysail set to pay her off as she alternately came to on either side. The main topsail and main braces were also kept in hand to assist the head sails, and thus careering about without control, like the human mind without the rudder of reason, as wayward in her actions as any maniac, the brig for eighteen days was gradually running or drifting to the eastward. Many and various were the surmises amongst the crew as to our ultimate fate; and considering the reason, hope was not very prevalent either in the forecastle or in the cabin. We had saved the upper rudder-iron from the rudder-head, and acting under the advice of the carpenter the mate resolved to construct a temporary rudder, and endeavour to get it fastened by means of the iron saved and chains, so as to steer the vessel.

The carpenter accordingly constructed a rudder, the shape of the old one, the main pieces being the spare main yard; the broad part was made of spare spars bolted to the main piece, and covered transversely with inch boards.

While in this state of preparation in the midst of a severe gale, lying to under the main topsail, we observed a vessel scudding. The mate ordered the ensign to be placed in the main rigging; the man who obeyed him placing it union down, actuated by his feelings. The brig soon answered the flag, and bore down, rounding to under our lee, evidently seeing our crippled condition, and asking what he could do for us? We asked in return if he could give us a spare rudder-iron? To our joyful astonishment he said he could, it being very unusual for any vessel to keep such a necessary article on board; and we afterwards discovered his having it proceeded from the vessel having got a new rudder the previous voyage. We could not launch a boat for the sea, but we threw a cork fender with the lead line attached to it overboard, which he saw, and wearing, adroitly caught.

He made fast the rudder-iron and bolts, with a piece of paper attached containing the latitude and longitude, and an offer to remain by us, which was at once declined without a dissentient voice, so much did the possession of another rudder-iron rejoice the whole of us.

On looking at the stern posts when the brig pitched heavily, we saw that the third pintle from the top had broken short off in the gudgeon and remained in the socket, supported by the saucer; without the extraction of this we could not proceed, as we proposed to put the rudder-iron got from the brig on the rudder at the corresponding place to this gudgeon on the sternpost. Taking advantage of a slight cessation in the wind and sea which occurred, the chief mate, with a rope round his middle, and attended by the carpenter and myself to hold the line, went out at the cabin windows, and after diving three times succeeded in bringing up the broken iron, although he was very much exhausted, and bleeding from a blow he received from being driven against the counter by a sea. The carpenter now by means of a long boat hook measured the exact distance of the gudgeon from the rudder-head and fitted the iron accordingly. He also got a length of the stream chain, and attached it by the middle of the rudder about three feet from the bottom, the ends being to be brought up inboard about the fore channels. As a difficulty presented itself in getting the new rudder shipped from its great buoyancy preventing it being got over, and so as to enter the rudder case, the carpenter attached a few fathoms of the mooring chain to the lower part of it, taking it across and fastening it with rope, which was afterwards cut with a chisel fastened to a long spar.

The rudder was finished on the evening of Saturday, and on the Sunday morning a very unusual lull took place in the gale, the sea falling very much. We all looked on the event as providential, and at once proceeded to ship our new rudder. We got it overboard, and so well had the old carpenter's judgment and skill been applied that we found comparatively little difficulty in shipping it, the irons and chains being most judiciously placed. By 6h. p.m. on the same Sunday evening the steering apparatus and wheel were attached to the new rudder, and I considered myself fortunate in getting the first trick at the wheel. What my feelings were could not be easily described; and that night the first smiles appeared on the men's countenances which had been seen since the accident occurred. Doubtless many a silent aspiration of thankfulness also found its way to that Divine Being who so mercifully protects his creatures.

[One of the readiest if not the best substitute for the rudder, we believe is the end of the chain cable over the stern, with a guy to each quarter.—ED.]

Our Life Boat Institution.

It is said that Parliament is presented every year with a wreck chart, on which is marked a series of heavy black spots, each of which represents a disaster in British waters, or a wreck gone to the bottom, perhaps with a hundred persons in her. For the year 1863 it records 1602 wrecks on the shores of the United Kingdom!—a number which makes one shudder, yet showing truly that the sea is the high road of the English. Four hundred thousand ships sail from or enter annually the ports of Great Britain. But her coasts are full often visited by storm and tempest. And should one have weathered them he would have learnt from experience something of their severity. But even the middle of the country is not free from their effects, for England may be considered almost as a large ship. The gales of October and December, the furious equinoctial gales rush among the chimneys of their towns as they would through the rigging of a ship, and one might imagine in the night of one of these storms the cries of those who are perishing amidst the furious efforts of the blast. Mothers are then trembling for a son, maidens for a lover, for who is English and has not a relative at sea? After one of these storms a cry of anguish comes from the shores of Great Britain—for, alas, see the wrecks! how many lives are irrevocably lost? Such a question is too truly answered by the records; for the ravages of the sea here come home to every class of society.

From the seat of such calamities has risen a noble institution, one which as yet is only to be found in England, and it is calle the "Life Boat Institution," a boat specially formed for saving life from wreck. Let us allude to the character of this boat, the management of the institution by which it is produced, and the heroic services rendered by it every year.

It was at Exmouth where I had my first lesson on the construction of the life boat. This little town, situated on the south coast of Devon, and as its name implies, at the mouth of the Exe, is divided into two distinct parts, the old and the new, and but for this distinction might be called the village of contrasts. The old town, seated at the terminated of a sandy vale, about fifty years ago was nothing more than a little fishing village. Even now its narrow streets remain, with its contracted courts and obscure alleys, formed by the humble dwellings of its fishermen and seamen. The new village, although connected with the old one by a street or two of a mixed character, serving well as a kind of transition, stretches out to the N.W., towards the slopes of a hill opposite the sea. It is composed of handsome dwelling houses and mansions, seated above each other among groups of trees. These are charming villas, built with true English taste, in places commanding delicious views, well adapted to the climate.

A wide and pebbly road leads between two white walls to the summit of the hill, where I was agreeably surprized on finding a country of surpassing verdure. The richness of the vegetation gave no symptoms

of its proximity to the sea, shaded lanes led from each other between two hedges, formed of festoons of wild honeysuckle and clematis. In one of these avenues, bordered by high trees, it was my good fortune to meet a young lady in her straw hat, bow in hand, and a quiver of arrows in her belt, advancing towards me, with an air of confidence and the step of a Diana. She entered the archery ground, an enclosure of beautiful soft grass and entirely devoted to the amusement of those who patronize the pleasing sport of archery. The people of Cornwall and Devon in former days were expert archers; and the practice of the bow is preserved, not as a means of defence but as an amusement, of which let the Devon and Cornwall Archery Club bear witness.

By the side of the village one of the slopes of this hill descends abruptly to the sands, by which the mouth of the Exe is nearly choked up, and here is a large river, nearly a mile and a half wide, making its way with difficulty towards the ocean, which is most pertinaciously always throwing it back. On one of the outer points to seaward and at the extreme of Exmouth, is a flagstaff on a hill called the look-out. There in a circle surrounded by a wall of white stones, and paved with black pebbles, by day and night walks a man wearing a small round hat and a long coat, proof to all rain, whose business it is to look-out with a large telescope, which he is constantly directing to different points of the horizon to seaward. One part of his duty is to be satisfied that he sees no vessel making signals of distress. Behind this station are a group of some dozen and a half houses glittering with their white walls, occupied by the coast-guard, and in the midst of them stands the building in which the officers and men of this service assemble on points of duty, and in which is their armoury bearing this inscription, "England expects that every man will do his duty,"—the memorable words which Nelson signalled before the battle of Trafalgar. From the windows of this house and the platform which surrounds it, the look-out is most extensive over the sea on one hand, bounded by Berry Head, a huge foreland which for ages has withstood the perpetual wash of the waves. On the land side the sinuous course of the Exe at one place is bordered by cultivated ground, at another by the barren swampy banks of the river. One of the principal features of the country is the chain of the Haldon Hills which, with their mountainous crests, form the back ground of the picture. Towards the evening the view in this direction is still more striking, from the long shadows extending over the sides of the hills, while the setting sun lights up the wide still surface of the river, intersected with banks of sand which sadly interfere with the sluggish stream in its course to the sea.

The Coast Guard Station is also the best point from which to get a general view of the town built on the last curve left by the Exe before entering the sea. It certainly is most happily chosen, and has even been embellished by art. The ground of the bank on which the parade and other handsome parts of the town stand have for the most part been gained from the water about the commencement of this

century. The beautiful Beacon Walk, a kind of garden ornamented with trees and shrubs of evergreen foliage, was cut out of the side of an arid hill by the orders of Lord Rolle. A sea wall, 1,800 feet long, a gigantic piece of marine architecture, which the English so well know how to construct, has been formed to control the effects of the tide along the banks of the river. It entirely prevents all further inundation which more than once has desolated the lower parts of Exmouth. This being a watering place, the same contrast is found here between the different part of the town occupied by the upper and lower class of society, as well as on the strand, to which inhabitants and visitors alike resort. From the upper town the latter come down to the baths, which are always ready for them, prepared by the vigorous inhabitants of the lower, the machines in use being dexterously managed in the frothy wave by female hands.

A little above the strand, and close to the Coast Guard Station, stands the life boat house. It is a kind of shed but built of stone, with white-washed walls, and the roof of varnished oak in excellent order. The boat, of course, occupies the principal part of it, with its canvas covering to protect it from the weather. The crew appear to look after it with as much care as a lady's maid would look after her mistress. Without its covering the life boat is seen in its beauty, gaily painted in white and blue, and perhaps with vermillion ornaments. Dryden has said that every object yields an incarnate idea, and that inanimate objects impart, on first seeing them, a sentiment of distrust or confidence according to the nature of their application. A ship of war, for instance, however handsome she may be, imparts but a questionable idea—her very ornaments conveying dubious sentiments, and of her guns, notwithstanding the handsome form which the bronze has obtained from their maker, one has a kind of misgiving in his admiration of them, something like what one feels in the presence of a huge boa of the serpent tribe on finding it in the forest. But the life boat, on the contrary, has a look of benevolence; it is the friend of man, the saviour of the shipwrecked mariner. Every thing about it inspires generous feelings, and no one need be surprised at the amount of regard shown for these useful vessels by the sailors. The Exmouth life boat is the present of Lady Rolle, and cost £350 sterling. The lease of the ground on which the boat house has been built was bought several years ago by the local committee. A subscription of thirty pounds annually, and some other small outlay, is sufficient to take care of the boat. She is placed in the care of the coast guard, who are jealous of their sacred charge. One of these men kindly explained to me the system by which the life boat is managed. He was an old seaman who had nearly gone round the world. He wore the blue woollen shirt in which English seamen delight, the large broad collar of which, turned back, exposed a neck bronzed by many a tropical sun, and seemed to defy the sea breeze.

The sparrow does not fly only because it has wings, nor does the swan skim along the waters with the ease of a mass of froth only because it has two feet in the form best adapted for swimming.

Naturalists have recognized another organic quality which contributes to explain the flight of the sparrow and the swimming qualities of the swan; and this is that a bird has the faculty of inflating itself with air, and thus diminishes its specific gravity. I do not know whether inventors are gifted with this law of nature; those, for instance, who are the constructors of the life boat, but the analogy strikes one at the first point of view of this subject. It is not in consequence of its form nor the number of its oars, that the life boat is more buoyant and faster than other boats, but because, like the bird it is, so to speak, filled with atmospheric air. This invention is new, at least it belongs to the present century, but who has the honour of the discovery?

Happening one day to be walking in Hythe cemetery I read on a tombstone the following inscription:—"To the memory of Lionel Lukin, the first constructor of the life boat. He was the inventor of this principle of saving life, by which many persons have escaped death at sea. He obtained his patent in 1785." This is not the first time that an epitaph has not been true, and I can safely say, in spite of the assertion so positively made on this stone, that the title of Lionel Lukin to the discovery of life boats is not so far settled as to be beyond discussion. Lukin was a coachbuilder of London, who died in 1834. It is true that he made the plan and model of a boat with air chambers, but was this boat ever tried in a storm? That is a question of some difficulty to answer. With much more probability of truth this discovery has been attributed to Mr. Greathead, boat-builder, of Shields. In the month of September, 1789, a vessel of Newcastle, called the *Adventure*, was wrecked at the mouth of the Tyne. There was a multitude of persons on the shore who saw the vessel founder without anyone going out to her rescue. The event was the occasion of a subscription, the amount of which was to be the reward of him who should produce a boat capable of braving the heaviest sea. Two competitors only came forward, "Wouldham" and "Greathead," and a committee awarded the prize to the latter, who was otherwise largely rewarded, as all discoverers of useful matters are. The Society of Arts gave him a gold medal. The Trinity House (a sort of substitute for the Admiralty) gave him £100. Lloyds, the large company of underwriters, gave him £100, and Parliament presented him with £1,200. I have seen a model of Greathead's boat at the Life Boat Institution, and it is somewhat different in its exterior form to what is now used, but particularly in its flat form and curved keel. But Greathead's boat rendered considerable service, and until 1849 underwent but few modifications.

In the month of December of that year, a ship being wrecked on Tynemouth bar, two dozen brave fellows manned the life boat in all possible haste to save the crew. In their noble efforts to contend with the raging sea the boat capsized, and twenty-four lives were lost. Great was the consternation, but in such calamities there is the consolation of knowing that from them has sprung the germ of improvement. The late Duke of Northumberland offered the reward of one hundred guineas to the person who would produce a life boat that

should have the power of righting herself in case of being capsized. In answer to this appeal 234 plans and models were sent to Somerset House in London, where a committee, for the space of six months, sat in deliberation on their respective merits. The prize was at length awarded to Mr. James Beeching, boat-builder, of Great Yarmouth.

To the hundred guineas which he had offered the Duke of Northumberland added another hundred to carry out the project. According to Mr. Beeching's plan the first self-righting life boat was constructed in his building yard, that is the first boat that could right herself after being capsized by a sea or squall. This boat was afterwards purchased by the Commissioners of Ramsgate Harbour, and the history of her services has animated more than once the hearts of British sailors with confidence after the catastrophe of Tynemouth. In the space of five years, from 1855 to 1860, the lives of 420 persons were saved. Here is an account of one of these noble transactions:—

On the 2nd February, 1860, intelligence was received at Margate that a Spanish brig, the *Samaritano*, in the midst of a heavy snow storm, had got on one of the dangerous banks at the mouth of the Thames. Her crew had attempted to save themselves in her boat, but her oars got broken, and the boat itself disabled. The two life boats of Margate were launched, one after the other, and successively placed *hors de combat* by the tremendous sea that was running. No hope remained but that the Ramsgate boat might succeed. Her services were soon forthcoming. A coastguard man had arrived there in breathless haste and given the sad account of the failure of the other boats. But no one was discouraged by their ill success; the boat was launched and the post of danger was that of honour. She started off in tow of the steam tug *Aid*, which, by night and day, was ready waiting in the port in case of being wanted in the gale. Severe was the contest which this vessel and her charge had with the tremendous seas as they faced them—nor was the position of the men in the life-boat less critical. Heavy seas broke over the boat and froze as they fell, so that the men were wet and cold to their very bones. Although it was not more than an hour after noon, the weather was so dark that it was like night, those in the steamer could see nothing of the life boat, nor could they in the life boat see even the steamer.

But in the midst of such darkness how was the wreck to be seen? Happily a clear in the storm enabled those in the steamer to discover her amidst the breakers to windward, with her flag of distress still flying, and directly for it the steamer shaped her course against every obstacle to the glorious purpose of her voyage. The snow kept on as thick as ever; the gale seemed to get fresh strength, and the seas ran over the sands even with greater fury. Nevertheless the decisive hour was come, the life boat cast off the tow rope of the tug and made sail for the wreck, which, like a phantom, appeared and disappeared between the seas whitened by their foam. But now a thrilling doubt overcame her crew. Were they not too late? Was it not in vain

that they had thus risked their lives to save those who had already perished in the waves? Still there was no hesitation among them—onward was their cry. Every instant the boat was enveloped between mountains of waves with their foaming crests rising over the boat as she descended, as if to the depths of the ocean, guided by an almost supernatural power As they neared the wreck the very hearts of the boat's crew trembled for those in the wreck. The appearance of the brig, as she lay half submerged, was sufficient to excite a feeling of horror. Her stern was down in the sand, her side stove in, her mainmast gone, all one melancholy hopeless wreck. How anxiously, how closely scrutinizing were the eyes of the life boat's crew directed to every portion of this confused mass, as the intervals between the seas which washed over gave them opportunity, covered as she was with foam. Yes, the figure of a man was discovered, then two, and then three, and soon after it was found that all her crew were still in that ruinous mass of timber.

Some of them, exhausted by long hours of exposure, were helpless and had not the power to get into the boat, but they must be got into her, and between the seas this was done. The last who remained on the wreck was a young lad who could not use his hands from being frozen, when a vigorous arm bore him from her as the life boat left her, not without risk from the wreck breaking up and the heavy sea that was running. But they were all got into the boat, and with twenty seven persons in her she had got to encounter some formidable dangers before she could reach her port. As to the Spanish crew of the wreck they could scarcely believe in their deliverance. Ignorant of the marvellous qualities of the life boat they saw the frightful sea running as high as ever with the utmost terror, believing every moment that they would all be lost! especially when a terrific sea washed over the boat and carried away her mast! But this damage was repaired notwithstanding the sea, and in spite of every obstacle the boat again found her friend the steamer, was again taken in tow by her, and great was the joy of her crew when, with the grateful hearts of those whom they had saved, she took up her usual berth in Ramsgate Harbour.

Since the saving of the *Samaritano's* crew more brilliant services have served to increase the confidence of the crew of the Ramsgate life boat, built by Mr. Beeching. In the storms of October and November, 1863, she saved about 120 lives. The system, however, on which she is constructed is not entirely that which is adopted on the coast of England. The committee has charged Mr. Peake, one of its members, the master shipwright of Devonport Dockyard, to furnish them with the design of a boat combining all the best qualities of the models which had been sent to Somerset House. A life boat was constructed after this design in Woolwich Dockyard by direction of the Lords of the Admiralty. After having undergone several tests and several alterations, this boat was presented to the Duke of Northumberland who, at his own cost, had three others made after her model. The life boat by Beeching has been rendered perfect by

Peake, and has become the prototype of all life boats which are now striving on the coasts of Great Britain to succour the shipwrecked mariner.

This history of the invention of the life boat enabled me to understand better and appreciate more fully the specimen before me at Exmouth. We may here point out the different qualities which distinguish the life boat from every other, and of these qualities the first considered by the English seaman is that of always floating, never to be submerged. To secure this condition it is evident that the boat must be lighter than the water which he displaces. Our neighbours designate this quality by the term buoyancy, a quality more or less inherent in all vessels floating on a fluid, but life boats possess it in an extraordinary degree, and which is called by them extra buoyancy. But why and how is this attained? The gift of floating in spite of every adverse circumstance is obtained by fixing in the interior of the bottom boards a number of air chambers. The consequence of this is that when the life boat receives water in her she still continues to defy the effect of the seas. The compression of the air in the chambers, some of which extend along the sides of the boat to the two ends, thus forming the essential quality of the life boat. The next essential quality of these boats is to relieve themselves, by their own powers, of any water which they may ship. To appreciate this great advantage it should be known that the art of the ship-builder has not yet succeeded in constructing a vessel that will not capsize under certain conditions of the sea, or from some very special cause. Up to 1852 those who strove to endow a boat with this quality, or as it is termed that of self-righting, were considered to be pursuing a phantom. It it is very well known that in England children have long had the toy called a tumbler which, from any position in which it is placed, will obstinately persist in righting itself; the same law applied to a boat, has produced the self-righting boat. Thus the principle being adapted to the life boat, if she is overturned and submerged she recovers herself as a fish would if thrown on its back in the water. The crew thrown into the sea regain the boat, which is perhaps swamped for a moment, but with them in their places again, she is as ready as ever to continue her work. What is the secret of this marvellous property? While the bow and the stern of the life boat act in some measure as tight boxes of atmospheric air, a heavy iron keel runs along the whole length of the boat fixing her centre of gravity. Thanks to this counteraction between the weight of the keel and the lightness of the two extremes of the boat everything returns to its normal position in the midst of the heavy seas which the boat has to encounter.

The third property of the life boat is the power of immediately ridding herself of water which she receives from the sea, called self-discharging of water. The word self indicates the boat doing this without any assistance, and it is effected by very simple but curious means. There is a series of short tubes placed in the bottom of the boat fitted with valves. These valves are closed by pressure from the outside of the bottom when the boat is afloat, but are free to act

on any pressure from within, as she receives water which thus runs out of her as it comes in, and thus full or empty the life boat is a happy imitation of the barrel of the Danaides.

Not content with visiting the life boat at her home I wished very much to see her launched. For this I had to wait several days. The boat is launched once every three months with a view to exercise the men who compose her crew. These consist of a coxswain and six oarsmen, but which last vary with the size of the boat, for she has sometimes ten, twelve, and even fourteen oars. The first coxswain has an allowance of £8 a year, and fulfils the duties of a captain. The oarsmen receive three shillings on exercising days in fine weather, five shillings if it is bad, and there is often a sea which will test their abilities. The service is particularly difficult. The crew is formed of different hands, and preference is generally given to fishermen, who are more accustomed to the sea and its dangers, and having risked their lives to save others, consider that they have a kind of right to a place in the boat.

However, the life boat is at home awaiting quietly the hour of trial. She is resting on her four-wheeled carriage of a peculiar form, well adapted for her movements, and one that affords great facility of locomotion. She never leaves this carriage night or day except on duty afloat; and thus she is always ready to travel by night or day by land or sea, and when her services are required she is moving to the part of the shore nearest to the wreck. Every public officer or magistrate can claim the services of horses to draw the lifeboat's carriage to the sea side in urgent cases, and such is the promptness with which things are done that the life boat will be launched five minutes after the order for her has been given.

At length the carriage of the Exmouth life boat was drawn to the strand, and in such a manner that her stern was next the sea. The crew then took their places, the oarsmen on each side and the two coxswains, one in the bow and the other in the stern, all of them with their small round hats and life belts. These are used instead of the old air belts some years ago by which a whole boat's crew of Whitby were lost with the exception of one man, who had the new belt on. Along the outside of the boat a life line is secured in festoons by which the wrecked persons may get into the boat. The boat is drawn as far as she can be into the sea by men and horses, and all being ready the coxswain gives the signal for starting, and the boat on her iron wheels runs headlong into the sea.

By her very form and nature a life boat is very different from all others. Neat and elegant, her bow and stern conspicuous, she almost flies, glances over the waves like a bird, scarcely touching them. She is the dove which bears the message of hope on the watery abyss. The idea of a boat which could not be sunk had long been considered chimerical and dismissed with other imagined inventions to the ocean of oblivion. Nevertheless, in the present day the life boat is a fact, and when it is said she exists it is a metaphorical expression of the English, who invest these vessels with an ideal existence. With what suppleness and elasticity she surmounts the waves and looks as if she

defied them all. She plays with the foaming sea as a waterbird is cradled in the storm. Such confidence she also imparts to her crew who no sooner ply their oars in unison than she flies like an arrow; then leaving their oars, which lie in their rowlocks floating by the boat's side, some of the crew jump overboard to prove to the spectators the efficiency of their life-belts, and nothing is wanted in these exhibitions but the presence of a wreck with her distressed crew.

The Exmouth life boat can receive on an emergency from thirty to forty persons. After two or three hours of exercise the boat comes on shore amidst the cheers of a crowded assemblage of persons. The appearance of a life boat excites the feeling of a joyful enthusiasm among the English. These three monthly trials of them are an exhibition of their powers. The displays of artillery merely awaken in the mind of a thoughtful person the idea of sheer necessity, but the life boat is the very personification of peace and concord. It may be truly considered the friend of all nations—English or foreigners, rich or poor, great or obscure, every one is alike in the range or the rage of the storm.

Many other life boat stations were visited by me on the coasts of Devon and Cornwall, but as they differ only in matters of detail we need not discuss them. At Tynemouth, for example, the life boat is of iron. There is besides those of Hong-Kong and Shanghai, established by subscriptions, English residents at those places. But on certain parts of the Cornish Coast an old superstitious belief prevails. Some of the old gossiping people say that they remember having seen (when they were young) what they call the death ship, and which is always the forerunner of some disaster, as is proved by a fact related by eye witnesses. In a village near the sea there lived, a long time ago, a person who became rich—no one knew how—it was said by dark deeds. Some of his neighbours were walking one day on some heights at an elevation of many hundred feet above the sea. One of them called out, "Do you see that vessel near the shore?" The others looked and in the fog which prevailed saw a large dark looking ship, with her sails filled by a breeze, although in a perfect calm. There was no one on deck, no one at the helm, no one in the rigging. The coast was dangerous on account of sunken rocks, but the ship seemed to glide among them on her sinuous course, still avoiding them, when soon after she faded away and vanished in the fog. As there was no wind what power was it that made her sail? This was the question that the spectators put to each other They hastened back to the village, where the first thing they heard was that Mr. ——, well known by them from his bad fame, had just died, on which they concluded at once that the mysterious vessel had come to receive his soul. But whether the world has become sceptical, or whatever may be the reason, the legend of the death ship is no longer heard on the Cornish coast. Among the people, some laugh at the tradition, and others have quite forgotten it. This story, however, on a coast where so much superstition and wreck takes place, was soon followed by another about a boat which, moved by some supernatural power, is

also stated to glide like a phantom in the storm, passing harmlessly among the rocks of the coast. But her name is directly opposed to that of the phantom ship, for she is called the life boat, which does not come to carry off the wicked, but to save the unfortunate. While the first is lost in the fabulous stories of the past, the last is now known on all the coasts where her services are wanted.

These life boats are not confined to the coast of Cornwall, but extend like a girdle of safety around the shores of Great Britain, and my best opportunity for seeing them was on the Cornish coast. There they are well placed in the midst of rocks no less fatal to ships than those of the coast of Devon.

Cornwall has nine life boat stations, an advantage at which the moralist rejoices, for Cornwall former had the bad reputation of plundering wrecks, and being heedless of the lives of their unfortunate crews. It is said that on this coast there is a class of wreckers, as they are called, meaning literally those who enrich themselves with the spoils of a vessel cast away on their shores. These wreckers have furnished more than one character, and more than one startling tale in the history of the English. They are represented formerly as living in caverns washed out by the waves in the rocks of the shore, and capable of all kinds of barbarities. These, however, are legends greatly exaggerated. But certain facts have reached me that go far to show that the old wreckers are not altogether unworthy of their renown. A young woman who had the misfortune to be wrecked in a ship on that coast and washed to the shore, had clung to some projecting portion of rock. A wrecker, who was ranging along the shore like a bird of prey, discovered her and saw a ring glittering on fingers which in despair had grasped the rock, and cut off her hand to possess himself of the ring. A story is told about the same person who, finding that wrecks were becoming scanty, too few for his purpose, devised a method to produce more. To effect his object he took a donkey at night, and having tied two of his feet together, led him along the summit of the rocks on a part of the Cornish coast with a lighted lantern on his back. The progress of this animal made by a kind of jumping along was intended by the miscreant, as he led him to imitate the plunging motion of a vessel under sail, and to induce vessels near the shore to believe that they were yet a good distance from it, and thus allure them to certain destruction. But long before the establishment of life boats such infamous proceedings were put down in Cornwall by public feeling. It is half a century ago since the *Anton* being cast away on the coast, those who survived the catastrophe were protected and treated with the greatest kindness by the people of the shore, and it is said that one of them, a humble schoolmaster, of the Methodist sect, rode down on horseback to the scene of the wreck. He saw the vessel aground overwhelmed by the seas, which were washing the bodies of the unhappy crew dead and alive about the shore. The only means of extricating them from the recoil of the waves was by rushing into the surf as far as possible and seizing them as they swam for their lives. With a boldness inspired

at the moment he hesitated not, but mounted as he was braved the rush of the seas, and succeeded in saving two of the people. A third time he attempted, and was on the point of catching hold of another drowning man, when, with his horse. he was swept away by a huge wave. No one could tell me his name, but he left more than a name in the example which survived him—an example which has been followed on the Cornish coast, and especially by fishermen. It is, however, no less true that the establishment of life boats has succeeded in reviving here what the English call the standard of humanity. It has excited an emulation and devotion on the Cornish coast in saving life from wreck.

(To be continued.)

The Life-Boat Service.

Our life boat service has truly become a great national weapon—a weapon which has been wielded with great skill in combating bravely and successfully with the enemy of us all; and it is a source of inestimable satisfaction to every friend of the cause of suffering humanity to find that our lifeboats rescue every year from the jaws of that grim enemy—Death—nearly 500 of our fellow-creatures.

The Committee of the Royal National Life-boat Institution have again come before the tribunal of the British public with an able report rendering an account of their stewardship during the past twelve months, and appealing once more to that public for its continued assistance in the performance of the important national duty which is so admirably performed by the institution.

In rendering that account, and making that appeal, the Committee are deeply sensible of the greatness of the responsibility which has on them been cast, arising from the nature and extent of the work which they have undertaken—a work on which hangs the issues of life and death. The great success, however, which Divine Providence has granted to their exertions, and the kind and liberal support which has been accorded by their fellow-countrymen, cannot fail, however, to encourage the Committee to renewed exertion, and have enabled them during the past year to increase considerably their life-saving fleet.

The Committee have to advert with great sorrow to the great loss which the life boat cause has sustained by the death of their President, Admiral the Duke of Northumberland, K.G., who for fourteen years had actively co-operated with them in carrying out the national and philanthropic objects of the institution. His Grace's name will long be remembered in connection with the preservation of life from shipwreck, and as having, through his munificence, brought into practical use the self-righting life boat, which is now placed in large numbers around the coasts of the United Kingdom; and which has contributed during

the past twelve years to the saving of thousands of lives from shipwrecks, not only on our own shores, but also on those of many foreign countries.

Right Hon. Earl Percy, M.P., P.C., has kindly accepted the office thus rendered vacant by the death of the late esteemed president of the institution. He is the eldest son of the present very aged Duke of Northumberland.

The most striking feature in the history of the institution during the past year, as it also was in the preceding one, is the large number of splendid gifts, in the shape of the entire cost of new lifeboats, which have been presented to it by philanthropic persons, and collective bodies, headed by an anonymous donation from "A Friend" of no less a sum than £5,000.

The institution during the past year has issued amended rules for the restoration of apparently drowned persons, which we published at length some time since.

In illustration of the general confidence which the institution has obtained, it may be stated that, three self-righting lifeboats, fully equipped, and provided with transporting-carriages, have been built for the French government, and others for associations at Marseilles, Bremen, and Holland, under the supervision of the institution.

Naval officers from France, Russia, and Sweden, have also been deputed by their respective governments to visit England, for the express purpose of examining on our coast some of the lifeboats of the institution, and their system of management. Each of these gentlemen expressed his admiration of the completeness and efficiency of the establishments that came under his notice.

During the past year the institution has sent no less than thirty-four new lifeboats to the coast, and others are in course of construction. The stations to which they have been sent are:—Berwick-on-Tweed and Alnmouth, Northumberland; Sunderland, Durham; Redcar, Bridlington, and Hornsea, Yorkshire; Donna Nook, Theddlethorpe, Sutton, and Skegness, Lincolnshire; Palling and Caistor, Norfolk; North Deal and Dover, Kent; Poole, Dorset; Teignmouth, Devonshire; Penzance, Sennen Cove, Newquay, Padstow, Cornwall; Ferryside, Carmarthen Bay; Cardigan and Newquay, Cardiganshire; Porthdinllaen, Carnarvonshire; Holyhead, Anglesey; New Brighton, Cheshire; Blackpool and Piel, Lancashire; Maryport, Cumberland; Girvan, Ayrshire; Dunbar, Haddingtonshire; Tramore and Ardmore, County Waterford; and Valentia, County Kerry. Of this number, fifteen are new stations; the remainder having gone to replace inferior or worn-out boats.

Transporting carriages and boat houses have been provided, with few exceptions, for the whole of the above named lifeboats.

The lifeboats of the institution now number one hundred and forty-four. Through their agency no less than 432 lives have been saved during the past year, nearly the whole of them under circumstances when no other description of boat than a lifeboat could with safety have been employed. They have likewise been the means of extri-

cating from danger, or of conveying into ports of safety, seventeen vessels; and on fifty-one other occasions they have been launched and have proceeded to the assistance of vessels showing signals of distress, or that were in evident danger, but which did not ultimately require their services. On many other occasions the crews of lifeboats have been assembled in readiness to launch them, when it has appeared probable that their aid might be required. For these various services, and for the saving of 266 lives by shore-boats and other means, the institution has granted rewards amounting to £1,539.

Believing that it would tend to increase the efficiency of the lifeboat establishments of the institution, the committee have decided on paying each of the assistant-coxswains, hitherto unsalaried, a small annual stipend.

They regret having to report that, in the performance of their dangerous and arduous duties, three men belonging to their lifeboats perished during the past year, notwithstanding the care taken to provide for their safety. Each of these men was provided with the usual lifebelt supplied by the institution, but one of them was supposed to have been crushed between the lifeboat and the vessel's side, and the other two perished from the effects of cold and exhaustion before they could be picked up. It seems evident, however, that to be engaged in so perilous a work as the lifeboat service, it cannot be expected that an occasional accident attended with loss of life will not occur; and that there is much reason to be thankful that such accidents have been of so rare occurrence; in illustration of which the fact may be stated that during the last two years about 12,000 persons have been afloat in the lifeboats of the institution on occasions of wreck and for practice, and that the three above alluded to are the only lives that have been lost during that period.

It is a source of great satisfaction to refer to the continued intrepid services of the lifeboat crews, who are ever ready, day or night, to man the lifeboats during the fiercest storms.

The field of the operations of the National Lifeboat Institution stretches, as is well known, over the whole of the coasts and seas of the British Isles, which are annually strewed with so large a number of shipwrecks that they average 2,000, arising partly from the great and expanding commerce of the country, and partly from the intrepidity and it must be added the carelessness of our seamen; and often, it is feared, from the imperfect equipment of our merchant vessels, and from other preventible causes. The lives of between 5,000 and 6,000 persons are thus placed annually in jeopardy; but happily, owing to the prompt and unceasing exertions that are everywhere made on occasions of shipwrecks, the actual loss of life amongst that large number of persons placed in peril did not last year exceed 450 lives; a number unusually small and considerably below the *average;* but, nevertheless, it is a large death-roll, and no exertion, with God's continued blessing, should be wanting to diminish even it.

Although the committee lament to report the loss of so many lives in one year from various shipwrecks on our coasts, yet every friend of

humanity must rejoice with them in the gratifying and encouraging fact that so many persons owe their lives immediately to the services of the lifeboats of the institution, as shown below;* in addition to those rescued by fishing-boats and other means, for which services it has granted rewards. There can be no misunderstanding in respect to such happy results, which have elicited not only the heartfelt gratitude of the wrecked men themselves and their families, but have also

* During the year 1864 the lifeboats of the institution were instrumental in rescuing the crews of the following wrecked vessels:—

Barque *King Oscar*, of Norway. 16
Sloop *Annette Cathelina*, of Groningen 3
Barque *Hamilton Gray*, of Liverpool 2
Steam tug *Rob Roy*, of Sunderland 7
Schooner *Thetis*, of London 4
Brigantine *Bea Nova*, of Oporto —saved vessel and crew 5
Schooner *Britannia*—saved vessel and crew 4
Brig *Brothers*, of South Shields. 7
Barque *Iris*, of Stavanger, Norway —saved vessel and crew 13
Ship *Golden Age*, of Liverpool.. 13
Schooner *Water Lily*, of Pwlheli. 4
Sloop *Barbara Hopeman*, of Wemyss..... 3
Barque *Carea*, of Guernsey—assisted to save vessel and crew.. 12
Cutter *Howard*, of Grimsby.... 1
Ship *Contest*, of Liverpool—assisted to save vessel and crew.. 18
Fishing-boat of Withernsea—saved boat and crew 3
Schooner *Maria*, of Milford.... 3
Fishing-boats, of Southwold—two boats and their crews saved ... 4
Brig *Governor Maclean*, of London 7
Brig, *St. Michael*, of Havre—assisted to save vessel and crew.. 14
Ship *Edinburgh Castle*, of Glasgow —assisted to save ship and crew 18
Schooner *Victoria*, of Teignmouth —assisted to save ship and crew 6
Sloop *Liver*, of Carnarvon..... 3
Yawl *Hero*, of Teignmouth 1
Schooner *Kate*, of Liverpool.... 5
Lugger *Castletown*, of Belfast—saved vessel and crew..... 7
Brigantine *Highland Mary*, of Fleetwood 5
Brig *Richmond Packet* of Middlesboro' 6
Schooner *Agnes*, of Lossiemouth. 3
Steam ship *Ontario*, of Liverpool —took off labourers to the number of 55
Chasse-marée *Eleanore*, of Nantes 6
Barque *Arethusa*, of Liverpool.. 6
Schooner *Sarah*, of Waterford .. 6
Schooner *Heroine*, of Milford .. 5
Ship *Far West*, of Newport—assisted to save vessel and crew.. 22
Sloop *Active*, of Carmarthen.... 3
Schooner *Fernand*, of St. Malo.. 5
Barque *Louis the Fourteenth*, of Dunkirk 15
Barque *Sea Serpent*, of S. Shields 3
Brig *John*, of Hartlepool 6
Schooner *David and John*, of Montrose 4
Barque *Devonshire*, of Liverpool —assisted to save ship and crew 17
Fishing-boats, of Newbiggin, and their crews 40
Flat *Morning Star*, of Carnarvon —saved vessel and crew..... 3
Brig *Zornica*, of Lucine, Austria. 13
Barque *Jenny Lemelin*, of Quebec —assisted to save ship and crew 9
Yawl *Bravo*, of Great Yarmouth 7
Smack *Pearl*, of Carnarvon.... 3
Smack *Speedwell*, of Carnarvon . 2
Schooner *Idas*, of Nantes 6

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During the past year the institution also granted rewards to the crews of shore boats, &c., for saving 266 shipwrecked persons.. 266

Total number of lives saved in 1864 698

excited the sympathy and liberality of a large proportion of the British public, who now look upon the Lifeboat Institution as one of the most important establishments of our country.

Much credit is also undoubtedly due to the Board of Trade for their continued valuable and cordial co-operation with the institution, and for the state of efficiency to which the Board have brought the mortar and life-saving apparatus, which is worked by the coast-guard on the coasts of the United Kingdom, through the instrumentality of which a large number of lives have likewise been saved.

And here it may be distinctly stated, as a gratifying fact,—that few lives are now lost on occasions of storms on our coasts that could possibly be saved by any efforts from the shore. No doubt many shipwrecks, with loss of life, will continue to take place notwithstanding all the ingenuity and daring of man, for it is not in human power always to contend with violent gales of wind, such as are every winter experienced on these islands.

The total number of lives saved during the forty-one years from the establishment of the institution in 1824, to the end of the year 1864, either by its lifeboats, or by special exertions for which it has granted rewards, is as follows:—

1824	124	1838	456	1852	773
1825	218	1839	279	1853	678
1826	175	1840	353	1854	355
1827	163	1841	128	1855	406
1828	301	1842	276	1856	473
1829	463	1843	236	1857	374
1830	372	1844	193	1858	427
1831	287	1845	235	1859	499
1832	310	1846	134	1860	455
1833	449	1847	157	1861	424
1834	214	1848	123	1862	574
1835	364	1849	209	1863	714
1836	225	1850	470	1864	698
1837	272	1851	230		
					14,266

The amount of happiness thus brought to this great multitude of persons saved from death in its most appalling form, and to many of those who would otherwise have been widows and orphans, can only be fully realized by themselves; but the British public in general entertain a deep sense of the national benefit thus derived from the preservation of 14,266 shipwrecked sailors and fishermen; and it must especially be a source of satisfaction to every patriotic person, who has either directly contributed by his own exertions or indirectly by his contributions, in bringing about a result which is without a parallel in the history of benevolent exertions in any other country.

During the past year nine silver medals, thirteen votes of thanks inscribed on vellum and parchment, and £1,545 have been granted by the institution for saving the lives of 698 persons by lifeboats, shore and fishing boats, and other means, on the coasts and outlying banks of the United Kingdom.

This list of awards shows that our boatmen and fishermen, all over the coast, know now that their exertions in saving life from shipwreck will be promptly and liberally rewarded, in proportion to the risk and exposure incurred in the service; and in this way a spirit of emulation and activity is fostered and encouraged on the coasts of the British Isles, productive of the best results.

It was only the other day that Major W. Festing, R.M.A., received the silver medal of the institution for a daring act in assisting some fishermen in an open boat in rescuing three of the crew of the schooner *Ocean*, of Plymouth, which was wrecked during a fearful gale of wind off Hayling Island, near Portsmouth.

It is really a remarkable fact that since the formation of the institution it has expended on lifeboat establishments nearly £120,000, and has voted 82 gold and 743 silver medals for saving life, as well as pecuniary rewards to the amount of £19,400.

The local branch committees, which constitute so important a portion of the machinery for the supervision of the several lifeboat establishments of the institution, continue to render it prompt and cordial co-operation.

The total amount of receipts by the institution during the year 1864 has been £31,917 9s. 8d., and the committee are much gratified in being able again to report that of this sum no less than £8,077 11s. 10d. were special gifts to defray the cost of the following twenty-five lifeboats, which we must publish in detail:—

	£	s.	d.
Alnmouth—Miss Wardell	320	0	0
Redcar—Messrs. J. Crossley and Sons	300	0	0
Whitby, No. 2—Dr. H. W. Watson	180	0	0
Donna Nook—Robert How, Esq., and Miss How	350	0	0
Theddlethorpe—Mrs. B Caslake	350	0	0
Sutton—Collected in Birmingham	250	0	0
Skegness—Friends of the late H. Ingram, Esq., M.P. (additional)	205	5	0
Dover—Collected in Wiltshire by Captain N. J. Reed, R.N.	435	10	9
Poole—A Lady	500	0	0
Penzance—J. C.	250	0	0
Sennen Cove—Mrs. M. A. Davis	300	0	0
Padstow—Collected in Bristol	570	0	0
Newquay, Cardigan—Ancient Order of Foresters	255	11	3
Porthdinllaen—Lady Cotton Sheppard and Friends	250	0	0
Holyhead—Joseph Leather, Esq.	311	12	0
New Brighton—Ditto	351	3	0
Blackpool—Mrs. and Miss Hopkins	250	0	0
Piel—Commercial Travellers' Lifeboat Fund	250	0	0
Girvan—Alexander Kay, Esq	400	0	0
Londonderry—J. D. Allcroft, Esq.	250	0	0
Tramore—Cambridge University Boat Club	250	0	0
Ardmore—A Friend	300	0	0
Valentia—A Lady	508	0	0
Cardigan and Carmarthen Bays—Collected in, by R. Whitworth, Esq., Rev. E. Hewlett, and J. G. Bell, Esq., of Manchester (additional)	690	9	10

In the event of life being rescued by any of these boats, the generous donors will have the peculiar satisfaction of feeling that the saving of such life had been the result of their individaul gift to the National Lifeboat Institution.

Amongst the many other gratifying and encouraging donations received last year by the institution, the following may be mentioned:—

£500 from the Hon. Rustomjee Jamsetjee Jejeebhoy, of Bombay, per R. W. Crawford, Esq., M.P.; £5 7s. from 150 *employés* of the West India Docks, by Mr. J. Bradfield, in sums varying from threepence to five shillings; £59 18s. from the Seamen's Association at Drontheim, Christiansund, and Nalesund, in Sweden and Norway; 15s. 6d. from Lucy Palmer and three fellow-servants: £250 from Burton D'Alençon; 10s. 6d. from an Old Salt; £100 (second donation) from a Sailor's Daughter, per Messrs. Drummond; £500 from an Anonymous Donor. by the hands of L.H.H., per Messrs. Coutts; £41 12s. 6d. from James Bryant Esq., "contributions from abroad;" £100 (second donation) from a Friend, "in gratitude to God for the preservation of his wife for another year;" 5s., the savings of two little sisters; £4 as a Christmas Thank Offering from the parish of Little Easton, per Rev. V. Child; £1 5s., collected in St. John's Sunday Schools, Garside Street, Manchester; £6 8s. from Lady Maxwell, of Monreith, contributions dropped into a lifeboat contribution box in the hall of her mansion; and £60 collected from seamen and others by the agents of the Sister Institution—the Shipwrecked Fishermen and Mariners' Royal Benevolent Society.

Legacies amounting to £3,365 have been received by the institution during the past year.

During the past year £11,666 11s 3d. were expended on additional lifeboats, transporting-carriages, boat-houses, and necessary gear; £5,240 4s. 10d. on the expenses of repairs, painting, refitting, &c.; and £4,194 12s. 2d. in rewards for services to shipwrecked crews, coxswains' salaries, and quarterly practice of the boats' crews; making altogether, including liabilities amounting to £6,387 9s. for lifeboat stations now in course of formation, and other expenses, a total of £29,034 9s. 5d. It is a remarkable fact that the whole amount of the working expenses of the institution on its receipts and expenditure does not amount to 4 per cent., showing clearly the aptitude and talent with which its very extensive operations are conducted.

There has been a considerable saving in the item of transport to their stations, of new lifeboats and carriages, as the several railway and steam packet companies have most liberally conveyed them to all parts of the United Kingdom free of charge.

The items of receipt and expenditure of the institution are fully and clearly detailed in the financial statement, which, as usual, had been audited by a public accountant, to whom a liberal fee has been given for his services.

We have had on former occasions to refer to the magnitude and costliness of the extensive operations of the National Lifeboat Insti-

tution; and last year they have been greater than at any preceding period during the past forty-one years; but we are happy to say the benevolence of the public has been proportionably large and liberal.

Thus supported and encouraged to conduct the affairs of the institution on principles which have proved by experience to be sound and practicable. We feel assured the committee will be stimulated afresh to persevere in their philanthropic work, and that the Lifeboat Institution will never be allowed to languish from the want of funds to perpetuate, and extend as occasions may require, its merciful work on the coasts of the United Kingdom.

Leaves from a Journal on Western Atlantic Weather.

I have frequently turned over my huge volumes of sailing directions for the West Indies, seeking information about the weather; but I am invariably disappointed in finding any which conveys what I require in a clear manner, so that, until experience has taught me, I grope about in the region of uncertainty and take things as they come.

I annex a few extracts from my journal about Atlantic weather in November.

On the 12th November we left Kingston (Jamaica) at noon, with the weather remarkably gloomy and unsettled; the sea breeze had not blown for two days. Nature had put on an ominously quiet look, and but that the hurricane season had passed, I should have thought that one was in the neighbourhood.

The noble range of the Blue Mountains were cut out clearly against the sombre sky. Their name is not inappropriately given, for on this day they were intensely blue, with perhaps the slightest dash of lake. A few—a very few—white specks on the sides of the lower range pointed out where a sugar or coffee estate was still to be seen; and from the hill sides, amidst dense underwood, a thin column of blue smoke showed the encampment of that pest of the West Indies—the *lazy squatter*.

At 5h. p.m. passed Point Morant, and a fresh breeze having come up from the westward, made all square sail, and carried it through the greater part of the night.

13*th*.—Calm throughout. Weather the same as yesterday, the clouds presenting one unbroken mass of a sombre hue, and tinting land and sea with the same colour.

The distant mountains of San Domingo and the island of Tortuga were distinctly visible; even the trees on the hills, thirty miles distant, could be separated by the aid of a good spy-glass. The surface of the sea presented one unbroken sheet of dull blue, not a cat's-paw or the least swell disturbed it. At intervals a flying-fish, alarmed by the ship, would rise from the water, and, with its body nearly vertical and

tail touching the surface, dart along for a few yards, and then drop quietly into its old bed. Even these appeared to feel the general gloom which pervaded the elements.

14*th*.—Light airs from N.W. to E.N.E. At noon the wind settled at the latter point. At sunset passed the West Caicos, and once more felt the heave of the long Atlantic swell. Towards midnight the swell increased considerably, although the wind still kept light. Ship pitching heavily, and the propeller flying round in a manner which did not conduce to the repose of those who had cabins near it. A propeller in a seaway always reminds me of a wild animal striving to break the bonds which confine it, and the uninitiated look with as much concern on one as the other.

15*th*.—Heavy showers of rain, with light winds, which kept veering from East to N.E.

At 8h. a.m. the clouds cleared away in all quarters except the West, where a heavy turgid bank obstinately kept above the horizon. At intervals a portion would become lower for a few minutes, and then suddenly regain its old limits, like an elastic body which some one was endeavouring to tread down, but on removing the pressure immediately resumed its original shape. This continued for half an hour or more, and the sky again became obscured with dark indigo-coloured clouds, tinting the sea with a similar hue. Several of those invariable monitors of dirty weather in some form (*i.e.* sun-dogs) were in attendance.

While intently watching the changes of the cloud-bank to the westward, I saw the water whiten under it, and, twisting and foaming, advance towards the ship against the wind. The trysails and jibs were taken in immediately, and scarcely were they secured when a tremendous squall burst from the North; this continued for three hours, and then veered to N.E., fell light, and for many hours kept flying from North to N.E., until I gave up attempting to make sail in despair, while the swell was so heavy that the screw could not do much. Heavy squalls of rain throughout.

16*th*.—After thirty-six hours of this sort of weather the wind settled steadily at N.E., and blew a close-reefed topsail breeze, with a high sea and heavier swell. I set the reefed trysails and stood away on a wind to the northward; but the north-easter, like an evil fiend, was not to be shaken off until I reached lat. 33° N., long. 66° W.

What I principally noticed in this gale was the utter uselessness of the barometer, the unusual high swell which preceded the wind, and the sudden manner in which it commenced.

The scud also presented a remarkable phenomenon; even during the strongest part of the blow its motion was extraordinarily slow, as if moving in the astronomer's "resisting medium." I am curious to ascertain if these gales are felt on the high ridges of the mountains of Jamaica and Hayti, or are they mere surface winds, not ascending to the altitude of the ordinary scud of the Trade winds.

It is singular to mark the great difference of temperature in the water when passing over this track in September and November. The mean is about 10°, viz., in the former month 86½°, in the latter

76½. It is occasioned by the long calms of summer and the absence of any considerable current, so that the sun's rays pour down an unbroken stream of heat on the surface. In the open sea I know of no hotter spot than that between Caicos and Bermuda in the end of August.

21*st*.—At seven o'clock in the evening, in lat. 34° N., long. 64° W., I saw the most brilliant meteor that has ever come under my observation in the course of a long career at sea. The sun had set magnificently, the whole of the western portion of the sky having been tinted with bright red and orange. As the twilight blended with darkness these colours faded away, leaving the horizon shaded with a light gauzy haze, through which a planet and a fixed star were shining like lights of the first magnitude.

The meteor suddenly appeared in the west quarter, with a brilliant green circular disc, having a diameter apparently equal to the sun's. For a second or more it was stationary, and then rapidly descended, emitting large pear-shaped globules of flame, more resembling drops of molten iron than ordinary fire.

The surface of the sea from the ship to the horizon, and the adjacent sky, were lit up with the most singular brilliancy during the time of descent, justifying the remark of the chief-engineer, who came running aft in a hurried manner, saying, "There is a ship in distress out there, burning blue lights and firing rockets."

22*nd*.—I had read in the books of sailing directions for the West Indies that "the Gulf Stream is felt 180 miles East of Bermuda." From the peculiar curve the stream must take to reach this point, I have always doubted its correctness, and resolved to test it on the first favourable opportunity which should offer. Accordingly, after sighting the island I kept the thermometer going day and night. I annex the noon temperatures of each day until I entered it.

Off Bermuda: air, 74°; water, 74°; November 20th. Lat. 33° 21′ N., long. 62° 49′ W.: air, 79°; water, 74°; November 21st. Lat. 35° 40′ N., long. 60° 9′ W.: air, 73½°; water, 71½°; November 22nd. At 6h. p.m. of this day the air was 69°; water, 71°. At 8h. p.m., in lat. 36° 25′ N., long. 59° W., the thermometer rose to 73°, and I presumed that as this was the highest water temperature I had had since passing the parallel of 34° N., it must be on the southern edge of the Gulf Stream. This spot bears from Bermuda N. 49° E. (true), distant 370 miles. The water remained at 73° until 8h. a.m. of the 23rd, when it fell to 72°.

On this day, in lat. 38° 30′ N., long. 56° 36′ W., passed a puncheon, a pine plank, and a bale of cotton, within 600 yards of each other. One of the end tyers of the bale was burst, otherwise it appeared in perfect order. Wherever the others came from, this must have been thrown overboard from a blockade-runner when chased off Wilmington or Charleston, and had been borne on the waters of the Gulf Stream 1,100 miles on its solitary journey across the Atlantic, a silent but unmistakeable witness of the grand circulation of the ocean.

Some of these bales will yet be picked up on the coasts of Ireland

or Scotland, or, perchance, off the North Cape, if the expansion of the cotton does not burst the tyers. The sea was running too high to permit me to lower a boat to secure such a prize. I hope the next who sights it will be more fortunate.

The weather remains unusually warm. We are now approaching the 40th parallel; still the S.S.W. wind keeps the air up to 73° at 2h. p.m.; were it calm, it would doubtless be much higher.

Flying-fish occasionally rise under the bows and turn aside from our track, and the brilliant Portuguese man-of-war rides erect in all its beauty on the waves, drifting on to certain destruction in the cold regions of the North.

24th.—What a change has taken place in a few hours! The warm and pleasant air of yesterday is succeeded by a biting gale from the North, fresh from the frozen regions of Labrador. Every living creature on board, except my Newfoundland dog, is "nipped" up by the change. It penetrates the thickest clothing and chills one to the bone. A week back the thermometer was 80°; it is now 41°, with showers of hail as large as peas.

A negro seaman drew me a bucket of water to try the thermometer. I gave him the instrument to submerge. He uttered an exclamation of delight as his hand touched the tepid surface. In a moment both were plunged in to enjoy the genial warmth. Yes, the waters of the Gulf Stream were at 69°, while the air was only 41°.

What a change would take place in the climate of England if an earthquake should suddenly dam up the Florida Pass. The time will probably come when this will be brought about by geological agency, for nothing is permanent where water flows. When it does, the Gulf Stream of to-day will have done its work for Europe, and, following the new path pointed out by the Creator, will flow on to ameliorate the climate of other land, which now may not be formed.

I am of opinion that the gales on the South side of the stream are not so severe as those on the North. For this reason I keep more to the South in coming from the West Indies in winter than in summer; the small saving effected by following the Great Circle is frequently more than compensated by having to scud before the fierce gales which blow from the N.W. after passing Cape Race.

The majority of sailors believe that when the wind backs or veers against the sun it never stands. I can see no reason in this theory, and long experience has convinced me of its fallacy. This voyage I have had two opportunities of proving it. On the outward passage, off the Tuskar, the wind came from the S.E., backed round to N.E., and remained in that quarter until I was off the Western Islands.

On the homeward passage, in 40° N. lat. and 50° W., a fine S.W. wind, which had run me from Bermuda, died away; bar. 30·30. A few drops of rain fell, and almost without warning a gale from the N.E.b.E. burst on the ship. As it came down full born, I was in hopes it was only a squall; but I had formed a wrong opinion of the unlooked for and unwelcome visitor. Slowly it backed towards the North, at the rate of one point and a quarter in twelve hours, re-

mained six at North, and then suddenly flew to N.W., still blowing furiously, with heavy showers of hail and sleet, and ultimately to S.W. But a fair wind, although it be a gale, is ever welcome in a strong, well-found ship. There is a feeling of exultation in flying over the waves and watching their crests as they roll after you, till they break idly under the stern in sheets of foam, such as the Arabs of the desert are said to feel when riding over its trackless surface on their noble horses.

The skill and science of the nineteenth century seek not, like Xerxes, to bind the sea with fetters of iron; but with that material fashioned by man's intellect and strong right hand into the graceful forms of our noble screw ships, he sallies forth in confidence on its wild and restless bosom, like the Arab in the desert, feeling assured that he can safely guide his charge across his unmarked path to the haven beyond his vision.

28*th*.—Still blowing hard from the S.W., with almost tropical rain for several hours. Noon.—Lat. 43° 44′, long. 38° 56′ W. Shortly afterwards there was a flash of lightning in the N.W., with a growl of distant thunder. Several others followed in rapid succession, and a squall from the West came bowling up astern, frothing the water like yeast. The yards buckled and quivered under its powerful strength.

Suddenly a startling clap of thunder burst overhead. The effect was marvellous. The wind, as if held in by some invisible hand, died suddenly away; the sails were flapping against the mast, and the high following sea struck heavily under the quarters. A sailing ship would have been pooped, but the screw kept us out of trouble. This lull lasted about seven minutes, when the wind came up again with its old force; but fell off to a double-reefed topsail breeze in the evening.

It is not uncommon to see a light wind die entirely away during the time a fleet is exercising great guns; but the concussion of the air which would attend the firing of all the artillery in the world simultaneously would not for one second stay the progress of a heavy gale.

What a power must have been exerted on this occasion to tear the atmosphere asunder and drive it back on itself through a space which occupied so many minutes to return. Thus we see our littleness when the Almighty shows an atom of His power in the elements.

MERCATOR.

A RUN FROM AUCKLAND TO AUSTRALIA.—*Sydney Harbour and its Bays.*

(Continued from p. 123.)

Squint you at this chart,
And Sydney 'fenceless view in every part.
Sydney Delivered.

The French colonise in a different spirit from the English. When

they consider a country worth the occupying they further consider it worth protecting. There are no complaints to the French Home Government that their dependencies are left defenceless. Men and munitions are ungrudgingly furnished. Naval and military succours are liberally provided. In the hour of difficulty and danger, a French colony consoles itself with the knowledge that it will not be forgotten or forsaken. That a colonial wrong will be resented as a national injury, and that the outlying members of the parent State will neither be stigmatised as grasping adventurers, nor denied such assistance—pecuniary or else—as their exigencies may demand. The French recognise the validity of such mutual relations between the State and its scions—and the consequence is that the French flag, whether in Europe or the Colonies, one and indivisible, is alike honoured and respected.

It once was so, in the proud and palmy days of *Old* England—in those glorious days when "the flag" that "for a thousand years" had "braved the battle and the breeze," swept through every sea unchecked and uncontrolled. But now, alas!

"Those times are past, Floranthe,"

For the ancient idol, Honour, has been plucked down from his pedestal to make way for the modern idol, Mammon. Alas for England that it should be so! When the life's blood is withdrawn from her extremities to circulate more closely around her palsying heart—when she can discover in her colonies, that vaunted "empire upon which the sun never sets," but elements of vexation and expense—When she begins to count the sordid cost—when she deliberates on the prudence of withdrawing her legions unless exorbitantly paid for by settlements scarce of a quarter of a century's growth—when she insists on voiding her murderers and miscreants upon Australian soil, simply because Australia is, as yet, too weak to resist—when she fails to be instructed by the page of history, which teaches how Rome wrought out her own "decline and fall" by the abandonment of her colonies; and how Spain sank into a fourth or fifth-rate power by the revolt and loss of hers—to what other conclusion can we arrive than that the hour of England's greatness has reached the meridian.

Such mournful meditations force themselves upon us at a time when the colonies of Australia, smarting under the curse of convict contamination, earnestly desirous of purging their felon-filth, but threatened with a renewal of the fetid stream, are concerting and co-operating the most legitimate means of preventing such infamous irruptions. Such meditations are doubly enforced upon us of New Zealand, dragged as we are, by the press and Parliament of England, before the bar of public opinion, to make answer to the most flagitious, *ex-parte* accusations, preferred not in open court before a jury of our peers, but concocted, argued, and decided in a fashion of which a Spanish Inquisition might feel proud; but of which a nation, claiming to be the most free and liberal upon earth ought to be heartily ashamed. If England would still be honoured for her justice, it behoves her to

place herself upon *her* trial, not before her own imperial courts alone, but in the face of evey court in Christendom—and there let her investigate her own iniquitous charges. The case of New Zealand, in common honesty and decency, ought to be dealt with in a fair and upright spirit. There are other interests beside those of step-mother England to be considered. There are other evidences beside the loose and defamatory leaders and Major Sturgeon letters of the *Times* to be adduced, before the colonists of New Zealand can be found guilty of the unmanly and untruthful accusations levelled against them. And if England have still a love of that fair-play, for which she was once so pre-eminent, she will appoint a mixed and fairly chosen Commission, British and Australasian, to decide whether England has suffered a tithe of injury in men, money, or munitions, through cupidity, land greed, or thirst of native extermination on the part of the settlers; or whether the colonists do not owe all their present ruin, desolation, and defamation to the wretched intolerance of British misgovernment and misrule—to the incessant and incompetent interference in native affairs—commencing from the date of the arrival of the feeble and vacillating Fitzroy, who obtained a wing of the 99th regiment to bring about order, which he was afraid to enforce, down to the flight of the 200 from the island of Kawau, whom Sir George Grey has failed to coax back, and whom he falters to recapture. Let an honest and an honourable commission be appointed to inquire into these matters. And then, looking England calmly and conscientiously in the face, her colony of New Zealand, in the spirit of the olden chivalry, may fearlessly exclaim, "God defend the right!"

Turning from the discursive to the descriptive: let us see what has been done in protection of the port of Sydney. Its facility of entrance, whether by day or night—the sad casualties of the *Dunbar* and *Catherine Adamson* notwithstanding—although a matter of much advantage in a time of peace, must needs be a subject of great anxiety in the event of war. Captain Wilkes—of *Trent* celebrity—took in the American surveying squadron during the night, anchoring off Farm Cove without any difficulty. There have been no *virtual* defences, but one or two ornamental, practice batteries, erected since that date—such as Dawes, adjoining Campbell's Wharf, a breast-work at Mrs. Macquarie's Point, a fortalice on the North Shore, and one or two guns on what is left of poor mutilated Pinchgut. But all these combined, with their light artillery, would offer but a fruitless and feeble resistance to a well appointed corvette of the present school. And, besides, were they once to open upon an invader, they would inevitably draw his fire to the destruction of the city they are powerless to protect. It is important that this abject state of helplessness should be cared for; and I could not but feel glad that, in August last, Sir William Wiseman and a party of naval and military officers had made a requisite tour of survey. As Auckland is quite as open to aggression, if not even more so than Sydney, it may not be out of

place to remark that, after a survey made by Commodore Loring, Commodore Cracroft, and other intelligent naval officers, it was stated that the North Head and Signal Station might be fortified and converted to a citadel of strength and efficiency such as no ship or ships would venture to encounter.

Sydney Harbour, even in its natural state one of the most beautiful in the world, becomes year by year more and more attractive. Its bays and arms are thickly studded with lovely marine villages; and its romantic heights from the South Head on the one shore and the North Head on the other, are crowned by a succession of princely palaces of every variety of architecture. The elegance and the magnitude of many of those buildings, the surprising condition with which wealth and taste have transformed arid sand into beautiful and luxuriant parks, orchards, and shrubberies, cannot fail to impress a stranger with the vast consolidated riches of Sydney and its citizens.

To those who love aquatic sports, Sydney offers an endless variety; steamers of capacity and speed conveying passengers in every direction, at very moderate fares. Watson's Bay, in the vicinity of South Head, a long established place of resort for pic-nics, has grown into a populous village, with hotels and all the other necessaries of mundane enjoyment. It is more than ever frequented—on its water-way by steam; and on shore by the upper and lower South Head roads, both very charming and inexpensive drives.

Nearly opposite, in one of the bends of Middle Harbour, is the Quarantine Ground; and further in lies what is called Great Manly Beach, where a village named Brighton has been successfully founded. Seventeen years since, not having the legal consequences sufficiently enforced, I made one of many hundreds who flocked to Manly Beach to witness a "mill" between Hough, an Australian prize-fighter—a thorough ruffian and bully—and "Big Ike," one of the late Sir Thos. Mitchell's exploring band; Ike, a fine high-spirited Irishman, polishing off the "cornstalk" in grand style. Manly Beach was then a beautiful but tenantless wilderness. It is now a populous, a prosperous, and a charming little town, possessing several excellent hotels and boarding-houses; and from its position, the sea washing its shores both from within and without the North Head, in my opinion one of the most salubrious and inviting spots to be found in the immediate neighbourhood of Sydney. The steamer *Phantom* (fare one shilling) plies constantly from the Manly Pier to the Circular Quay, calling in Woolloomolloo Bay, and accomplishing the agreeable trip in fifty minutes.

Of Middle Harbour and the North Shore, with its beautiful bights and bays, it may suffice to say that the waste is everywhere disappearing, that gardens and orchards are springing into rich and remunerative existence, that mosquito steamers fizz and fume throughout the day, and that the entire suburb teems with every indication of progressive prosperity.

Woolloomoolloo, a suburb of singularly sonorous euphony, has now

become an integral portion of the city. Its shores have been banked up and piled in; its shallows bridged and reclaimed; and its approaches towards "Change" rendered short and safe.

The outer and inner domains, the latter laved by the brilliant waters of Farm Cove, have been marvellously improved; the outer branch has been drained and levelled; finely gravelled walks and drives have been laid out in a manner that may challenge comparison with those of the most approved people's parks of the old country. With respect to the inner domain, or botanical garden as it is called, every effort has been made to improve and beautify a spot which, by the hand of nature, was formed of most beautiful degree. If Sydney were destitute of every other charm, her domain alone ought to reconcile her citizens to the spot in which they have chosen to cast their lot.

The outer domain has all along been the Military Review Ground. It was there that the small brass cohorns, which did good service at the Gate Pah, were first experimented in 1845. They were cast by Messrs. P. N. Russell & Co., from designs furnished by Captain Gother Mann, superintendent engineer of Cockatoo Dock. Before being sent to do their devoir, in the Heke war, their range was tried in presence of the late governor, Sir George Gipps, and Lieutenant-General Sir Maurice O'Connell, when their accuracy was pronounced to be admirable.

On Saturday, July 9th, the Sydney Rifles and Artillery had a grand field-day. I was, of course, anxious to compare our neigbouring colonial soldiery with our own hard worked and ill-requited Auckland Volunteer Rifles and Militia. It is but simple justice to our Sydney compatriots to say that both rifles and artillery are composed of smart, active young fellows, with handsome uniforms and accoutrements, and with that very becoming addition, appropriate and elegant flags to rally round. The rifles are clothed in grey, the one battalion with red, the other with green facings; the belts and pouches of both are of brown leather. The artillery uniform is almost an exact counterpart of that of the Royal army. Both corps have well trained and powerful bands.

The promenade around Mrs. (not Lady) Macquarie's Chair is greatly elaborated and ornamented. And on Garden Island, immediately opposite—(a spot where the late Sir Everard Home was wont to pitch his tent), the naval authorities have established a sort of depot. Garden Island is a pretty spot. It has claims upon my recollection in consequence of a fatal duel which took place there at the date of my first visit to Sydney; one of the spectators, Francis Smith, sailmaker, having heen a friendly assistant to me on my return to London, on board the *Calista*, shortly afterwards. A quarrel occurred between the chief officer, Charles Pemberthy, of the female convict ship *Elizabeth*, Captain Cock, and Robert Atkin, third officer of the same vessel. The cause of quarrel was a very worthless one; but the pistol was its sole arbiter. The second officer, John Thomas Chalmers,

was the friend of Mr. Atkin; and the boatswain, Henry Milton, performed a like service for Mr. Pemberthy. They landed on Garden Island on the 2nd April, 1828. Ship's pistols were the weapons called into requisition. Twice that of Mr. Atkin missed fire, but, on the third, Mr. Pemberthy having twice urged Mr. Atkin to exchange, and having then supplied his antagonist with a pin to prick the touch-hole, the unwilling instrument at length exploded, and Mr. Pemberthy fell dead. It was a contemptible affair, for which one shot would have more than sufficed to any other than a butcher in the sanginary code of honour. The principals were tried on the 2nd of May, 1828, before Chief Justice Forbes and Mr. Justice Dowling. Fortunately for them they were arraigned, as was then the law of the colony, before a jury of seven commissioned officers of His Majesty's sea and land forces. Milton was discharged, whilst Chalmers and Atkin were convicted of manslaughter, for which they were sentenced to an imprisonment of three months.

It was a peculiar moment this of my first visit to Sydney. Aaron Smith, a gentleman well known to the mercantile marine of the day, arrived from Batavia in command of the ship *Louisa*, which had no sooner anchored than her crew volunteered *en masse* to the *Rainbow* frigate, Captain (now Admiral) the Hon. John Rous—and out of the comments made by the master of the *Boddington's*, because of that volunteering, another duel was with difficulty prevented.

Captain Rous was the animating spirit of the time. Under his tutelage and patronage, boat races, dog fights, and all sorts of athletic sports were encouraged and promoted. In these, the soldiers of the 39th, with a batch of Maories, refugees from the ovens of antagonistic victors, who arrived on the 4th of May, by the brig *Adventure*, took a part. Many of the Maories were splendid fellows, but they could not compete with the men of the 39th.

THE MARINER'S COMPASS.—*English and Foreign Names of Points.*

In a few following pages we have attempted to collect the nomenclature, as we may term it, of the mariner's compass abroad and at home. The collection, although including the principal foreign maritime powers, is yet far from complete, and it must be considered more as a first contribution to the subject than as a complete matter. Under this view we shall be thankful for any contributions towards it, or such remarks as would tend to improve it.

English.	*French.*	*Italian.*	*Swedish, Danish, and Norwegian.*	*Dutch.*	*Greek.*
North.....	Nord	Tramontana	Nord	Noord, Noorden	ὁ Βορρᾶς
N.b.E.	Nord ¼ Nord Est ...	Tramontana quarto Greco ..	Nord til Ost.....	Noorden ten Oosten	Βορρᾶς ἕνα πρὸς Μέσην
N.N.E.	Nord Nord Est	Greco Tramontana	Nord Nord Ost	Noord Noord Oost	ὁ Μεσοβορρᾶς
N.E.b.N. ...	Nord Est ¼ Nord ...	Greco quarto Tramontana ..	Nord Ost til Nord...	Noord Oost ten Noorden.	Μέσης ἕνα πρὸς Βορρᾶν
N.E.	Nord Est	Greco	Nord Ost	Noord Oost	ὁ Μέσης
N.E b.E. ...	Nord Est ¼ Est.....	Greco quarto Levante	Nord Ost til Ost.....	Noord Oost ten Oosten...	Μέσης ἕνα πρὸς Απηλιῶτην
E.N.E.	Est Nord Est	Greco Levante	Ost Nord Ost.....	Oost Noord Oost.....	ὁ Μεσαπηλώτης
E.b.N.	Est ¼ Nord Est.....	Levante quarto Greco	Ost til Nord	Oost ten Noorden	Ἀπηλιώτης ἕνα πρὸς Μέσην
East	Est.....	Levante	Ost.....	Oost.....	ὁ Ἀπηλιώτης
E.b.S.	Est ¼ Sud Est	Levante quarto Sirocco	Ost til Syd.....	Oost ten Zuiden	Ἀπηλιώτης ἕνα πρὸς Εὖρον
E.S.E.	Est Sud Est.....	Sirocco Levante	Ost Syd Ost	Oost Zuid Oost	ὁ Εὐραπηλιώτης
S.E.b.E.....	Sud Est ¼ Est	Sirocco quarto Levante	Syd Ost til Ost	Zuid Oost ten Oosten.....	Εὖρος ἕνα πρὸς Ἀπηλιώτην
S.E.	Sud Est.....	Sirocco	Syd Ost	Zuid Oost	ὁ Εὖρος
S.E.b.S.	Sud Est ¼ Sud	Sirocco quarto Ostro.....	Syd Ost til Syd.....	Zuid Oost ten Zuiden	Εὖρος ἕνα προς Νόλν
S.S.E.	Sud Sud Est	Ostro Sirocco.....	Syd Syd Ost	Zuid Zuid Oost	ὁ Εὐρόνοτυς
S.b.E.....	Sud ¼ Sud Est.....	Ostro quarto Sirocco.....	Syd til Ost.....	Zuid ten Oosten	Νότος ἕνα πρὸς Εὖρον
South..... ..	Sud	Ostro (or Mezzo Giorno)	Syd	Zuiden.....	ὁ Νότος
S.b.W.	Sud ¼ Sud Ouest	Ostro quarto Libeccio	Syd til Vest	Zuiden ten Westen	Νότος ἕνα προς λιπς
S.S.W.	Sud Sud Ouest	Ostro Libeccio	Syd Syd Vest	Zuid Zuid West.....	ὁ Λιβόνοτος
S.W.b.S. ...	Sud Ouest ¼ Sud	Libeccio quarto Ostro	Syd Vest til Syd	Zuid West ten Zuiden	Λιπς ἕνα πρὸς Νότου
S.W.	Sud Ouest	Libeccio	Syd Vest	Zuid West	ὁ Λίπσ
S.W.b.W. ...	Sud Ouest ¼ Ouest ..	Libeccio quarto Ponente	Syd Vest til Vest ...	Zuid West ten Westen ...	Λίπσ πρὸσ ἕνα Ζέφυρον
W.S.W.....	Ouest Sud Ouest	Ponente Libeccio.....	Vest Syd Vest	West Zuid West	ὁ Λιβοζέφιρος
W.b.S.	Ouest ¼ Sud Ouest ..	Ponente quarto Libeccio	Vest til Syd	West ten Zuiden	Ζέφυρος ἕνα πρός Λιπς
West	Ouest.....	Ponente.....	Vest	West	ὁ ΖΦέ'φυροσ
W.b.N.	Ouest ¼ Nord Ouest	Ponente quarto Maestro	Vest til Nord...	West ten Noorden	Ζέφυρος ἐαν πρὸς Σκίρων
W.N.W. ...	Ouest Nord Ouest...	Ponente Maestro	Vest Nord Vest	West Noord West	ὁ Σκρωνοζέφυροσ
N.W.b.W. ...	Nord Ouest ¼ Ouest	Maestro quarto Ponente	Nord Vest til Vest ..	Noord West ten Westen .	Σκίρων ἕνα πρὸσ Ζέφυρνο
N.W.	Nord Ouest.....	Maestro	Nord Vest	Noord West	ὁ Σκίρων
N.W.b.N. ...	Nord Ouest ¼ Nord .	Maestro quarto Tramontana	Nord Vest til Nord .	Noord West ten Noorden	Σκίρων ἕνα πρόσ Βορρὰν
N.N.W.	Nord Nord Ouest ...	Maestro Tramontana	Nord Nord Vest.....	Noord Noord West	ὁ Σκίρωνοβορρὰσ
N.b.W.	Nord ¼ Nord Ouest.	Tramontana quarto Maestro	Nord til Vest.....	Noorden ten Westen.....	Βορράσ ἕνα πρὸσ Σκίρων

English.	*German.*	*Finnish.*	*Turkish.*	*Chinese.*		
				Mandarin.	*Shanghai, Ningpo.*	*Fokien, Swatow.*
North.....	Nord, Norden	Pohja	Yildiz.....	Peh or Pei	Poh.....	Pak.
N.b.E.	Nord zum Osten	Pohja Itaan				
N.N.E.	Nord Nord Ost.....	Pohjaiskoillenen ...	Yildiz Porias			
N.E.b.N. ...	Nord Ost zum Norden ...	Koillinen Pohjaan...				
N.E.	Nord Ost	Koillinen (Itapohja)	Porias	Tung-Peh, or Tung-Pei	Tong-Poh.....	Tang-Pak.
N.E.b.E. ...	Nord Ost zum Osten ...	Koillinen Itaan... ...				
E.N.E.	Ost Nord Ost	Itakoillinen	Gun-doghousou Porias.....			
E.b.N.	Ost zum Norden	Ita Pohjaan				
East	Ost, Osten	Ita	Gun-doghousou.....	Tung	Tong	Tang.
E.b.S.	Ost zum Suden	Ita Etelaan				
E.S.E.	Ost Sud Ost..	Itakaakko	Gun-doghousou Kechichleme			
S.E.b.E. ...	Sud Ost zum Osten	Kaakko Itaan				
S.E.	Sud Ost	Kaakko (Ita Etela)...	Kechichleme	Tung-Nan	Tong-Nain	Tang-Lam, or Tang-Nam.
S.E.b.S.	Sud Ost zum Suden	Kaakko Etelaan.....				
S.S.E.	Sud Sud Ost	Etelakaakko	Kible Kechichleme.....			
S.b.E.	Sud zum Osten...	Etela Itaan				
South	Sud	Etela	Kible	Nan	Nain	Lam, or Nam.
S.b.W.	Sud zum Westen	Etela Lanteen				
S.S.W.	Sud Sud West	Lounaietela	Kible Lodos			
S.W.b.S. ...	Sud West zum Suden ...	Lounat Etelaan.....				
S.W.	Sud West	Lounat (Lansietela).	Lodos.....	See-Nan	See-Nain	Si-Lam, or Si-Nan.
S.W.b.W. ...	Sud West zum Westen...	Lounat Lanteen ...				
W.S.W.....	West Sud West	Lansilounat	Baty Lodos			
W.b.S.	West zum Suden	Lansi Etelaan				
West	West	Lansi...	Baty	See.....	See	Si.
W.b.N.	West zum Norden	Lansi Pohjaan				
W.N.W.....	West Nord West	Lansi Luode	Baty Kavayel			
N.W.b.W. ...	Nord West zum Westen..	Luode Lanteen				
N.W.	Nord West.....	Luode (Lansipohja).	Kavayel	See-Peh, or See-Pei	See-Poh	Si-Pak.
N.W.b.N. ...	Nord West zum Norden..	Luode Pohjaan				
N.N.W.....	Nord Nord West	Luode Pohja	Yildiz Kavayel			
N.b.W.	Nord zum Westen.....	Pohja Lanteen				

Twin Screws and Monitors.

We find the following important remarks on the *Royal Sovereign* in a recent number of the *Shipping Gazette*, and as we have preserved the reports of American and Russian officers on this important subject, it is but fair to our own officers to preserve theirs. In fact, the report of Captain Osborn appears to be most favourable to this class of vessel, as being capable of carrying the heaviest gun that can be made; and with the speed that twin screws would give them for coast service (whatever might be done with them hereafter for sea), they become invaluable, and are likely to prove, as we have already observed, the bull-dogs of the fleet. With such vessels as these we may ask,—Where is the use of our projected Spithead forts?

The *Royal Sovereign*, turret-ship, is filling up coals and stores in Portsmouth Harbour, and otherwise preparing for her ordered course of gunnery and other trials outside the Isle of Wight, under the direction of Captain Astley C. Key, C.B., of H.M.S. *Excellent*. Her short cruise outside the Isle of Wight with several of the Lords of the Admiralty on board, on March 17th, sufficiently demonstrated, by the time occupied in working the turrets and the slowness of fire from her guns, as compared with her efficiency when under Captain Osborn's command, the necessity of always keeping a full crew on board a ship whose gun-drill differs so essentially from that at present practised on board all other ships of H.M. navy.

Their lordships saw the turrets and guns all worked with great ease, making allowance for their ponderousness; and the time occupied in traversing the turrets and in reloading and firing the guns might have passed without any further comment were it not for the recollection of the much greater rapidity with which the turrets were revolved and fire delivered from their guns during her experimental shot practice in August last in St. Helen's Roadstead, under Captain Osborn's command, and the working of her old crew. It was certainly not to be expected that the ship's turrets should be nearly so rapidly revolved, or so rapid a fire delivered from her guns by a crew mainly composed of men sent on board at an hour's notice from the *Excellent*—men who neither could have understood the working of the turrets nor the sighting of their guns as was done with her old and trained crew; but this very fact is the strongest argument which can be used in favour of always keeping a full crew on board, and it also bears testimony to the zeal with which Captain S. Osborn, his officers, and crew must have entered into their work to bring the *Royal Sovereign* to the very efficient state she had attained by the time her captain officially ceased to command her. While the ship is carrying on her experiments under Captain Key she will, of course, be fully manned, so far as the working of her guns are concerned, from H.M.S. *Excellent*, but it will also, we think, be admitted that it is requisite to keep her manned

after the experiments are completed until she is again commissioned, even if she be kept nominally as a tender to the *Excellent*. Captain Osborn's senior lieutenant still retains his position on board the ship.

Many improvements in matters of detail relating to the fittings of the ship and turrets have been effected since the period of Captain Osborn's commission; but one important recommendation of Captain Osborn in his final report on the ship's capabilities, that "a winch should be fitted to run the guns in and out with, instead of the old-fashioned tackle," has not yet been carried into effect. This is rather extraordinary, and must be owing to some oversight on the part of the authorities, as winches are understood to be fitted for this purpose on board the *Scorpion* and *Wyvern*.

It is urged that if we wish to keep our place in this race of reconstruction for the supremacy of the seas we must have big guns, with power to work them, great speed to our ships under steam, with minimum tonnage—or rather draught of water, and twin screws. With twin screws the *Royal Sovereign's* present powers of manœuvring would be more than doubled, and with her present 12-ton guns rifled her powers of offence would also be doubled.

As the opinions of Captain Sherard Osborn on the *Royal Sovereign*, her turrets, and her guns, cannot be otherwise than highly interesting, we take the present opportunity of appending a copy of his final report on the ship's capabilities to the Commander-in-Chief at Portsmouth, Admiral Sir M. Seymour, G.C.B., at the close of his services as her captain:—

H.M.S. Royal Sovereign, Portsmouth, October 15th, 1864.

Sir,—As H.M.S. *Royal Sovereign* is now paid off, I do myself the honour of forwarding to you a report, dealing generally with my observations upon the ship, guns, and turrets.

2. Between the 28th of August and the 17th of September I was on ten different days underway in the Channel, and tested the vessel in weather ranging from a perfect calm with heavy swell to a double-reefed topsail breeze and a smart sea. On one occasion I put her into the broken water of the Race of Portland just as a heavy gale had broken.

3. On all occasions the ship behaved remarkably well. She is more buoyant than I should have anticipated; very fast, considering how coarse a bow she has, and not wetter than might be expected for a vessel purposely cut down for harbour defence only.

4. Her extreme rolls have only been 11° each way. She has done this about ten times in a minute; about the same rate, I may observe, as the *Albion* rolled during her first experimental cruise.

5. The great width of the upper deck is a serious defect, but that is purely owing to this ship being a converted vessel. No vessel expressly constructed to carry turrets requires such a deck as we have (some sixty-three feet in width). When rolling in a sea-way, so wide a deck as ours, with a low bulwark, has an insecure appearance, and

when riding at anchor in bad weather the drift and wet blow along it in a very trying manner, severely punishing those exposed in charge of the watch; fortunately, however, having no masts or yards, the crew of the *Royal Sovereign* need be little exposed to the weather, except for the "lead" and "look-out."

6. The turrets and guns work admirably. We have now fired in all 177 rounds, under all conditions. The rolling of the ship does not affect the evolutions of either turret or guns.

7. The only defects I can observe exist in the carriages being of wood instead of iron, and the necessity for a winch to run the guns in and out with, instead of the old-fashioned tackle; both these defects are in the course of being remedied.

8. The aperture cut through the upper deck to allow the turrets to revolve upon the lower deck, instead of upon the upper deck, as in the American Monitors, requires to be secured or covered in upon a better principle than has yet been adopted. It involves the comfort and health of the crew, owing to the admission of much wet and damp between decks when fighting in a sea-way. When not fighting we cover it over with painted canvas, and render it perfectly secure and safe. It is a mechanical question of a very ordinary character, and can be easily remedied when set about in earnest.

9. To recapitulate, I am of opinion that the *Royal Sovereign*, as she now stands, is the most formidable vessel of war I have ever been on board of. She would easily destroy, if her guns were rifled, any of our present iron-clads, whether of the *Warrior*, *Hector*, or *Research* class. Her handiness, speed, weight of broadside, and the small target she offers, increase tenfold her powers of assault and retreat; and I believe I see my way to firing by night from a turret with as much accuracy as by day, so long as the enemy is visible.

10. On the other hand, a vessel *raséed* as she has been cannot be considered a deep sea cruiser, nor calculated to go to foreign stations, except in emergencies, or for special purposes—such, for instance, as when we sent our iron-cased batteries to the Crimea.

11. Vessels like the *Royal Sovereign* are admirably calculated for the defence of the coasts, harbours, and roadsteads of Great Britain. With twelve such converted vessels the fleet might be sent abroad to fight an enemy, and we could feel secure at home come what might, the more so as any naval officer would undertake to work and fight these vessels if manned by artillerymen, with only a dozen sailors to steer and take the lead.

12. I see no limit to the weight of ordnance which may be worked upon the turret principle, and there are many ways in which the revolving platform, apart from the iron-cased turret, might be applied with the best result to any of our ordinary cruisers, whether of wood or iron.

13. I have, in conclusion, to say that as yet we have not carried away a gun-breeching, nor hurt so much as a man's finger-nail in the working of our guns and turrets, and the only damage done has been, in my opinion, from the defective fittings on deck, such as weak cap-

scuttles, &c., and the injury to the hawse-pipe, for which I am alone to blame, though that would not have occurred if there was less wood and more iron used in the construction of our iron-clad ships.

SHERARD OSBORN, *Captain.*

To Admiral Sir M. Seymour, G.C.B., &c., Commander-in-Chief.

We have never yet had to record more satisfactory proofs of progress than we now collect in the way of *twin screws* and *Monitors.* The ugly, clumsy paddle may now be considered as fairly beaten off the field by the twin screw; for if it cannot help along the fleetest steamer that floats faster than it has done (and so it appears), it may be looked on as irrevocably overcome and its place taken by the latter.

The same may be said of the Monitors, when we know that we can put as heavy a gun into a Monitor as can be used in any fort on shore. So says Captain Osborn in his clear and lucid remarks on the subject; and that they will eventually become as good sea boats as they are for smooth water we can see no reason for doubting. Greater obstacles have been overcome than are presented in that respect. For our own parts we look now on the two great questions of speed and efficiency for hostile measures afloat as achieved and restored us under these two most powerful arms of what will hereafter be the British fleet; and if we have any foresight in respect of naval attack and defence we entirely agree with that officer that the powers of the Monitors throw all kinds of fixed forts (such as those proposed at Portsmouth) into the category of useless expences, except as assisting an enemy as excellent fixed marks for the guidance of his fleet through channels which he could not find when every other mark was removed or purposely misplaced.

A Race across the English Channel.—Twin Screw v. *Paddles.*

The twin screw steam ship *Mary Augusta*, 970 tons, and 280 horse power of engines, nominal, made her sea trial trip on Tuesday, 14th of March, between Dover and Calais, in a race from the English to the French harbour with the new paddle-wheel mail steamer *La France*, the latest addition to the fleet of the London, Chatham, and Dover Railway Company, and said to be the fastest boat under steam in the English Channel. The *Mary Augusta* had left Greenhithe at an early hour in the morning, and at 7h. 30m. a.m. dropped her anchor in Dover Roads to await the time of departure of the next mail boat for Calais on the arrival on Dover pier of the express train from London, due at 9h. 23m. a.m.

The train arrived on the pier with its usual punctuality in point of time, and very soon the mail steamer cast off from the Admiralty pier and stood out clear to view from where the *Mary Augusta* was lying, and was then discovered to be the famous *La France*, she being, when time was taken, about three cables' length ahead of and on the weather bow of the *Mary Augusta*, the water being smooth, comparatively speaking, in the Channel, and the wind quite moderate from

E.N.E. *La France* had thus the advantage at the start of smooth water and with nothing aloft to offer any resistance to her passage through the water, while the *Mary Augusta* would have been better weighed for the race with her slim-bowed rival had there been a sea in the Channel, and had her barque rig aloft more nearly approximated to the rig of *La France*.

The two vessels for the first five minutes after starting together from off the end of Dover pier head seemed to be pretty equal in point of speed; and some of those on board the *Mary Augusta* began to think their vessel would make a sufficient flight of it could she but be made to "hold her own" with her rival, but her builders, who were on board, thought otherwise, and stated they felt convinced the twin screws must win the battle. The result proved the soundness of this opinion, and now ensued, without any doubt, the most exciting and interesting contest that has ever yet occurred since steam was first applied for the propulsion of ships.

At 9h. 53m. both vessels began to open the South Foreland to the breeze, being at the time exactly abreast of each other and close together, with the paddle to windward, the twin screws appearing to slightly draw on *La France*, but a hot bearing developing itself in the starboard engine of the *Mary Augusta*, it was eased in its revolutions as much as durst be done under the circumstances of the ship's position with her handsome and dangerous rival, and her chance of success thus far damaged. At 10h. a.m. *La France's* stem was fairly in a line with the *Mary Augusta's* stern, despite the hot bearing and reduced revolutions in the latter's starboard engine, the twin screws evidently beating the paddle "all to nothing" as the motion of the water through which the two vessels were cleaving their way increased.

In ten minutes afterwards the *Mary Augusta* placed herself in position about three cables' length ahead of and in line with *La France*, and very shortly afterwards the latter was four cables' length astern, and on her leader's port quarter, emitting such immense volumes of steam and smoke from her two funnels as satisfactorily proved that the engines were having more steam than they could make use of, and that *La France* could never at any time or under any circumstances during her short career have been driven with more purpose to win than at the present. The *Mary Augusta*, in addition to her loss of speed, owing to the decreased number of revolutions of one of her engines, which persistently continued to be afflicted with the unfortunate hot bearing, steered at times rather wild from the uneven running of her engines, and this necessarily lengthened her course.

The *Mary Augusta*, however, still, as the cliffs of England lessened and those of France rose on the horizon, gradually and surely increased her lead over the gallant *La France*, and at 10h. 45m. the heated bearing of the starboard engine having become cooled, its revolutions were increased, and from that moment the race was her own, *La France* visibly dropping astern every stroke her pistons made, and the *Mary Augusta* closing in with the Calais pier at a tremendous rate of

speed. At 11h. 4m. 45s. the latter was close in with the pier's head, when, as there was no intention to take the vessel inside Calais Harbour, her helm was put down and her head bronght round for Dover cliffs again, *La France* being then fully three and a half miles astern. Six minutes elapsed from the time of putting down the helm of the *Mary Augusta* until she met *La France*, both vessels continuing at full speed throughout, the one finishing her voyage to Calais from Dover, and the other returning across the Channel to the coast of England from that of France.

The time occupied by the *Mary Augusta* in the double run from Dover to Calais and back was exactly 2h. 45m. 10s,—a rate of speed never equalled before under any circumstances by a screw steamer, double or single, nor yet by any paddle steamer, when the time was rigidly and impartially taken, as it was in the race between these two vessels, the *manner* of taking time very often giving a vessel an exaggerated average of her performance,—an error which was most satisfactorily avoided in the present trial between *La France* and the *Mary Augusta*.

On arriving off Calais pier head the owners of the latter ship, satisfied with their success, dipped their ship's colours on parting, which was courteously returned by *La France*. The run back to Dover from Calais was made by the double screw, with help from her fore and aft sails forward, but the wind by that time had freshened considerably, and a tolerable sea was running in mid channel, and whereever the influence of the tide was fully felt to windward. But there was no wave hanging on in front of the stem; all that could be seen of entering force and its resistance being merely a "fountain spray" of water, white from its small volume and the ship's great speed through the sea, with no other visible disturbance in the waters through which lay the ship's course. In the return of the *Mary Augusta* from her sea trial trip to Gravesend the South Foreland was passed at 4h. 20m. p.m., a heavy gale blowing from N.E., which continued, the vessel behaving beautifully. The North Foreland was passed at 5h. 20m., and the Tongue lightship at 6h. 15m., Gravesend being reached at 9h. 15m. p.m.—*Times*.

The Scorpion.

On the 18th of March the *Scorpion*, iron-clad ram, built by Laird Brothers, of Berkenhead, and purchased from them by the government, left the Mersey for Holyhead and Devonport, under the command of Captain Paynter, R.N., of the *Donegal*. The *Scorpion's* dimensions are,—length, 225 feet; breadth, 42½ feet; and depth, 20 feet; and tonnage, 1,890. Her nominal horse power is 350. Her armour consists of 4½ in. iron plates and 10 in. of teak. The thickness of the plating is reduced towards the ends, so as to insure buoyancy. Her machinery, turrets, and magazines are thoroughly protected. Her decks are of iron, cemented over. She has two turrets, each pierced for two 12 ton 300-pounder Armstrong guns, so that the weight of her broadside will be 1,200 lbs.

The turrets, which are on Captain Cowper Coles's principle, are plated with 5½ in. armour plates, doubled at the port-holes. In order to avoid the necessity of running back the guns by manual labour, as is the case on board the *Royal Sovereign*, Messrs. Laird have introduced a small winch, which enables two men to do the work. Since the vessel was bought by H.M. government, several alterations have been made in the arrangements for the accommodation of the officers and the crew. The officers' cabins are roomy, light, and well ventilated, and forward a complement of 165 men can be carried without the least crowding. The gun slides have been fitted in the turrets, and it was the intention of the Admiralty to have put the guns on board before the vessel left Birkenhead. Unfortunately, however, the vessel which was bringing them round was wrecked on the coast of Ireland, and it was thought better to send the vessel to Devonport without them. When the *Scorpion* got under way on Saturday, she had in her bunkers coal for six or eight days' consumption, and drew 15 ft. 10 in. aft, and 13 ft. 6 in. forward. It is expected that when she has her guns, armament, and stores on board, her draught will be about one foot more.

There was a strong breeze, and after passing the rock at the mouth of the Mersey, all her square canvas was set, the wind being nearly right aft. The vibration of the screw was scarcely perceptible; and, although a pretty heavy sea was running, she rolled very slightly, and that easily, shipping a little water occasionally through her scuppers. There was no lack of steam, and she made, with the tide against her, about 11 knots an hour, the engines making fifty revolutions a minute (they have been worked to nearly seventy). When near Holyhead, Captain Paynter furled the sails and put her about. She came round very easily, and showed great buoyancy. The *Scorpion* was then put on her course again, and came to anchor in Holyhead Harbour shortly after six o'clock. She may remain there for a day or two until the weather, which was very threatening, moderates. Captain Paynter appeared to be very well satisfied with her behaviour. Her sister ship, the *Wyvern*, is expected to be ready for sea in about a month.

INCORRECT CHARTS.

Liverpool, March 9th.

Sir,—It is not uncommon to see the certificates of masters in the merchant service suspended for losing their ships. When one takes into consideration the gross errors which are laid down in the charts of many private publishers, it is surprising there are not more disasters. I have now before me a chart of the North Atlantic. The variation of the compass is in many places laid down 11° in error. This would in one day throw a fast steamer thirty-five miles out of her assumed position.

Frequently in winter ships run five or more days without an observation; you can imagine the position of one which had been navigated by such means at the end of that period.

If publishers are permitted to pirate the Admiralty surveys, the least they can do is to copy correctly.

The Cornish wrecker hanging out false lights is not so reprehensible as the men who sell incorrect charts.

I annex the variations of the compass for a few positions taken from the Admiralty and certain private charts:—

Private.		*Admiralty.*		
Lat. Long.	Var.	Lat. Long.	Var.	Diff.
Equator .. 30° W.	6° W.	The same	13° W.	7°
20° N. 42° W.	6 2·3 W.	Do.	11 W.	4 1·3
Around Bermuda.	2 W.	Do.	6½ W.	4½
Around Azores ..	18½ W.	Do.	27 W.	8½
44° N. 35° W.	19½ W.	Do.	31 W.	11½
50 N. 30 W.	24 W.	Do.	36 W.	12
57 N. 24 W.	30 2·3 W.	Do.	40 W.	9 1·3

I remain, &c.

WM. W. KIDDLE, *Commander of the Mexican.*

To the Editor of the Times.

We find the foregoing in the leading daily journal of this land,—and preserve it among our nautical curiosities,—to which the compasses of our merchant ships have contributed not a little. Incorrect charts are common enough: indeed it was our original motto that "No charts are so correct nor any sailing directions so perfect as not to furnish frequent occasion for revision and amendment." But that there should be such things as charts published in these days with errors in them amounting to a whole point of the compass in the variation, we could not have believed,—for it amounts to gross carelessness and should not be permitted, the means of correcting them being common and cheap. Verily the subject shows that our mercantile captains are either too easily imposed on, or are themselves careless about such matters. It is, however, a most serious matter to know that such a state of things is permitted among the glorious liberties of Englishmen; but it is evident that there is no preventing the practice, and thus the boasted mercantile fleet of England may flounder along with their insurance against loss; and may increase the perils of the sea by those of bad compasses and incorrect charts.

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

Particulars of Lights Recently Established.

(Continued from page 160.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
8. Point Villes-Martin	France, West coast	47° 15·4′ N., 2° 13·7′ W.	R.	33	12	Est. 1st Feb., 1865. Red light. Revolves every half minute.
9. Port Porman	Spain, South coast	37° 34·2′ N., 0° 49·5′ W.	F.	162	9	Est. 1st Feb., 1865. (*a.*)
10. Cape Palos	Ditto	37° 37·5′ N., 0° 40′ W.	R.	263	23	Est. 1st Feb., 1865. Revolves once a minute.
11. Gambia	.....	.....	..	..	..	Buoys. (*b.*)
12. Tiri Tiri Matangi	Huaraki Gulf New Zealand	36° 36·5′ S., 174°55·2′E	F.	300	23	Est. 1st Jan., 1865. (*c.*)
13. Dog Island	Foveaux St., N. Z.	46° 39·6′ S. 168° 26′ E.	R.	150	18	Est. April, 1865. Revolves every half minute.
Mana Island	Cook Strait, N. Z.	41° 5′ S., 174° 48′ E.	F.	450	20	Est. March, 1865.
14. Port Littleton	Cachalot Hd. N. Z.	43° 35·5′ S., 172°49·5′E.	F.	450	29	Ditto.
Otago Harbour	Tairoa Head, N. Z.	45° 47′ S , 170° 45′ E.	F.	196	20	Est. 2nd January, 1865.
15. Port Cigala	Adriatic	44° 31·7′ N., 14° 26·5′ E.	F.	32	8	Est 1865.
Port Segna	Ditto	44° 59·2′ N., 14° 53·5′ E.	F.	..	8	Ditto.
16. Sedashigur Bay	Malabar cst.	14° 49·2′ N., 74° 2·7′ E.	F.	160	10	Ditto. On Oyster Rocks. (*d.*)
17. Oris Island	Pontevedra Bay, Spain	42° 22·5′ N., 8° 55·1′ W.	Ffl.	421	12	Est. 15th April, 1865.
Ferrol	Spain, N.W. coast	43° 28·7′ N., 8° 15·5′ W.	F.	23	5	Ditto.
Port of Naples	Italy	.....	F.	..	..	Green light. At extremity of works. E.S.E. from the mole. Light in a boat.
18. Reported danger at sea	.....	39° 52′ S., 35° 13′ E.	..	..	..	Supposed shoal. (*e.*)
19. Leghorn	Italy	Harbour light	F.	74	10	Est. 1st March, 1865. Green light discontinued. (*f.*)
20. Wreck of H.M.S. *Bombay*	.....	.....	..	..	..	(*g.*)
21. Port Ercole	Italy	S. Barbera battery	F.	52	8	Est. 15th April, 1865. Left side of entrance.
Port San Stefano	Ditto	Near Lividonia Pt.	F.	108	10	Est. 15th April, 1865.
Port Talamone	Ditto	Extreme of castle wall	F.	98	10	Ditto.
Port Giglio	Ditto	Giglio Island	F.	18	6	Ditto.

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a.) 9.—Also, that a bell buoy has been placed in 6 fathoms water, at about 28 yards from the outer edge of the Escombrera Bank, at the entrance to Cartagena Harbour. The buoy is painted red and white, and lies with Cape Tinoso bearing W.¼N.; Podadera Point lighthouse N.¾W.; and Escombrera lighthouse E.b.S.¾S. This shoal is of rock, rather more than two cables

westward of the island of the same name, and the least water on it is about 8 feet. Between it and the island the depths are from 8 to 21 fathoms.

All bearings are magnetic. Variation 18° 25′ W. in 1865.

(b.) 11.—A *red* buoy in the vicinity of the dangerous Bird Spit Shoal, lies in about lat. 13° 41′ 10″ N., long. 16° 48′ 15″ W. From it no land is visible, but in very clear weather Cape House may be seen.

A *chequered* buoy, marking the fairway channel, lies with Cape St. Mary bearing S.S.E., distant 8¼ miles, and Bathurst flagstaff distant 15 miles, in about lat. 13° 36′ 15′ N., long. 16° 47′ 30″ W. In clear weather Cape House may be seen from this buoy.

A *black* buoy lies on the African Knoll, bearing S.E.b.E.½ E., distant 10¼ miles from the chequered or fairway buoy. From this buoy, Cape House, Fort Bullen, the flagstaff at Bathurst Town, and the shipping in the harbour, are all in sight.

All bearings are magnetic. Variation 19° 15′ W. in 1865.

(c.) 12.—Also, that a *red* buoy has been placed in 14 fathoms water, N.N.E. of, and close to the Shearer Rock, with the lighthouse bearing W.S.W., distant about one mile; the North extreme of Tiri Tiri W.b.N.½ N.; and its South extreme S.W.½ W.

Ahuriri Roads.—A *white* conical buoy lies in 9 fathoms water, at about a cable S.b.W. from the Pania Reef, with the Bluff bearing S.S.W. nearly, distant 2 miles. The average depth on the reef is 12 feet, but there are several rocky ledges with only 7 and 8 feet water on them.

A temporary black buoy is placed in 4½ fathoms water, at about 20 feet North of the Auckland Rock, to be shortly replaced by a *white* buoy. This rock appears to lie near the southern part of the shoal marked on the chart, and from it the Bluff bears S.b.E.; West point of the Bluff S.W.b.S.; and Cape Kidnappers S.E.½ E.

A mooring buoy lies in 6 fathoms water, in the S.W. part of the roads, W.N.W. from the Bluff and at about a mile from the shore. The moorings are placed in the best holding ground, and sufficiently strong for a vessel of 1,000 tons.

All bearings are magnetic. Variation 14° 25′ E. in 1865.

(d.) 16.—A sunken rock with 14 feet on it at low water, lies between the Oyster Rocks and Elephant Islet, with the lighthouse bearing N.W.½ N., distant 1·6 miles; Elephant Islet E.S.E., 6½ cables; and the western ends of Deogur and Coormaghur Islets nearly in line about N.N E. A *red* buoy marks its N.W. side.

Also, a shoal about 50 yards in length North and South, and 20 yards East and West, with 2½ fathoms on it at low water, over rocky bottom and shells, lies with the lighthouse bearing S.E.½ E., distant 2½ miles; Coormaghur Islet E.½ N.; and Black Rock N.N.E.½ E. There are 10 fathoms all round the shoal. A *red* buoy marks the West side of it; vessels should not approach nearer than a cable.

Directions.—Steam-vessels from the northward should make Cape Ramas, and then steer for the Oyster Rock's lighthouse, avoiding the rocky shoal N.W. of the lighthouse. When within 3 to 4 miles of the lighthouse, the collector's bungalow on Konay Hill will be seen, and when it bears E.S.E. steer for it and anchor in 4 or 5 fathoms water, mud bottom, near a white buoy which is placed to mark the anchorage, at about half a mile from the shore. As the Oyster light is approached at night, a *red* light should be seen on the shore of the bay, and when it bears E.S.E. steer for it, and anchor in about 5 fathoms water as before.

Vessels from the southward should make the Oyster Rock's lighthouse, and during day can with safety pass between them and Carwar Head. The highest part of Deogur Islet on with the highest part of Goormaghur Islet, leads

eastward of the Oyster Rock's Reef, which will shortly be marked by a beacon. When the collector's bungalow on Konay Hill is in sight, bring it to bear E.S.E., steer for it, and anchor as before. Vessels from the southward at night should not pass between the Oyster Rocks and Carwar Head, unless well acquainted with the harbour; but should keep westward of the Oyster light until the *red* light on the shore of the bay bears E.S.E., then steer for it.

Sailing vessels making the port at night should anchor in about 8 fathoms water, near the Oyster Rock's light, and wait till daylight. It is high water at full and change at 9h. 30m. a.m., and the rise is 7 to 8 feet.

All bearings are magnetic. Variation 0° 15′ E. in 1865.

(e.) 18.—Mr. J. P. Potter, Commander of the American ship *Hudson*, on his passage to King George Sound, reports having seen, on October 5th, 1864, at 8h. a.m., a shoal extending N.N.W. and S.S.E., about a mile long, with heavy breakers on it; also a rock about 20 yards in length and 10 feet high; distant one mile from the ship.

[We take this to be some drifting delusion, perhaps a mass of trees from the late hurricane at Calcutta, passing along a well-frequented track.]

(f.) 19.—*Palermo, Sicily.*—Also, that the mole at Palermo is in course of being lengthened 170 yards, and the extremity of the works marked by a bell buoy. Vessels entering the port should pass South of the buoy. When the work appears above water its extremity will be marked by a small light.

Trapani.—Also, that from the 1st day of March, 1865, the Balate or Balata Reef, in Trapani Road, West coast of Sicily, will be marked by a white beacon buoy. The portion of the buoy above water will be half oval, surmounted by a globe with a vane painted red and white.

(g.) 20.—In consequence of the destruction by fire of H.M. late ship *Bombay* near Monte Video, on the 14th December, 1864, the wreck of that vessel now forms a danger to vessels navigating exactly midway in the channel between the English Bank and Flores Islet. The wreck lies about 4 miles N.W.b.W. of the English Bank light-vessel, with the Cerro lighthouse bearing N.W.b.W.½ W.; and Flores lighthouse N.¼ E.

Rock near the Entrance to the South Channel of Santa Catharina.—The rock is small, with 9 or 10 feet water on it, and 6½ or 7½ fathoms fine sand near it, and on which the sea breaks with easterly winds. It is said to lie with Naufragados Point lighthouse bearing N. 1° 30′ E. (true), distant 1·8 miles; and Pinheira Point S. 21° W. 6 cables.

Gulf of Finland,—*Pilots.*

The hydrographic department of the Russian Government has given the following notice for the information of navigators trading to the port of Cronstadt.

1.—A pilot station has been established near the port of Cronstadt, the service of which was commenced on the first of October last by taking charge of all vessels (sail or steam) coming from the strait of Molbouquine bound to Cronstadt; either for the Great or Little Road, or to the Eastern Road, or that of St. Petersburgh as far as the buoys of the great channel of the Neva, according as captains of vessels may desire, as well as to pilot them back to beyond the above light.

2.—Among the arrangements concluded are the following:—

6.—All square rigged merchant vessels which enter or leave Cronstadt are obliged to take pilots and pay the established rates of pilotage, who must always be paid even when the master of the vessel does

not desire their services. Small craft and coasters are not obliged to take a pilot.

7.—In virtue of the foregoing article merchant vessels, whether under sail or steam, will pay pilotage between the meridian of the light of Londowski and Cronstadt for one way seventy copecks per foot English measure. Those which desire it may take a pilot from Cronstadt to Petersburgh, for which they must pay one franc fifty centimes for every foot of draught, and thirty centimes for the return of the pilot to Cronstadt.

3.—Seagoing ships bound to Cronstadt will take their pilots off the floating light of Londowski, and those leaving it from the look out tower inside the port.

Casualty Reports.

Loss of the "Columbian."

The *Columbian*, an iron screw steamer, 731 tons, belonging to the Pacific Steam Navigation Company, left Liverpool on the 10th of January for St. Thomas and Colon. The following day she encountered bad weather, which was followed by a series of gales, in which she lost her boats and sails, and shipped much water, and became much disabled. On the 17th of January, after striking on a rock off Ushant, from which she floated off, she afterwards foundered, by which all hands, consisting of a crew of thirty, all told, and one passenger, were lost, excepting the second steward and two firemen.

Stranding of the Barque "Premier."

In putting to sea from Cork the *Premier* was drifted on shore in light winds, being then unmanageable. The court said, in returning Mr. George Henry Cother his certificate, that it was with pleasure that all the papers laid before it bear strong testimony of his seamanship, and affirm him to be a sober well conducted officer.

Loss of the "Teviotdale."

We, the undersigned members of the Naval Court, summoned by her British Majesty's Vice.Consul of the Province of Rio Grande do Norte (Brazil), at the request of Howard Clark, Master of the ship *Teviotdale*, of London, to investigate into the cause of the loss of the said ship, and after receiving the solemn declarations, and signed, &c., depositions of the witnesses, consider the cause of the wreck of the ship *Teviotdale*, after due and careful deliberation, to be entirely casual, for the following reasons, viz.:—We are of the unanimous

opinion that the banks of Cape St. Roque are imperfectly demonstrated on the charts, extending in some parts miles further from the land than indicated by them, and although the main portion of these banks may not extend more than six or eight miles, yet there are points which extend from twelve to fifteen miles out, to the imminent risk of large vessels passing. We also consider that the disconnected state of these banks allows vessels to approach the land much closer in some parts than in others—*ergo*, the near approach to the land of the vessel designated by the witnesses; consequently, we are of the undivided opinion that there was no want of care regarding the navigation of the vessel—the lead kept going, and all the crew at their stations—and we have ourselves been eye-witnesses to the discipline exercised on board the ship, both as regards officers and men; and we are, from the circumstances which have been brought before our notice, both from the crew and what we have been able to glean from the natives, who from the vessel's first striking were on board, of the opinion that the utmost exertions have been made by all hands to save the ship. We therefore consider it our bounden duty to exonerate the master, Howard Clark, from any culpability or neglect regarding the loss of the vessel, and consider that the aforesaid master has used his utmost endeavours to save his ship, and we have therefore considered it our duty to return him his certificate of competency, No. 7,241. We therefore subscribe our names to witness validity of our foregoing decision.

SAML. BOLSHAN, *H.B.M. Vice-Consul, President.*
P. WAKEM, *Acting Secretary.*
RICHARD REDMORE, *master of British barque "Anne," of Bristol.*

We transfer the foregoing to the *Nautical* in order to inform the members of the above Court that their conclusion of the banks off Cape St. Roque being "imperfectly demonstrated on the charts," is entirely incorrect in respect of the Admiralty charts. It does not appear in their decision what chart was used by the *Teviotdale*, nor the position where she was lost off Cape St. Roque. But a most creditable survey of the Cape and its approaches was made, in 1857 to 1859, by a Brazilian officer, M. A. Vital de Oliveira, of the Imperial Navy, which, with his description of the coast has been published by the Admiralty. In this chart, to the N.E. of Cape St. Roque, the banks commence about five miles from it, and follow the coast to the N.W., gradually increasing their distance to nine miles off Tours Point, which point is about twenty-two miles from Cape St, Roque, as marked on the chart. Further to the westward (some twenty miles) there is a bank, the Urco de Cotia, which may be about fifteen miles off shore. But there is nothing of this kind off Cape St. Roque. If the *Teviotdale* had had this chart on board, No. 889 of the Admiralty Catalogue, or the old one corrected by it, No, 528, she would have saved this inquiry. And if the chart were not sufficient keep a vessel off the ground, the following intructions from the *South American Pilot*, part I, p. 28, should have been sufficient warning for any captain.

"There is nothing to indicate a vessel's approach to the vicinity of any of these banks but astronomical observations and the *soundings;* the bottom is white sand. coral, and gravel. The water near the edge of the bank is green, and contrasts strongly with the water outside of it. The green water, unless by a small vessel bound inshore, should never be entered; the depths decrease suddenly from 18 to 8 fathoms or less. The land being low can be seen only in fine weather from a distance of ten to twelve miles; no vessel unless very certain of her position should approach it nearer than thirty-five miles."

The question is, were these charts and directions on board the *Teviotdale?* We very much doubt it,—but on them only could a proper judgment be given as to the loss of the vessel,—and it is quite clear that their requirements were not complied with. But let us hear no more of the banks off Cape St. Roque being "imperfectly demonstrated on the charts."

Loss of the "Iowa."

An iron screw steam ship of 1781 tons, 400 h.p., running between London and New York *viâ* Havre,—passengers 170 to 180, crew of 56 hands, and commanded by Captain Stephen Jarman. Her deviation card was correct on her former voyage, but a heavy compass had been embarked. Left London on the 3rd of December, arriving at Havre on the 4th. Steering the usual courses she ran ashore at Omonville, five miles East of Cape La Hogue. It was concluded that there was some powerful but unknown cause of deviation in the compasses. (Query, was the ship swung the last thing before leaving port after the heavy compass was embarked.) It is tolerably clear that something was very wrong. Captain Trivett, who had heard all the evidence, is said to have believed there was a total loss in the directive power of the needles,—a condition which is not altogether reasonable, inasmuch as it had the power to misdirect the ship. The lead, however, was not used, and it was considered censurable that the general prevailing neglect of it on board steam ships, and it is more especially necessary in iron ships, in which, from the numerous disturbing causes, the correctness of the compasses can be less relied on.

Loss of the "Temora."

This was a screw steamer of 659 tons, and 120 h.p., lost on the Carr Rock, on her way from London to Dundee, on the 22nd of February. The court decided that the course shaped for passing the Carr Rock was too fine to clear the North Carr, that no soundings when uear the coast were taken, although the weather was hazy,—and considered it right to recommend that the master's certificate be suspended for six months.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

MAY, 1865.

Melbourne to China.

The following important communications have just reached us on the hydrography of the route from Melbourne to China, which, as it is becoming daily more and more frequented, will be found to present ample subjects for the observation of the careful navigator,—the route lying through a part of the Western Pacific in which small islets, &c., abound. They consist of two,—No. 1.

Non-Existence of Simpson Island, South Pacific,—Position of Tasman Island; and in North Pacific that of Greenwich Island.

Ship "Northfleet," Singapore, 27th February, 1865.

Sir,—Knowing how anxiously the pages of the *Nautical* are searched by commanders of vessels when in the neighbourhood of doubtful islands, rocks, shoals, &c., I therefore kindly request the insertion of the following notice of Simpson Island, South Pacific, and Greenwich Island, North Pacific, both of which lie in a route taken by many vessels from Sydney, Melbourne, &c., to China; and can only wish that sailors may take my humble professional ability as an authority when I say that Simpson Coral Islands do *not* exist; but that most probably an erroneous position was given to Tasman Islands by Mr. T. B. Simpson; and that Greenwich Island does exist, and that the position assigned to it by me may be relied on.

The rates and errors of my chronometers, ascertained daily by time ball in Sydney, sketches of Tasman and Greenwich Islands, with

other memoranda, have been forwarded to the Hydrographic Office for discussion.

I left Sydney 20th of August, 1864, bound for Hong Kong, passing West of New Caledonia, and had a fair run until the 2nd of September, when our position was—lat. 5° 26′ S., long. 160° 54′ E.

Observing in Findlay's *South Pacific Directory*, 2nd edition, 1863, p. 618, that a suspicion existed with him that probably Tasman and Simpson would be the same islands, I steered North from the above position until on the parallel assigned by Mr. Simpson, see *Nautical Magazine*, 1848, p. 574, then due West all daylight of the 3rd. Hove to throughout the night, and at daylight of the 4th—*no Simpson Coral Islands.*

Bore away W.N.W., and at 8h. 30m. a.m. sighted Tasman *Island*, but which appears as many when first seen. Passed on the N.E. side of the island, steering about N.W.b.W., at a distance varying from one and a quarter to two miles, rate about four knots, steady S.E. Trade, and I was able to get a series of angles with the sextant and bearings, with which I managed to project a rough sketch. It is one of the usual forms of coral lagoons, say an ellipsis, longest axis N.W. S.E., nine and a half miles, shorter axis six and a half miles;—an opening only at the N.W. end of about three quarters of a mile.

At noon, I was a mile and a quarter N.N.E. of the North point, the position of which I give as 4° 26′ S. long., (measured from Sydney in fifteen days,) 159° 30′ E., agreeing with Captain Wellings in 1824, see Findlay's *Pacific*, p. 618. At 2h. p.m., hove to, and two boats, one containing ten and the other four natives, put off to the ship. The latter only reached us, the large one having capsized twice, which apparently disheartened them, as they returned to the shore without reaching the ship. The small one came alongside but without any fruit, &c., so I hove away and continued our course.

It presents the appearance of a group, and would be so designated by a ship at a distance of five miles; but having sailed at a mile and a half distance from one side, I was able from the topsail yard to see the land continued right on to the opening above mentioned. At many places it was probably not ten feet high, varying in others to thirty or forty feet, covered with cocoanut trees.

We continued our course to the N.W. until the 8th of September, when we unexpectedly sighted Greenwich Island. I say unexpectedly, because in the Admiralty chart of Pacific, sheet 5, No. 2,463, there is a query against it, nor is there any notice in Findlay or Horsburgh, and only a position given in the *Nautical*, 1852, p. 620. However, there it is, and unfortunately I was detained four days in sight of it. I tried to reach it in a boat, but we found the current setting strong to the E.S.E., and the ship being on that bearing, I was obliged to return without being able to reach the island. I was, however, fortunate enough to obtain many angles with the sextant during the four days from which to project a rough sketch.

The latitude of the middle of the eastern side I place in 1° 4′ N., and long. 154° 45′ E., measured from Sydney in twenty days by two

chronometers, (M'Cabe, 305, and Barraud, 1,999,) errors and rates of which have been sent to the Hydrographic Office. It is of the usual form of coral lagoon in its earliest stage, only one third of it being above water, and consisting of twenty-six little islets, a few feet above water, and covered with cocoanut trees. Reefs extend in a W.N.W. direction from the extreme N.W. islet to a distance of five miles, as measured by sextant for angles, and the base by Massey's log.

I did not see any inhabitants, nor do I believe there are any, as the largest islet is less than one eighth of a mile; and from being in the vicinity so long and at times within two miles, I think we should have seen signs of them had there been any.

My letter is already too long, or I should have liked to have sent you the rates and errors of chronometers, working of the sights, the bearings and angles, &c., by which professional men might judge for themselves whether or not I am competent to assign a position, which I hope will be found within a mile of that hereafter given by any of H.M. surveying ships.

If it is worth inserting I have to apologize for delay, but I expected my ship to come direct for London, instead of which I shall be detained in the East for some time.

I remain, &c.,

W. SYMINGTON,

Master Ship "Northfleet," of London.

To the Editor of the Nautical Magazine.

Our correspondent has rendered a service to his brother seamen in showing the non-existence of Simpson Island, as suspected by Mr. Findlay, and confirming the position of Tasman Island, as well as that of the solitary Greenwich Island, which seems to have been saved from being considered as a new discovery by the account of it in our volume for 1852. Our correspondent need never be afraid of his letters being "too long." Such communications are creditable to his *cloth*, and are always welcomed in the *Nautical*.

The rates and sketches have been received, the latter useful as expressive, and the former very satisfactory.

No. II., barque *Nightingale*.

THE PASSAGE FROM NEWCASTLE *(Australia,)* TO SHANGHAI,—*October to December.*

Shanghai, Barque "Nightingale," December 7th, 1864.

Sir,—The following remarks on a voyage from Newcastle, N.S.W., to Shanghai, and more especially respecting *Pleasant Island*, may not be uninteresting to masters taking the same route at the same time of year; but it remains with you to say whether or not the whole or any part of them are worthy a place in your valuable publication.

On September 28th we left Newcastle, coal laden for Shanghai, in

the barque *Nightingale*. It being too late to take the passage West of New Caledonia, I made as much Easting as possible until reaching the meridian of 171° E., when I stood to the northward.

On the 11th of October sighted Hunter Island, bearing W.b.N., ten miles. Had very light winds from N.E. to E.S.E. until the 17th, when I sighted Mitre Island, off the S.E. end of which there was a very strong tide rip, and we were set to the W.N.W. about 1¼ knots per hour.

Winds were still from N.E. to E.S.E., with much rain, and lightning every evening till the 24th, when at 5h. a.m. Pleasant Island was sighted on the port bow, distant about five miles. Here we saw several fires along shore, which I took to be occasioned by natives fishing on the reef which fringes the island. Kept away to pass to leeward about three miles off.

As soon as daylight broke (5h. 45m.) we perceived no less than five canoes making for the ship; three under sail and paddles, and two under paddles only. In consequence of the warning* contained in Raper (people unfavourable) and also in a work compiled by Andrew Cheyne, *Sailing Directions from the Colonies to China and Japan*, wherein he states that in 1852 a "brig was cut off and all but three murdered," I deemed it prudent to try my hardest to get away from them. So we kept away to bring the wind abeam, and made all sail, ship going about five knots.

But the canoes came up to us fast, on which we loaded the forecastle gun and a small carronade aft, also got up all small arms and laid them ready for use. At 7h. 30m., seeing that they still gained on us, I fired two guns with blank cartridge; but this did not check their advance.

The breeze now freshened to about six knots, and in a very short time three of the sternmost canoes gave up the chase and made for the island. Still there were two gaining on us fast. I fired a couple of rifles, but they still kept on. When we first made out the natives in them, there appeared to be a great many more than there really were. At eight o'clock they were so close in our wake that I counted twenty-eight in one canoe and thirteen in the other. The latter slackened speed to allow the large one to approach first.

When quite close, I waved to them to keep off with my cutlass, on perceiving which, they immediately ceased pulling, and appeared

* This warning originated in the *Nautical Magazine*. In the course of the progress of this journal we have had to record the deplorable effects of the visits of ships to some of these Pacific Islands, and have preserved a brief account of that to Pleasant Island, to which allusion is here made. In the voyage of H.M.S. *Serpent* in search of an English commander it was observed by Captain Hamet, who commanded the *Serpent*, after witnessing the conduct of the natives, that on his mind "not a doubt remained 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 have arisen from the bad and disgusting conduct of the crews of the vessels themselves."

quite surprised at the inhospitable treatment with which they were thus threatened. But seeing that they were easily got rid of, I made signs for them to advance, to which they responded with a will. I gave them lines over the stern, and after letting them tow in our wake long enough to enable me to examine the contents of their canoes to satisfy myself that they had no offensive weapons with them, I let them come alongside.

Now a scramble for the deck would have ensued, but for the orders I had given them to remain in their canoes, and seeing how determined I was, they did so without farther trouble. Trading now commenced for mats, cocoanuts, shells, hats, beautiful cable-laid coir fishing lines of all sizes, a few plates of tortoise-shell, which I think good, and a very curious dress made of coir; this appeared as if made for the purpose of protecting the legs and part of the body from arrows; it is beautifully made, and reaches from the ankle to the hip, and suspended by braces attached to the dress; it is ornamented with human hair, and in many places also sewn with hair. In exchange we gave them bits of iron hoop, tobacco, old files, biscuit, and old knives. I made a bit of hoop, six inches long, the price of a cocoanut, which seemed to satisfy them. The only other article they asked for was powder, of which I gave but a very limited quantity.

We sent a bucket of biscuit down to the small canoe in exchange for a coir dress; but it appears that the wrong man got the bread and refused to give it up to the owner of the dress. However, I thought it best to stop trading with that boat until we got value for our biscuit. But they did not put up with our neglect long, for in a few minutes they cast off the rope and made for the island. There was an old woman in that canoe, and also the only fowl we saw in their possession.

As I had but one canoe now to deal with, I backed the mainyard, as it was with great difficulty they could keep their canoe from swamping. It is a wonder they did not ask me to do this before, as they appeared much pleased when I stopped the vessel's way. The canoe that had left seemed to hesitate now whether to return to us or not; the natives that were alongside joking and laughing at them, and evidently enjoyed having all the trade to themselves.

Trading now recommenced with a will, and we soon cleared the canoe, on which I ordered them off (as having but one canoe to deal with I had allowed them on deck). They immediately got into their canoe and left without the slightest hesitation, and appeared quite satisfied with their visit.

I never saw a more pleasing cast of features. Their hair was nicely cut, and I observed that three of them had their heads shaved in front, similar to the Javanese; I think they were superiors of some kind, as one of them steered and the others did not pull. They were a fine able bodied set, tall and powerful; had beautiful white teeth. Their dress consisted of a fringe of cocoanut leaves cut into narrow strips, reaching half way to the knee, and was very decent. The

woman had the same covering as the men. They were neither tatooed nor painted; I did not observe them chew anything but tobacco, of which they seemed exceedingly fond. Strange to say, they did not ask for anything to eat or drink while on board, nor on leaving the ship, although they were about twelve miles from the island when they left. The large canoe had no outrigger, but the small one had a double one. They were built of planks sewn together with cocoa-nut fibre, and well gummed in the seams.

Just as they were leaving, I heard that three white men were on the island; and from what I could make out, they had come out in the canoes that put back. I could not make out what country they belonged to, or how they came there. The natives all spoke more or less English, and what they did speak was with a very good pronunciation. Their language appeared to be soft, and easily pronounced by us. We detected several Malay words spoken by them. From the total absence of arms of any kind, and the happy goodnatured countenances, I should say that whatever they have been they are now to be trusted; but still it is not desirable to go closer than four or five miles to the island, as the chances are that hundreds would collect around the ship, and there would be great difficulty in keeping them from the deck. It appears a beautiful island, and covered with trees. A sand bank seems to rise from the beach, as the summits of the trees may be seen topping over it. This bank must afford them good shelter when visited by storms.

The natives said they had no yams or bananas, but I think they must have misunderstood me, and the reason they did not bring off any was that they had no time to procure any after sighting the vessel. We saw one eat a raw fish (mullet) evidently with much relish Several natives had suppurating sores about them, looking very like the effects of their contact with civilization (?). Alas! what a pity if such should be the case! How soon they will degenerate from the fine healthy fellows they were to-day to poor wretched emaciated beings, and perhaps die away altogether. I am afraid that most of the islands have cause to regret ever seeing the face of a white man. They were a very dark copper-coloured race.

I made the longitude of Pleasant Island 166° 58′ E., which agrees with Captain Cheyne's position. I place reliance in this longitude, as it was but five days since I tested my chronometer by Mitre Island. Raper places Pleasant Island in 167° 20′ E. At 2h. p.m. we crossed the equator.

A set to the westward of more than one knot per hour was experienced since leaving Mitre Island, and sometimes it amounted to 1¾ knots. I may here remark that since leaving lat. 20° S. to the latitude of Brown's Range, 11° 40′ N., long. 162° 15′ E., every evening at sundown a very thick bank of clouds was seen extending from S.W. to W.N.W., presenting just such an appearance as when heavy westwardly winds are about to approach off Tasmania. It would appear quite close, and about 9h. p.m. disappear altogether. We

never once had a breeze from the westward, although expecting it every night. May not this be caused by the westerly monsoon in the Java Sea and Torres Straits?

We had much light winds and calms, attended with lightning and heavy rains till reaching 10° N., when we got a pleasant breeze from N.E., varying to East, until November 15th, when I made San Alessandra, one of the Volcano Islands, and then we had variable winds from N.W. to S.W. until passing through Van Diemen Strait on November 30th, with the wind light at East.

Arrived off the Saddle Islands on December 4th, where a pilot boarded me to conduct the vessel to Shanghai. I have learned since my arrival that all the vessels from the Colonies taking the same route, made as long if not longer passages than I did, some of them fast vessels and in ballast. The *Agnes Holt*, a barque about the same size as the *Nightingale*, coal laden, and certainly not a faster sailer, struck off from Brown's Range, crossed the Marianna Group, in lat. 18° 30′ N., and made direct for the Loo Choo Group, and still keeping on close hauled on the starboard tack, made Video and beat the whole fleet by about twenty-one days to the Saddle Group. Were I to have the same passage to make again, I should never think of going so far North before picking up Westing. A vessel bound to Australia having the same winds that I had, would have had a very good passage down, and much quicker, in my opinion than the long and boisterous voyage round Cape Lewin, and the saving in wear and tear would be very considerable.

And now, sir, as I said before, if any part of this long epistle is worthy of your notice, I shall feel happy in having contributed a few lines to your Magazine.

I remain, &c.,

ANDREW E. B. BROWN

Master of Barque "Nightingale," of Melbourne.

To the Editor of the Nautical Magazine.

We can assure our correspondent that he has produced an interesting and useful letter, and hope we shall again occasionally hear from him, especially about his return voyage. And we may also hope that these unfortunate islanders will be more successful hereafter with passing ships in having a communication with them, so as to establish a traffic and throw off the ban of exclusion under which they are now labouring.

Both of these communications are highly creditable to their authors: the continuation of such will go far to facilitate the navigation between these places.—ED.

THE COMPASS IN IRON SHIPS.—*Syllabus of Three Lectures by G. B. Airy, Esq., Astronomer Royal, at the South Kensington Museum.*

The subject will be treated under the following heads:—

I. Terrestrial Magnetism, and the Magnetism of Permanent Magnets.
II. Transient Induced Magnetism of Iron.
III. Sub-permanent Magnetism of Iron.
IV. Correction of Magnetic Disturbing Forces.
V. Magnetism of Ships, especially of Iron Ships, and Correction of their Magnetic Disturbing Forces on the Ship's Compass.

I.—*Terrestrial Magnetism, and the Magnetism of Permanent Magnets.*

1. Every magnet has two opposite poles, possessing different properties.

2. Every bar-magnet, when freely suspended, takes a definite position, one end pointing to the Magnetic North. (The end which points to the north is usually called the "marked end;" in the magnets used in the illustration of the lectures, it will be distinguished as the end painted *red*, the opposite end being painted *blue.*) In the following articles the words "North" and "South" are always to be understood as meaning "Magnetic North" and "Magnetic South."

3. The force which directs a magnet is not simply a force attracting the marked end towards the north horizon, or a force attracting the unmarked end towards the south horizon; but, if it consist entirely of attraction, is composed of equal attractions of those two kinds. It may consist, wholly or in part, of repulsion of the marked end from the south and repulsion of the unmarked end from the north; but if so, those repulsions are equal. Or, the north part of the earth may attract the red end and repel the blue with equal forces; or the south part of the earth may attract the blue and repel the red, but the forces must be equal. This is proved by the fact that the magnet, as a whole, is not drawn north or south.

4. The direction of one end of a freely suspended magnet towards the north will be used as the practical definition of the marked end of a magnet.

5. The marked end of one magnet repels the marked end of another magnet, whether it be presented sideways or endways. In like manner, the unmarked end of one magnet repels the unmarked end of another. But the marked end of one attracts the unmarked end of another, and *vice versâ*. When a magnet cannot be conveniently suspended, this property may be used, with the assistance of another suspended magnet or compass, for distinguishing the blue and red ends. The points in which the attractive and repulsive powers appear

to be concentrated are called "the poles of the magnet." It may be understood without great inaccuracy that the distance of each pole from the end of the magnet is about $\frac{1}{12}$ of the whole length.

6. A horse-shoe magnet is merely a bent bar-magnet, with poles possessing the same properties as those of a straight bar-magnet.

7. If above a large freely suspended bar-magnet a smaller magnet be freely suspended, when it is raised high it takes the same position as the large magnet, when it is lowered near to it it takes the opposite position, and at a certain intermediate height it is indifferent as to position, no force (apparently) acting on it at all.

8. These observations show that the magnetic attraction of the earth is similar to that of a bar-magnet, but that the part of the earth which resembles in its magnetism the marked or red end of a magnet is on the south side of the place of observation.

9. General principle of ascertaining the relative magnitudes of forces by vibrations of a suitable apparatus. The relative magnitudes of the terrestrial horizontal magnetic forces at different parts of the earth may be ascertained by observing the vibrations of the same magnet at different places. [On Gauss's method, the Astronomer Royal will converse after the lecture.] The forces thus found vary very greatly, being large near the irregular line called the earth's magnetic equator, and becoming insensibly small near the places called the magnetic poles of the earth.

10. In the preceding articles it has been supposed that the magnet is constrained, either by the nature of its mounting, or by the application of weights, to preserve a horizontal position, as it ought to do in compass-cards; (the idea of allowing their needles to dip being totally erroneous.)

11. If the magnet is perfectly free, as in the instance of a dipping needle, it takes a position inclined to the horizon; the marked end of the magnet is greatly depressed, pointing, at Greenwich, 68° below the north horizon, or much nearer to the vertical than to the horizontal direction. The direction thus taken by the free magnet is called "the direction of dip," and the plane perpendicular to it is called "the equatorial plane." (This "equatoreal plane" is carefully to be distinguished from "the earth's magnetic equator," Article 9.)

12. Anticipation of the section on induction. Magnetization of a bar, or reversion of its poles, by "double touch."

13. It is made certain, by reversing the poles of the dipping-needle, that the dipping is not produced by want of balance of the needle, but is a real result of the inclined direction of terrestrial magnetism.

14. At Greenwich, it is inferred from the direction of the dipping-needle, that the horizontal part of terrestrial magnetic force is less than the vertical part in the proportion of 40 to 99, that it is less than the whole inclined force in the proportion of 3 to 8, and that the vertical force is less than the whole inclined force in the proportion of 51 to 55; all very nearly.

15. Exhibition of the dips in different parts of a meridian of the earth. At the magnetic poles the dip is vertical, and there is no horizontal force. At the magnetic equator there is no dip. South of the magnetic equator the unmarked end of the needle dips. The magnitude of the total inclined force is rather less near the equator than in other parts of the earth (it may be stated roughly as one-half of that near the magnetic poles), but it is entirely effective in the horizontal direction.

16. Disturbance of a suspended magnet by a magnet placed below it. When the lower magnet has its marked end to the north, the directive force on the upper magnet is diminished; and when the lower magnet has its marked end to the south, the directive force on the upper magnet is increased; as is shown by its times of vibration.

17. If the lower magnet is made to rotate in a horizontal plane, the position of the upper magnet is disturbed. During half the rotation the marked end of the upper magnet is turned somewhat to the east; and during the other half, it is equally turned towards the west. The deviation vanishes when the lower magnet lies north-and-south either way. The direction of disturbance is that given by the repulsion of similar poles or the attraction of different poles. This disturbance is sometimes called "semicircular deviation."

18. It is important to ascertain how this semicircular deviation will vary in different parts of the earth (where, as stated in Article 9, the magnitudes of the terrestrial horizontal force vary greatly) supposing the same lower magnet to be used, and at the same distance from the upper magnet.

19. Recourse must be had to the mechanical theory of "the composition of forces," the most important theory in the whole circle of sciences, and with which every student of any philosophical subject ought to be perfectly acquainted. Theorem of the "parallelogram of forces."

20. If with a primary force (as, the terrestrial horizontal magnetic force acting on either pole of a magnet) there be combined a new force in a different direction (as, the force of the lower magnet acting on the same pole), the direction of the resultant force will deviate from the direction of the primary (or terrestrial) force. But, the greater is the primary force, the smaller is the deviation. Thus, if a ship carries a magnet under or near her compass, this magnet will produce but a small deviation when the ship is near the terrestrial magnetic equator (where the terrestrial horizontal magnetic force is large), but will produce a great deviation in high magnetic latitudes (where the horizontal magnetic force is small).

21. If the lower or second magnet be not immediately below the upper or first magnet, but be on one side, whether at the same level or not, being however in the position "broadside-on," and if its supporting frame rotate round the vertical axis of the first magnet, the deviation which it produces is semicircular (see Article 17), and vanishes when the second magnet lies north and south. The same

holds when the second magnet is "end-on." But if the second magnet is in an intermediate or inclined position, the deviation is semicircular, but the vanishing of the deviation occurs when the second magnet lies in a position differing from north and south.

22. But, supposing the second magnet to be lower, there is one important difference of these actions. If the first magnet is free to dip, then a second magnet broadside-on will not cause the first magnet to dip, but a magnet end-on, or nearly end-on, will cause the first magnet to dip.

22*. The proportion of the actions of one magnet on another may be calculated with great accuracy, by considering each magnet to consist of two centers of force (attractive or repulsive) near its extremities, acting on the similar centers of force of the other magnet, with equal force in all directions, varying inversely as the square of the distance. It results from this that in any given direction of the line joining their centers, the directive force of one needle upon another varies nearly as the inverse cube of their distance. [On this subject the Astronomer Royal will converse after the lecture.]

23. The "astatic needle" is made by fixing two magnets of equal power on different parts of the same frame, with marked ends in opposite positions. The united frame is then insensible to terrestrial magnetism, but either magnet separately will be affected by the local action of a magnet near it.

23*. The astatic needle may be used to exhibit strikingly the effects of one magnet on another. Thus, if the external magnet be below or at the side of the lower needle of the astatic pair, the latter takes an opposite position as regards red and blue ends; but if the external magnet be moved without change of direction, so as to present an end to the lower needle of the astatic pair, the latter immediately turns so as to take a similar position as regards red and blue ends.

II.—*Transient Induced Magnetism of Iron.*

24. If a soft iron bar, which has not been subject to any special violence, be presented endways to the center of a freely-suspended magnet; the direction of the iron bar being either east and west in the horizontal plane, or any direction included in the equatoreal plane (see Article 11); then no deviation whatever is produced in the magnet. If it be presented endways to either pole of the magnet, it slightly attracts that pole (a fact to be explained below, Article 26). It is indifferent which end of the iron bar be presented. (The bars used in the lecture will be painted white at one end and black at the other, but this is only for convenience of language in handling them; the properties of the two ends are absolutely the same.)

25. If a second magnet with an iron bar in front, but separated by a small interval, be presented to the first magnet, and deviation be thus caused; then upon causing the iron bar to touch the second magnet, the deviation of the first magnet is immediately increased, decreasing again when the iron is separated from the magnet. This

shows that the contact of the second magnet has converted the soft iron, for the time of contact only, into a magnet whose poles are in the same relative position as those of the second magnet; and therefore a red pole of the second magnet produces a blue pole in that part of the iron which is next it, or *vice versâ*. This production of magnetic power in iron by the action of an external magnet is called "induction."

26. This explains the attraction of soft iron by either pole of a magnet. For the magnet-pole by induction produces a pole of the opposite character in the nearest part of the iron; and between poles of opposite character there is attraction. (Article 5.)

27. If a bar of soft iron be held in a vertical position; then, upon raising and depressing it, it is found that the end which is lower (whether the white end or the black end) repels the red end of the magnet and attracts the blue end, and the end which is higher attracts the red end of the magnet and repels the blue end. The bar has become a genuine magnet with red end downwards. But this magnetism is only transient; for upon inverting the iron bar the properties of its ends are inverted; and if it is placed in the equatoreal plane (Article 11) they vanish entirely.

28. This is explained by induction produced by the powerful terrestrial magnetic force in the vertical direction. (Article 14.)

29. The amount of action depends in some degree upon the connexion of the parts of the mass of iron. The same mass in the same general form, but divided into several parts, produces a smaller effect.

30. If a mass, as a cannon-ball, be made to rotate round the suspended magnet in the same horizontal plane, it produces no disturbance when it is north, or south, or east, or west of the magnet's center; but in the intermediate quadrants it produces deviation, changing its character in every successive quadrant, which may be represented (in memory) by saying that "the mass attracts that pole of the magnet which is nearest to it." This is called "quadrantal deviation."

31. The explanation is, that the induction produced by the horizontal part of terrestrial magnetic force converts the mass of iron into a horizontal magnet with red pole always towards the north. (A small magnet carried round always in that position produces a similar effect.) It is to be remarked, that the induction produced by the vertical part of terrestrial force does not appear here; for a small vertical magnet carried round in the same manner produces no effect.

32. It may here be noticed that the quadrantal deviation, thus produced in the compass by a mass of iron in the same horizontal plane, is the same in all parts of the earth. For, referring to the parallelogram of forces (Article 19), if the "primary force" (which is here the terrestrial horizontal force) and the "new force" (which is here the force of the magnetism induced in the mass of iron) be always in the same proportion, the deviation for any definite inclination of the two forces is unaltered. Here they always are in the same proportion;

because the magnetism in the iron, which is induced by the earth's horizontal force, is proportioned to it.

33. If the cannon-ball is higher or lower than the magnet, the deviation vanishes when it is north or south, but not when it is east or west; exhibiting a mixture of semicircular deviation (Article 17) with quadrantal deviation (Article 30). The former is produced by induction from the vertical part of the terrestrial force; it is exactly similar to the effect of a small vertical magnet (with red pole downwards, and with center higher or lower than the deviated magnet) carried round the deviated magnet. The latter has been explained above (Article 31).

34. On further examination, it is seen that all effects are explained by induction in the cannon-ball produced by the total terrestrial action in the direction of dip, converting the cannon-ball for the time into a magnet whose red end points down in the direction of dip.

34*. The law of disturbance may thus be represented (for memory). Through the center of the magnet conceive an equatoreal plane (Article 11) to pass. The mass of iron attracts that end of the magnet which is on the same side of the equatoreal plane as itself.

35. Since the induced horizontal magnet (Article 31) has its red end in the position opposite to that of the earth (Article 8), it follows that one effect of the proximity of such a mass of iron at a lower level than the deviated magnet is, on the whole, to somewhat diminish the directive power of terrestrial magnetism.

36. The ordinary process of magnetizing a steel bar by double touch of two permanent steel magnets is a process of induction, differing from those of soft iron only in this respect, that the steel bar, when it has received the magnetism, retains it permanently.

III.—*Sub-permanent Magnetism of Iron.*

37. When a bar or plate of soft iron, in a state of tremor from mechanical violence, is exposed to external magnetic action, it receives induced magnetism in the same manner as iron in a quiet state (Articles 27 and 34); but the induced magnetism is much more powerful, and is for a long time sensibly permanent: it does not change its direction on changing the position of the bar (as in Article 27), and it does not vanish in any position of the bar. The iron bar has become a true magnet, exactly similar in its action to a magnetized steel magnet: its magnetism however diminishes sensibly in a few days or a few weeks, but a portion remains for many months or years. This has been called "sub-permanent magnetism."

38. The sub-permanent magnetism is most easily produced by striking an iron bar or plate under the action of terrestrial magnetism. The "magnetic anvil," consisting of two planes, one containing the direction of local dip, the other being the equatoreal plane (Art. 11).

39. If a bar or plate be placed on the dip-slope of the magnetic anvil, with its white end downwards, and be struck with a hammer, it becomes a powerful magnet, the white end having the properties of a

magnet's red end, and the black end having the properties of a magnet's blue end.

40. If, now, it be reversed on the dip-slope, with black end downwards, and be struck in the same manner, the black end has the properties of a magnet's red end, and the white end has the properties of a magnet's blue end, the power of the magnet being sensibly equal to what it was before.

41. If the bar, thus charged with sub-permanent magnetism, be placed on the equatoreal slope of the magnetic anvil, and be struck in the same manner, all magnetism will sensibly disappear.

IV.—*Correction of Magnetic Disturbing Forces.*

42. It is impossible to intercept the action of magnetic disturbing forces upon a magnet or compass by surrounding the compass, &c., with any substance whatever. Nothing is known which interrupts magnetic action; and if such a substance could be found, it would also interrupt terrestrial magnetic action (which is of the same nature as the action of a magnet, see Article 8), and the compass, &c., would be useless.

43. The only way of destroying the effect of one magnetic disturbing force is, to introduce another magnetic disturbing agent, whose force follows the same laws and has the same magnitude, but always acts in the opposite direction.

44. The disturbing effect of one magnet, or of several magnets, supposed to rotate round the compass, &c., in a horizontal plane, may be corrected by one magnet, or sometimes more conveniently by two magnets.

45. The disturbing effect of a mass of iron at the same level as the compass, which is quadrantal (Article 30), cannot be corrected by an equal mass on the opposite side; such an application would double the disturbance.

46. But it may be corrected by an equal mass at the position of 90° distant, or by two smaller masses 90° distant each way (and therefore opposite each other).

47. It may also be corrected by placing another compass near to the disturbed compass.

48. The disturbance produced by an elevated or depressed mass of iron can be corrected by applying an equally elevated or depressed mass on the opposite side (which corrects the semicircular deviation (Article 33), but doubles the quadrantal deviation (Articles 30 and 45); together with a large mass 90° distant, or two masses 90° distant on each side (either of which arrangements may be made to correct that doubled quadrantal deviation, see Article 46).

49. Or it may be corrected by using a small magnet to correct the semicircular part (the small magnet being adjusted by trial to make the disturbance disappear when the mass is east or west), and then applying a small mass or two masses 90° distant to correct the quadrantal part.

50. There is inconvenience in effecting by a maguet the whole or a

part of the correction of a disturbance produced by terrestrial induction in masses of iron (as is proposed in Articles 47 and 49); because the action of the magnet is the same in all parts of the earth; whereas the disturbing force produced by induced magnetism in iron is proportioned to the terrestrial force, which varies in different parts of the earth (Article 9), and whose direction relative to the horizon is in some places nearly inverted (Article 15); and thus the correction cannot be made universally effective.

51. The correction of the disturbing force of induced magnetism in one mass by the force of induced magnetism in another mass (as is proposed in Articles 46 and 48), is theoretically perfect in all parts of the earth, because both the disturbing force and the correcting force are proportional to the terrestrial force, and therefore they neutralize each other whatever be the magnitude and direction of that terrestrial force. This applies accurately to action on points near the center of a compass, or applies very nearly to action on all points when the compass is small.

52. When the compass is large and has only one needle, the correction produced by a small mass of iron is not perfect, because it must be brought so close to one pole of the needle that the action on that pole is unduly large. But this inconvenience is almost entirely removed by use of the Admiralty compass with four parallel needles.

53. When the only correction to be effected is that of a quadrantal deviation (Articles 30 and 45), it may be abandoned entirely, provided that a compass-card with modified graduations be used; because the quadrantal deviation is the same in all parts of the earth (Article 32), and therefore the same modification of the compass-card, which correctly alters the apparent card-reading in one part of the earth, will correctly alter it in every other part. [On the construction of this modified card, the Astronomer Royal will converse after the Lecture].

V.—*Magnetism of Ships, especially of Iron Ships, and Correction of the Magnetic Disturbing Forces on the Ship's Compass.*

54. Notes on the principal steps made in the investigation of these subjects, by Flinders, Christie, Barlow, Sabine (for wood-built ships containing some iron); by the Astronomer Royal's experiments on the *Rainbow* and *Ironsides;* by Scoresby, Liverpool Committee, Towson, Rundell, Evans (experiments and approximate theory for iron-built ships); by A. Smith (inferences from Poisson's general theory, change in the form of the numbers exhibited, and theory of the parallel-needle compass). Special treatises, "Admiralty Manual," edited by Captain Evans and Archibald Smith, Esq.; "Practical Information," by John Thomas Towson, Esq., published by the Board of Trade: the latter is strongly recommended to nautical men.

55. For theoretical purposes, and for steering a ship (in a very contracted range of latitude), by a Table of Errors of Compass; it is necessary to measure the disturbance of the compass in numerous positions of the ship. For the practical purpose of correcting the compass it is only necessary to place the ship in a limited number

of positions; eight (at the utmost) at first, and two in subsequent alterations.

56. Methods of measuring the disturbance of the compass :—

By observation, with azimuth sights (at great height above the compass, if necessary), of a very distant mark, whose true bearing by compass is known.

By similar observation of a celestial body, whose astronomical azimuth can be computed and can be converted into magnetic azimuth. (For this purpose a knowledge of the local variation is necessary; it can be taken from Captain Evans' very valuable chart).

By reciprocal observations of azimuths with an azimuth compass on shore in a position free from disturbance (a method practised by the Astronomer Royal for the *Ironsides*, and frequently used since that time).

In circumstances where none of these methods can be used, by observation of a moderately near mark, accompanied with observations which define the position of the compass, and by repeating the observations nearly in the same places upon a wooden raft (as practised by the Astronomer Royal for the *Rainbow*).

The selection or invention of the method to be used must be left to the judgment of the operator under the actual circumstances.

57. Methods of conveniently recording the disturbances :—

By table of errors.

By Napier's diagram, with equilateral triangles.

By concentric circles.

58. Investigation of the deviations in the *Rainbow*, in which the existing theory was first established. General obscurity on the subject. Deviations of the steering compass amounting to 50° marked end drawn to the east, and 50° marked end drawn to the west, according to the position of the ship's head. The first light thrown upon it was derived from observations of the vibration of a magnet freely suspended in the place of the compass, the observations being made with the ship's head N, E, S, W. The vibrations of the same needle were observed on shore. By comparison of these, the proportion of the acting magnetic force on the ship's compass in those different positions of the ship to the earth's undisturbed magnetic force was found. (The acting force with the ship's head nearly south was ten times as great as with her head in the opposite position.) Thus it was found that, representing the earth's force by 100 towards the north, the ship's polar force was represented by 80 towards the stern, and 17 towards the port side, or by 82 in a direction 12° from the stern. (This is the largest that has yet been observed.) By a graphical construction of these elements, based on the parallelogram of forces, it was found that the observed disturbances were accurately represented, with the exception of a small quadrantal quantity, such as would be produced by the iron of the ship nearly towards the head, or towards the stern (Article 30.) A magnet of proper intensity was prepared and placed in the proper position to correct the ship's polar force, and a scroll of

iron was placed on one side (Article 46) to correct the quadrantal deviation, and the compass was then sensibly perfect.

59. Treatment of the deviations in the *Ironsides*. In this operation was invented the method of using two magnets instead of a single one; a most important step, because it gave the means of effecting the correction without calculation. The ship's head was placed magnetic north or south, by the aid of a shore compass viewing her masts, and a magnet was placed on the ship's deck in an athwart position, ahead or astern of the compass, and was slid nearer or farther till it caused the compass to point correctly. Then the ship's head was placed magnetic east or west, and a magnet was placed in a fore-and-aft position on the deck on one side of the compass, and was slid nearer or farther till it caused the compass to point correctly. The first magnet does not disturb the compass in the ship's second position, and the second magnet does not disturb the compass in the ship's first position. Thus the compass was made correct in the four cardinal positions of the ship. Then the ship was placed in an intermediate position, her head 45° east of north, or west of north, and a mass of iron was placed on one side of the compass to correct quadrantal deviation. Then the compass was sensibly perfect. This is the process which is still universally employed. The object in placing the magnets either below the compass or broadside-on is, to avoid introducing a vertical force, which is produced with a magnet end-on (Article 22).

60. Exhibition of the process of correction in a model.

61. Description of the different substances which have been adopted for correction of the quadrantal deviation; scroll of iron plate, small box filled with fine iron chain, masses of cast iron, &c.

62. Continuation of history. After a time, it was found that the polar magnetism of a ship, which was supposed to be permanent, was not really permanent, and the term "sub-permanent" was introduced; in particular, reasons appeared for supposing that the polar magnetism changed rapidly in the course of a ship's first voyages. The Liverpool Committee was appointed to inquire into the whole subject; their three reports are probably the most valuable documents that we possess, referring to these questions. The inquiries were conducted principally by Mr. Towson and Mr. Rundell. Amongst their most important conclusions were these:—

That the direction of a ship's polar magnetism, as affecting her compass, might always be inferred from the position in which she was built.

That therefore it was to be concluded that her magnetism was induced sub-permanent magnetism (Articles 37, 38, 39) produced by the hammer blows in uniting her plates when building.

That much of this was soon lost, when the ship was afloat, but that a part remained, with little alteration for many years.

The Astronomer Royal discussed the records of several ships of the Royal Navy, and also those of the *Royal Charter*, and showed that after the first voyages the change of polar magnetism was small, and generally in the nature of diminution. (Dr. Scoresby's special observa-

tions on the *Royal Charter* had no important relation to the ship's compass.)

63. Very important observations on this matter were made by Captain Evans and Mr. Rundell on the *Great Eastern*, which they followed through several stages after its launching. The transversal polar magnetism diminished very greatly.

64. Among the points elicited by the inquiries of the Liverpool Committee was this, that in many, but not in all, of the merchant ships which they examined, the correction of the compass effected in England failed so much in the southern latitudes as to lead to the impression that the ship's polar magnetism had changed considerably. As far as had been observed, there was no similar change in ships of the Royal Navy. Remarking that, in merchant ships, the compass is nearer to the stern than in ships of the Royal Navy, Mr. Rundell was led to a practical conclusion which ought in all cases to receive attention. The history of an earlier discovery is first to be mentioned.

65. Captain Flinders, who made a voyage of discovery in a wood-built ship in the first years of this century, remarked with great accuracy the errors of his compass, with the ship's head in different directions, and with the ship on different sides of the magnetic equator, and with singular sagacity referred their cause to the induced magnetism in the vertical iron stanchions (Article 27), which were principally a-head of the compass. He suggested that they might be corrected by placing a vertical iron bar astern of the compass. General Sabine, in discussing later voyages, remarked that the change due to position on the globe did not *immediately* follow the change of ship's position; which showed that the magnetism of the stanchions, &c., partook in some measure of the nature of sub-permanent magnetism (Article 37). These remarks nearly exhaust the subject of disturbances in wood-built ships.

66. Mr. Rundell, apparently without any knowledge of Captain Flinders' proposal, remarked that the compass of merchant ships is not far in advance of the great vertical iron bar of the stern post, accompanied in screw steamers by another bar of the rudder-post, and that a magnet which corrected the influence of these bars in north latitudes would increase it in south latitudes, but that a correction valid in all latitudes might be made by fixing a vertical iron bar a-head of the compass. This has been done in several instances, apparently with uniform success, The amount of correction to be produced ought probably to be such as will leave the fore-and-aft magnetism at that place nearly similar to that on other parts of the ship.

67. The disturbance of the compass is undoubtedly simpler when a ship has been built with her keel in the magnetic meridian, but there does not appear to be any strong reason for deciding between the positions of head north and head south.

68. After every care has been taken, the ship's sub-permanent magnetism will change (usually diminishing slowly), and arrangements

ought to be made for meeting this change. Nothing appears preferable to Gray's Adjustible Binnacle.

69. For the application of this, it is necessary to be able to place the ship's head once north (or south), and once east (or west), using for this purpose either a land mark or a celestial body. The dumb card is the most convenient instrument for placing the ship's head in the proper position.

70. Adverting now to the quadrantal deviation. In merchant ships the quadrantal deviation is usually 3° or 4°, or perhaps in a few cases 6°, and in nearly every case it is of that kind which would be produced by a mass of iron exactly a-head or exactly astern of the compass (Article 30), and this may be corrected by a mass of iron placed exactly on one side, or by masses placed exactly on both sides (Article 46), and an error of 6° is not too great, especially when the four-needle card is used, to prevent this from being done conveniently.

71. But in the armed ships lately built for the Royal Navy, with iron decks and iron in every part, the quadrantal deviation amounts to 14°, and it is difficult to correct this by a mass of iron.

72. Perhaps it might be corrected by another compass (Article 47), but the same correction would not be valid in different latitudes. (Article 50.)

73. The Astronomer Royal prefers a modified card. (Article 53.)

74. It has lately been discovered by Captain Evans, that in the wood-built ships covered with the thickest armour-plates, the quadrantal deviation is small, not exceeding 3° or 4°. This is analogous to what is described in Article 29. It appears to show that the riveting of the plates of an iron-built ship produces what may be called "magnetic contact," but that the juxta-position of large masses of iron does not produce magnetic contact. In the latter case, the simple theory of the Astronomer Royal (*Phil. Trans.*, 1839), appears preferable to the general theory of Poisson. The form of their results is the same, but the coefficients are different.

75. In the turret ships lately built it has been necessary to place the compasses out of the central line of the ship's deck. That ex-centric position modifies the law of quadrantal deviation in this way, that the quadrantal deviation is represented by the effect of a mass of iron not exactly a-head or exactly a-stern of the compass, but in a direction somewhere intermediate between the fore-and-aft direction and the transversal direction. The difference which this would make in the correction would be the following:—After having adjusted the transversal magnet to make the correction complete with the ship's head north, the correction would be found incomplete with head south; and the adjustment must be altered till the error is divided between the two positions. In like manner with head east and head west. By remarking the magnitudes of the residual errors in different positions, the operator will determine with considerable accuracy the direction of the ship's head when the error is 0; and the mass of iron must be either towards N. or S., or towards E. or W., with the ship's head in that

direction. That choice of positions being determined for the mass, the ship must be turned 45° from the said direction, and the mass is to be adjusted to make the compass correct. A modified card might be adapted to the compass, but it would require a special commencement of readings.

76. The order of operations ought in all cases to be this:—

(1.) For a compass near the stern Rundell's vertical bar ought to be fixed.

(2.) The two magnets, or systems of magnets, for effecting the correction with the ship's head N., E., S., W. ought to be applied.

(3.) The masses of iron for correcting the quadrantal deviation ought to be applied, or the modified card ought to be mounted. These will never require alteration, whatever alteration be made in the magnets.

(4.) The ship should, if possible, be sent on a short voyage; or should be exposed to agitation by the sea, and to tremor by her machinery, in different positions of her head, for several days.

(5.) The positions of the magnets ought to be re-adjusted. It will probably be sufficient to place the ship once with her head N. (or S.), and once with her head E. (or W.)

77. *It is of very great importance that the ship should not be hurried out immediately for a long voyage, but that she should be exposed to agitation and tremors, with her head in different directions, several days at least, and that her magnets should be re-adjusted before sailing on a long voyage.*

78. On the voyage, the captain should be prepared to re-adjust the magnets, as is described in Articles 69 and 59 (omitting all that relates to correction of quadrantal deviation, which will never alter).

79. Some of the methods described in the Admiralty "Manual" relate to the determinations in different localities, and at different times, of the principal elements of magnetic disturbance, as, the error of the lubber-line, the sub-permanent or other polar forces towards the ship's head and the ship's side, the apparent direction and measure of action of the masses which act by induction (Article 30), and the loss of directive power (Article 35). In instance of the importance of these determinations, it may be pointed out that in iron ships of the Royal Navy the loss of directive power is from $\frac{1}{8}$ to $\frac{1}{6}$ of the whole. These methods are of the highest value for the philosophical investigations connected with compass-disturbance, and are strongly recommended to the advanced mathematician; but they are not likely to be useful in the merchant service.

80. Others of the methods in the "Manual" relate to the possibility of converting a table of errors determined for one locality into a table of errors applicable to another locality. It does not appear probable that such a process can ever be used in the merchant service.

81. On the general question of "correction or non-correction" of the compass, the arguments appear to stand as follows:—(It is to be remarked that, if the ship's sub-permanent magnetism undergoes a

change, it affects both systems with equal injury, and therefore that occurrence is omitted in the comparison.)

Non-Corrected Compass. (Using a Table of Errors.)	*Corrected Compass.* (The Binnacle being adjustible.)
The directive power on the compass is extremely different on different courses.	The directive power on the compass is sensibly constant.
The principal part of the tabulated errors arises from sub-permanent magnetism, whose effects in producing deviation vary greatly in different parts of the earth (Art. 20).	The magnets which perfectly correct the sub-permanent magnetism in one place will also perfectly correct it in another place.
It is therefore absolutely necessary from time to time to make a new Table of Errors by observations in numerous positions (not fewer than 8) of the ship's head.	Only when there is suspicion of change in the ship's magnetism are new observations necessary, and then two are sufficient (Article 69).
In difficult navigation, as in the channels of the Thames or the Mersey, especially with frequent tacks, the use of a Table of Errors would be attended with great danger.	In any hydrographical difficulty, the corrected compass is right on all tacks of the ship, and its use is perfectly simple.

82. The Astronomer Royal has no hesitation in giving his own opinion that the compasses used for directing the ship's course ought to be corrected, and that the efforts of scientific men ought to be directed mainly to the rendering this correction rigorously accurate, and easy of application. But the captain, who desires to make his voyages really serviceable to magnetic science, must have one compass on board which either is not corrected, or whose correction is never altered, and must frequently observe it, not for the purpose of steering his ship, but for the collection of magnetical facts. This, however, is to be considered as a philosophical experiment, not as an aid to navigation.

83. The disturbances and their corrections, as treated up to this Article, apply to a ship on even beam, or without any heel; and, by using the methods above described, there is no difficulty whatever in making the correction sensibly perfect. The heeling, at present, offers considerable difficulty, not in estimation of its magnitude, or in application of a correction at any one place, but in doing this in a way which will apply at all parts of the earth.

84. The general law of the effect of heeling is this:—When a ship's head is east or west, no sensible effect is produced by heeling. When the ship's head is north or south, heeling produces the greatest effect. Usually, but not in all cases, the marked end of the needle is attracted to the windward or raised side of the ship in north latitudes, and the unmarked end in south latitudes. Usually, in iron ships, with ship's head north or south, one degree of heel produces one degree of disturbance of the compass; but in some instances one degree of heel produces two degrees of disturbance of the compass.

84. The disturbance by heeling appears to arise immediately from these separate causes:—

(1.) Part of the action of the sub-permanent magnetism is perpendicular to the deck, and this has not been touched by the operations of correction of the forces in the plane of the deck (if the magnets are applied broadside on). When the ship heels, this untouched magnetism is inclined to the horizon, and produces partly the effect of horizontal magnetism, and thus disturbs the compass. If the blue end of the magnetism perpendicular to ship's deck is uppermost, it will attract the marked or red end of the compass.

(2.) If there are masses of iron fore-and-aft of the compass, and also masses of iron to starboard and port of the compass, and other masses added for correction of quadrantal deviation; the masses fore-and-aft will produce no new effect from heeling, but the masses to port and starboard will be raised on the windward side and lowered on the leeward. The red end of the former, which is its lower surface, will be nearest to the needle, and will repel the marked end; and in like manner the upper or blue magnetism of the mass on the lee side will attract it.

(3.) A mass near the ship's keel, considered in the same way, will have an effect opposite to that of (2) but agreeing with that of (1).

(4.) A transversal deck-beam nearly under the compass will, on being inclined by the heeling, have blue magnetism in its higher end, which will attract the marked end of the compass, agreeing with (1) and (3). It appears that, in most instances, the aggregate effects of (1), (3), and (4), exceed that of (2).

85. Attempts have been made to separate these various effects by theoretical considerations, but their success appears doubtful. [The Astronomer Royal will converse on these after the Lecture.]

86. There appears to be no safe way of determining the amount of the effect of heeling, except by making the ship to heel, and observing how much the compass is affected; either by heaving her down (in dock) or by subjecting her to the action of the wind (on a river or sea.)

87. In all cases the effect can be corrected by fixing a magnet below the compass in a position perpendicular to the deck. For, when the ship heels, this magnet becomes inclined, and a portion of its magnetism acts horizontally, and can be made (by trial) exactly to neutralize all the other effects.

88. Gray's binnacles are adapted to receive such a magnet, and to give power of adjusting it. It is carefully to be remarked, that this magnet must be mounted and adjusted *after* fixing the masses of iron used to correct quadrantal deviation (Article 61).

89. Either the magnet may be adjusted in position while the ship is inclined, or the following course may be pursued:—By means of a "clinometer," the ship's inclination may be observed while experiments

are made on the deviation, and thus a proportion may be obtained between the angle of heel and the angle of deviation. By means of an experimental pendulum (whose axis passes through the centre of a compass-card) on which a magnet can slide, the position may be found at which a magnet will produce the same proportion between the angle of heel and the opposite deviation. The distance of this from the center of the experimental card is the distance at which the same magnet must be fixed below the ship's compass.

90. On a voyage into southern seas, these experiments ought to be repeated.

90*. And, as a general rule, a corrected compass ought to be considered available in the same manner as a chronometer for longitude. Very great reliance may be placed on it for even very long distances, but it ought to be checked at every possible opportunity.

91. For experiments on iron ships, the following apparatus (among others) may be found desirable:—

Two or more azimuth compasses (prismatic compasses also are sometimes convenient.)
A dumb card.
A vibrating needle for horizontal intensity; either suspended by a silk fibre, or in the form used by Captain Evans.
A deflexion-needle for horizontal intensity, in Mr. Towson's form.
A vibrating needle for vertical force, in Captain Evans's form.
A dip-needle, balanced to a definite angle, vertical force, in Mr. Towson's form.
An ordinary dipping needle.
A clinometer, or pendulum with graduated arc.
A pendulum adapted to carry a magnet.
Magnets.
Iron for induction experiments.
Magnetic anvil.
[The Astronomer Royal will explain any of these after the Lecture.]

THE MARINER'S COMPASS.—*English and Foreign Names of Points.*

Walthamstow, Essex.

Sir,—In the April number of your valuable Magazine you have benefited the community by publishing the Mariner's Compass in nine languages; and you express a hope that more may be contributed.

Perhaps the three following, viz., in Arabic, Malay, and what may be termed East Indian, (for it is in use from Bombay to Chittagong,) may be of service if you have them not already.

It is somewhat singular that in the Arabic compass all the points (except due North and South) are reckoned from the East and West.

I am, &c.,

ORIENT.

To the Editor of the Nautical Magazine.

Apropos of "y^e^ Mariner's Compasse" or of nothing. Allow me to correct one or two little errors in a letter from "Calcutta, December 21st, 1864," copied from the *Daily News* into your Magazine at pages 140, 141, &c.

"If a vessel reaches the pilot boat at nightfall she must immediately anchor until daylight, even in the clearest and brightest moonlight." —Page 140.

In the *S.W.* monsoon the *pilots* NEVER *anchor if by any possibility it can be avoided.* When circumstances of ship's draft, wind, tide, weather, &c., render it unadvisable to bear up Channel, they keep the ship under easy sail two or three miles to the southward of the *Outer* Floating Light till day dawn. In the N.E. monsoon the Channel is often as smooth as a mill-pond, and it is necessary (and safe) to anchor to wait tide.

"Cyclone . . that awful visitation has already destroyed the anchorage at Kedgeree. Where formerly large ships rode at ease, there is now only 8 feet water."—Page 141.

This is *perfectly true;* but does not convey a correct impression of the fact. No vessel of greater draft than 11 feet could have anchored "off Kedgeree" *(without touching at low water)* since 1853; so that a subsequent reduction of the depth to 8 feet is practically of little importance,—even admitting the cyclone to have been the exciting cause,—for the navigable channel has been for the last two years and more *quite on the opposite side of the river.*

If I had leisure (and inclination) I could write a goodly volume on the past, present, and *future* of the Hooghly and the Mutla. But *cui bono?* The past and present may be found in charts and surveys (I have myself thirty-seven of different portions of the Hooghly, dating from 1764 to 1865); and the future may safely be left to a more daring pen or wiser head than mine. With the utmost honesty of intention, we are all liable to permit our theories to warp our judgment. But facts that I have witnessed as well as collated from *authentic* sources, have failed to convince me either that the Mutla is the nearly unchangeable river it is assumed to be, or that the Hooghly should be sent to Coventry for its sins. I am friendly to both,—but have not the remotest interest in either.

One word more—but it is a useless IF—*if* vessels had been packed in the Mutla as closely as in the Hooghly on that terrible October 5th, nearly all with fine weather spars aloft, though at a hurricane period, scarcely 10 per cent. (am I wrong?) with a spare anchor ready to be dropped, and a spare *cable clear for running,*—few indeed with a sufficient crew of *practised sailors* to carry out on such short notice the hundred and one orders necessary for the most ordinary security. Would the result have been different in the Mutla, if the storm had swept over it? Let us deal with the Hooghly as it is. Ships *crowd* to it, and their officers seem to forget that in a multitude there is little safety indeed when the security of individuals is not sufficiently attended to. Much as I admire the management of British and French commanders, I fear it not unfrequently happens that in the

crowd they both sometimes lose the right sense of their peculiar responsibility—*Preparation.*

English.	*Arabic.*	*East Indian.*	*Malay.*
North	Jah	Guy	Oo-ta-rah
N.b.E.	Mutla Furrue-kut	Guy weejow Choke	Oo-ta-rah kannon Jerrum Pendik
N.N.E.	Mutla Naash	Guy weejow Teer	Oo-ta-rah Teemor lout
N.E.b.N	Mutla Nargar	Guy weejow Teer weejow Choke	Teemor lout Kerry jerrum Pendik
N.E.	Mutla Ey-ook	Guy we-Jow Arkrop	Teemor lout
N.E.b.E.	Mutla Oo-ar-gar	Guy weejow Arkrop weejow Choke	Teemor lout kannon jerrum Pendik
E.N.E.	Mutla See-mook	Mutly dow Teer	Teemor teemor lout
E.b.N.	Mutla Thoroyer	Mutly dow Choke	Teemor kerry jerrum Pendik
East	Mutla	Mutly	Teemor
E.b.S.	Mutla Jo-zar	Mutly weejow Choke	Teemor kannon jerrum Pendik
E.S.E.	Mutla Teer	Mutly weejow Teer	Teemor monon Gherry
S.E.b.E.	Mutla Ark-leel	Sooly dow Arkrop dow Choke	Tonnon Gherry kerry jerrum Pendik
S.E.	Mutla Ark-rop	Sooly dow Arkrop	Tonnon Gherry
S.E.b.S.	Mutla He-mar-reen	Sooly dow Arkrop weejow Choke	Tonnon Gherry kannon jerrum Pendik
S.S.E.	Mutla Tell	Sooly dow Teer	Slarton monnon Gherry
S.b.E.	Mutla Seel-ewwar	Sooly dow Choke	Slarton kerry jerrum Pendik
South	Koctcob	Sooly	Slarton
S.b.W.	Moheeb See-le-war	Sooly weejow Choke	Slarten kannon jerrum Pendik
S.S.W.	Moheeb Tell	Sooly weejow Teer	Slarten Dyer
S.W.b.S.	Moheeb He-mar-reen	Sooly weejow Arkrop dow Choke	Barrook Dyer kerry jerrum Pendik
S.W.	Moheeb Arkrop	Sooly weejow Arkrop	Barrook Dyer
S.W.b.W.	Moheeb Ark-leel	Sooly weejow Arkrop weejow Choke	Barrook Dyer kannon jerrum Pendik
W.S.W.	Moheeb Teer	Cably dow Teer	Barrook Barrook Dyer
W.b.S.	Moheeb Jo-zer	Cably dow Choke	Barrook kerry jerrum Pendik
West	Mo-heeb	Cably	Barrook
W.b.N.	Moheeb Tho-roy-er	Cably weejow Choke	Barrook kannon jerrum Pendik
W.N.W.	Moheeb See-mook	Cably weejow Teer	Barrook Barrook lout
N.W.b.W.	Moheeb Oo-ar-gar	Guy dow Arkrop dow Choke	Barrook lout kerry jerrum Pendik
N.W.	Moheeb Eyook	Guy dow Arkrop	Barrook lout
N.W.b.N.	Moheeb Nargar	Guy dow Teer dow Choke	Barrook lout kannon jerrum Pendik
N.N.W.	Moheeb Naash	Guy dow Teer	Oo-ta-rah Barrook lout
N.b.W.	Mo-heeb Fur-ruk-kut	Guy dow Choke	Oo-ta-rah kerry jerrum Pendik

N.B.—Weejow means starboard or to the right. Dow means port or left.

Our Lifeboat Institution.

(Continued from page 192.)

The evil however was not to be cured in a day. There are two ways of carrying on wrecking, as this mode of obtaining the property of wrecked persons is called. One, altogether criminal, consists in making away with the unfortunate persons who have escaped the storm to take advantage of their misfortune. If such a custom was ever followed in Cornwall (and certainly report leaves little doubt about the matter) I can safely affirm that it has ceased for a long time. Another mistaken notion that seems to have taken deep root is, that which comes from the sea is the property of any one, and that any wreckage after a ship is lost, the property of the drowned becomes the right of the living who has found it on the shore. Such a persuasion is so much to the interest of the residents on the coast that it was readily adopted by all classes of society. It is even related that a clergyman was about to commence his sermon in his church, when a person called out "A wreck, a wreck," at which intelligence the whole congregation rose at once, animated by the ardour of the clergyman. But he succeeded, by means of persuasions and threats, in checking somewhat the intentions of his parishioners. Then descending from his pulpit he cried, "Nevertheless, let us have fair play and start together." From the time that these clergy showed themselves so tolerant of wrecking, the surveillance of the coastguard and the measures of the police have considerably assisted with the progress of education to extirpate this wretched system.

The houses in which the lifeboats are kept are generally on dangerous points of the coast. In this respect the choice for the locality of a station is no easy matter. The wrecks on these rock bound shores are not only numerous in some years but are attended by peculiarly sad circumstances. A vessel is injured by striking on these rocks or on the precipitous shore; what is her name? The question may be put to the winds, to the sea, to the remnants of her wreck dancing on the waves. To perish unknown is to perish twice. Such, however, has been the fate of many a vessel on the Cornish coast, of which the name, the country she is from, or the number of her crew and passengers is all unknown. One day, a Newfoundland dog will be seen, the only living creature from a ship's crew: at another time a poor negro succeeds in gaining the shore, having escaped the drawback of the sea, but he is exhausted and dies before he is able to tell the name of the ship he was in.

But the North coast of Cornwall is even worse than the South in respect of danger to navigation, being mostly composed of a series of sharp rocks, detached in places, and submerged, producing breakers in the most sublime confusion. These slaty rocks are of a most capricious formation, changing their nature and colour according to that of the soil. I have seen them on the S.W. coast of Devon in all the

enticing brilliancy of their colour and the surface of the sea slightly agitated by a light air. Near Dartmouth Castle there is a bay which is tolerably deep and traversed by delicate veins of this slate rock. One descends to it by steps cut in the rock, and crossing a wooden bridge thrown over an abyss between two rocks. At their base lies a sandy beach with the sea and a wall of rock on either side of it. At the foot of these rocks, beautifully coloured and facing the sea, issues a stream filtered through the schistous veins and the ardoise. Rather it should be called a fountain, for on turning a copper robinet a stream of water as clear as crystal runs into an iron ladle connected by a chain. This fountain is of great service to the people in the neighbourhood, who being so completely shut up by the sea would otherwise be in about the same position as Tantalus himself, in the midst of water but unable to get any. Meditating on the beauties of the rock scenery as I lay extended on the sand, I observed a child about ten years old come and fill her water jug at the fountain. This done, she remounted the steps with all the agility of youth, appearing and disappearing behind the masses of rocks like a little fairy that one reads of in the legends of the place.

Very different is the appearance of the slate rock on the north coast of Cornwall from that of the south. From a darkish grey, something similar to the bark of a tree about a hundred years old, there it is often intersected by veins of granite, which might be taken for streams of hot metal spread over huge blocks of lava. The slate rock, the fragile material which will crumble in the hand, presents huge masses to the action of the sea, the solidity of which is astonishing, and forms a belt round the land of massive promontories—valleys, indeed, of rocks, and fields of it like ruins. How could a sea, which is invaded by such a material, be otherwise than celebrated for wrecks? A story is told of the feudal Lord of Boscastle, who was desirous of presenting a peal of bells to the solitary church of Forrabury. The bells were cast in London and sent to the Cornish coast by sea. The captain of the vessel was an old sailor, who had (says the story) more faith in his own powers and a fair wind than in the protection of Providence. The vessel had arrived in sight of land off the villa Park Head, and the Black-pit rocks, the summits of which were covered by a multitude of people anxious to welcome the important cargo. Suddenly the sky became darkly clouded, the wind rose furiously, and the ship was thrown among the rocks, covered by the huge seas like avalanches of water. From that time the church bell has become dumb and scarcely to be heard; but on the approach of a storm, and they are not uncommon at Boscastle, seamen declare that they have distinctly heard the bells of the feudal Lord of Boscastle sounding as they lie at the bottom of the sea.

Lifeboat stations have been formed on these difficult coasts at Bude Haven, Padstow, New Quay, and St. Ives. These places, which have their own seamen, are naturally important stations, on account of their advantageous positions for extensive views. Bude, for instance, is a humble village of a group of cottages, but which has for some years

aspired to the rank of a watering place, and is situated in a romantic bay, celebrated for its sands and fine rock scenery. The sands are composed in a great measure of pulverized shells, having been thrown up by the sea and heaped up in masses by the fury of the S.W. wind. The rocks belong to the carboniferous formation, and lie at right angles to the line of the shore, varied with huge contortions. Compass Point and Beacon Hill cast their extensive shadows seaward, and, in calm weather, this bay is delicious. The sea, with the tide of flood marked in fine light weather by the semicircular lines of foam on its surface as it progresses into the bay and washes the strand, is very beautiful; but when the westerly wind sets in, adieu to its placid surface. As wild horses fly before the burning grass of the pampas, so do those coursers of the ocean, the coasting craft, run before these winds ere they become furious as they are wont to do, and sometimes even dash through some friendly opening in the rocky barrier of the strand at the risk of wreck. When I arrived at Bude Haven, the crew of the lifeboat had come in victorious from a wreck. On the 1st September, 1863, the *Conflict* had been seen off the coast making signals of distress. She was from Plymouth, bound to Bristol, when she was overtaken by a gale off Trevose Head. Soon was the lifeboat launched on her mission of safety, with the owner of the vessel himself in her. This same lifeboat had rendered important service on all parts of this coast, abounding as it does with accounts of wreck. I collected facts of heroism, which do honour to their authors and to the institution. Near Padstow, a small fishing village, the brig *Padena*, and the schooner *Betsy*, one from Plymouth, the other from Brixham, driven by a tremendous and a heavy sea, were washed on shore on the 18th of March, 1862, on a bank called the Doom-bar, a quick sand, which is no less fatal to buildings on shore than to ships from sea. The lifeboat, which bears the name of the Prince of Wales, *Albert Edward*, in spite of all difficulties, saved thirteen men of these wrecks.

To each of the different lifeboat stations an excellent barometer is supplied, the daily readings of which, besides being carefully registered on a chart, is placed with it, so that the seamen and fishermen before putting to sea may consult it along with the chart for its previous indications for an interval of days. These barometers are examined by Mr. Glaisher, of the Royal Observatory at Greenwich. In many cases have these diagrams, along with the indications of the barometer, prevented the boats on the approach of bad weather from puttiug to sea, which, in ignorance of the coming storm, they would have done. Satisfied that the sea is affected by meteorological perturbations, the English have lately been considering the connection between this phenomenon and the weather, with the view of making a chart of the winds, a system of observations in which Admiral Fitzroy leads the way, whose system is very well known. There is no doubt that currents of air flow side by side for thousands of miles in opposite directions, and that they also rest over each other, often, indeed, crossing each other at different angles. Sometimes they combine, and then often produce changes in the atmosphere, as the wind may be from the

equator or the nearest pole. But sometimes, such is the strife between these currents of wind, that they produce waterspouts and revolving storms, which are most terrific all the world over. The calculations of Admiral Fitzroy enable him to predict the approach of one of these atmospheric currents at a given place. The intelligence is communicated by telegraph to all parts of the coast which would be threatened. To telegraph the approach of a storm is a pretension which, it must be admitted, has not been without the incredulous; but nevertheless, when caution signals are made, and they are well known on the coasts, all the stations at which they are received make preparations for bad weather. These signals consist of a drum and a cone, made of canvas and hoops, and painted black. The drum, called the "storm drum," notifies the approach; the cone over the drum shows the probable direction of the wind to be expected, and when it is near, a second cone is added. At night, signals are made by means of lights, in triangles or squares. The Admiral, in fact, in England, is a sort of meteorological authority, and has an office, and staff, and electric communication with the various parts of the country; the whole establishment costs, annually, about £5,800 sterling. The art of foretelling the weather can only be verified by facts, and these are sufficiently numerous to have inspired among the seamen of the coast abundant confidence. As soon as the black drum signal is seen up, those who were going to sea keep fast their anchors, and wait till the threatened danger is over.

But lifeboats are not the only means of saving life from wrecks in England. Certain parts of the Cornish coast, for instance, are so beset with rocks, between which the sea is so fearfully dangerous, that the best could not encounter it to be of service. And it is mostly near the shore that vessels are lost in the midst of off-lying rocks. In this case, recourse is had to a line thrown from a mortar attached to a rocket. The mortar is placed on the shore loaded with a shell, and pointed so as to throw the shell over the vessel in distress. A line is coiled at the mouth of the mortar, to the end of which the shot is attached, and which is taken out by it on firing the mortar. If a rocket be used instead, the effect is the same; but this will reach a distance of above 300 yards. The line is seized by the crew of the vessel in distress, who fasten a rope to the end of it, which is hauled on shore by the men of the mortar, and thus a communication is secured with the shore.* This rope then forms a kind of bridge between the ship and the shore, and by means of a pulley, which traverses backwards and forwards on the rope, carrying a cradle or basket, the crew of the vessel are landed one after the other. An eye-witness of this ingenious mode of saving life, related to me the circumstance of two children being thus, in a basket with their mother, during a dreadful gale. Like a frightened bird covering its brood with its wings, she covered the children, pressing them in her arms to her heart. She

* A vessel in distress has three modes of signalising it. One by hoisting her ensign with the union downwards, or reversed; another by firing a gun, and a third by burning a tar-barrel. The two last are naturally employed when the vessel is far from the shore, or at night.

was told that she would have a struggle with the waves for them, which would assail her fragile nest; but they were safely landed. In the year 1863, three hundred and twenty-nine persons were saved by the rocket apparatus on the shores of Great Britain.

The lifeboat stations are generally managed by local committees, which are themselves under the direction and patronage of the institution, called "The National Lifeboat Institution," in London. Thus, one would expect to find a useful service managed by the government. No such thing. In England, the state has to defend the coasts, to construct forts, to manage the coastguard against the evil of smuggling, reserving to itself in some sort the ungrateful part of the task, while it abandons the part of generosity to the individual public. The National Lifeboat Institution receives nothing from the government, and depends alone on public charity. From that society a system may be learnt, of which we have but as yet seen the early outlines.

There was a year in which the coasts of England were more than ever visited by gales and disasters among shipping, and this was in 1823. Sir William Hillary then lived in the Isle of Man, who made a resolution that, if he could not lessen the number of shipwrecks, he would, at all events, lighten their effects. He was not rich, for his fortune had been spent in the West Indies, as well as in Essex, where he had equipped, at his own expense, a volunteer regiment of farmers' labourers when Napoleon the First had threatened to invade Great Britain. But if he had not money, he had a noble generous mind and a clear head on his shoulders; and his generous appeal in favour of seamen—shipwrecked seamen—found favour with Mr. Thomas Wilson, a rich merchant of London, and a member of parliament. This gentlemen succeeded also in bringing over to their views some of the richest merchants of the city, who offered to add their contributions to the rest. Lord Liverpool was then prime minister, and he encouraged these gentlemen in their plans, but took good care, in due observance of English customs, not to involve the government funds in an undertaking which belonged entirely to public sympathy. In the commencement of 1824, a public meeting at the London Tavern, at which Dr. Manners Sutton, the Archbishop of Canterbury, presided, and Mr. Wilberforce and Lord John Russell were present, the latter having just entered into public life, a society was formed, of which Mr. Wilson was nominated president;* and the coasts of Northumberland being specially distinguished for this dismal blot on the annals of the mercantile marine, the first lifeboats of the institution were established there. Another was also stationed at the Isle of Man. Sir William Hillary, who had originated the idea from which the society sprung, himself frequently went out in this boat, and contributed to save men from wreck. But one day he nearly lost his life, by being thrown out of his boat by the sea. He was much injured by this accident, and never recovered from its effects. The country was then in a commer-

* He died in 1852, at the age of 85, having presided over the society for 29 years.

cial crisis, and the interest which he had taken in lifeboats. Many local associations died a natural death, and, from want of attention to them, the lifeboats became useless. But the institution could do little, having little more than one or two hundred a year; in fact, it became forgotten. It had not more than twelve stations on the whole coasts of the country; but meanwhile, the wreck of ships increased, with the number continually increasing, that were annually being built.

Such continued to be the condition of the Lifeboat Institution when the fearful disasters, about 1849, occurred, and had the effect of regenerating the establishment. Twenty seamen were drowned in sight of the shore at Shields itself, an event which seemed to rouse the feelings of the people from their apathy. In the year following, the Duke of Northumberland was chosen as president; the committee was reformed, and the valuable assistance of Mr. R. Lewis, a barrister, was obtained, to fulfil the duties of secretary, on which so much depended. Since that time everything has changed. Without interfering in the least with the local committees, the institution has constant reports from each, and through one of its officers, exercises an active control over all the lifeboat stations, which gladly acknowledge the central authority. The several coxswains of the boats have a fixed salary, and the crews which man them on occasions of going out are severally rewarded according to the extent of their services. The consequence of this activity has been to attract the public sympathy for the well-being of the institution. The English are not inclined to encourage good actions, fearing their being badly performed; but as soon as they see a worthy, generous object, with sufficient means to effect it, they are not for withholding their assistance. It is considered that about four millions of pounds sterling are collected annually to the different charitable societies of this country. With such a budget, the charities of our neighbours form what we should consider to be an *imperium in imperio*. The institution now possesses 302 lifeboats, distributed on all the most dangerous coasts of England, each of which cost from five to six hundred pounds sterling, along with its cost of transport, which is one hundred, and the boathouse a hundred and fifty. It is a subject, therefore, in which the capital can only be looked at as considerable, when consigned to the ravages of the storm. No doubt Great Britain can look with pride at her numerous ships of a more costly and valuable description, veritable towns and villages, of iron or wood, riding triumphantly on the waves. But, however admirable may be the British navy, in many respects it is a sight no less to be admired to witness this humble flotilla of boats, well provided, and always ready to brave the storm for the sake of saving life. Many of these lifeboats are presented to the institution by ladies. A lady has even gone to the office of the institution, and left the sum sufficient to build a lifeboat, but refusing to give her name. But, more than this. The same lady has three times since visited the institution, and at each time deposited afresh the cost of a new boat. "I shall be amply repaid," she said, "if I learn that either of these four lifeboats has saved the life of a single person." Her views were realised. In the winter

of 1862, a fearful storm occurred one night on the coast of Ireland. At daylight, a sunken wreck was seen in Dundrum Bay, with a man clinging to her rigging, and a common boat went out to rescue him. She was soon capsized by the sea, and six men which formed her crew, regained the shore with much difficulty from the surf. Happily, in Dundrum Bay, there was a lifeboat station, presented by this nameless lady; the boat was soon at the wreck, and rescued from between the rigging a man who appeared to give no signs of life; but the boat hastened to the shore with him, where he was restored to sensibility by proper treatment. He was the master of the vessel, who said that his crew had been severally washed off the wreck during the night.

These donations of lifeboats are frequently the gifts of gratitude. It is about four years since that the boat in which a lady of nobility, when making an excursion on the coast, was run foul by a fishing lugger, very much injured, and swamped. The lady was saved by one of her friends, and with difficulty got to the shore. She immediately presented the sum of three hundred pounds to the institution to establish a new lifeboat station on the coast of Ireland. This boat was stationed at Carnsore, a small village among the rocks near Wexford. The next winter, the *Guyana*, a vessel from Glasgow, was in distress off Carnsore, in a frightful sea. The Carnsore lifeboat went out to her assistance, and released 19 men from their forlorn condition, after an exposure to the sea of five hours, and the imminent risk of their lives, bringing them safe and sound on shore.

Sometimes a noble feeling of domestic respect originates the presentation of a lifeboat. Not long ago a person went to the office of the institution, with the offer of a lifeboat, the expense of which he would defray in perpetuity in memory of his mother. At Bude, in Cornwall, may be seen a monument of this kind, in the shape of a stone tablet affixed to the boathouse, containing the inscription—"In memory of Elizabeth Moore Garden, the beloved wife of Robert Theodore Garden, this lifeboat has been presented to the National Lifeboat Institution by their children." The boat was launched for the first time on the 19th June, 1863, the anniversay of the birthday of Elizabeth Moore Garden, whose memory this lifeboat was to perpetuate. It was the custom of middle ages to build a chapel for the repose of the souls of the deceased. The English, since the Reformation, do not believe in the efficacy of prayers for the dead; but if the souls of those who have perished may be considered to hover over terrestrial things, what purer joy can they have, what proof more worthy of them can there be, than that of attaching their names to these saviours from the waves? Will not the divine spirit of humanity prosper the sails of these boats on their errands of mercy? that hasten over the boisterous waves through the darkness even of night, to carry consolation to the despairing mariner?

Generally speaking, the lifeboat charity may be considered under three points:—One person supplies the lifeboat, another purchases the ground on which it is lodged, and a third builds a house for its shelter. Thus the whole work is collective, to which each contributes accord-

ing to means. Thus, often towns subscribe towards the expense of establishing a lifeboat. The town of Ipswich collected £500 for this purpose, and presented it to the institution in 1862; and in the year following, the city of Bath, which is far from the sea, sent £248 towards the establishment of a lifeboat in the Bristol Channel.

It might be asked, does the establishment of these lifeboats fulfil the intentions of their founders? But it is a question easily answered by figures. From 1824 (the year in which the society was formed) to 1863, they have saved the lives of 13,568 persons. The last of these years was especially remarkable for shipwrecks. The autumn gales were more than ever productive of wrecks, common as these gales are on the shores of the British islands. At Yarmouth and Shields the widows and orphans of those who perished in the early days of December may be counted by hundreds. In the midst of such calamities, 4,565 persons have escaped a watery grave; 498 of these were rescued by lifeboats, 329 saved by means of the rocket apparatus, 3,738 either by the boats of the wrecked vessels, or by steamboats, fishing boats, or other means of saving life. It is worthy of remark that the number 498, saved by the lifeboats, constitute what is considered as the desperate cases. But it is quite certain that they could not have been saved by any other process. The lifeboats form a body of reserve, ready for delivering those cases that are the most dangerous, and which their heroic actions encourage each other in the good work.

Another consideration which operates much in favour of lifeboats generally, is the very limited number of accidents met with by those who manage them. Every one knows how dangerous it is to approach the place of a wreck across a sea raised by the fury of the wind in a storm. In such a case, no boat is certain of avoiding all danger; it is beyond all human invention to be able always to overcome the power of the elements, and the lifeboats themselves have often proved the truth of this assertion. Besides, where would all the merit of the boat be, if her crew did not prepare themselves for the most severe trials, only to be described by those who have witnessed them. Men of the strongest and most powerful physical formation are not always proof to the trials before them. Some have contracted nervous affections, which they have never lost. And yet, with all the perils they have to encounter, the institution has only had three fatal catastrophes in all their fleet of boats; and I will refer to that, which occurred on the 3rd of November, 1861. Between four and five o'clock on the afternoon of that day, the sloop *Copeland* was returning, laden with granite, from Aberdeen to Scarborough; but it was in vain she tried to reach the port. Her masts went, and she was being washed by the seas down on a sand bank opposite the Spa, a well known promenade of the place. Nevertheless, the lifeboat was at sea, and hastening to save her crew, whose lives were thus placed in the most imminent danger. The weather was fearful; the wall of the Spa was washed by successive seas with so much violence, as to drive some of the stones from their places. The recoil of the waves was so tremendous, that no other than a lifeboat dare attempt to encounter them; any other could not live for

an instant. From the promenade, over the strand, the crew of the lifeboat could be plainly seen, and even what they said might be heard. Great was the emotion, and loud were the cries along the line of jetties, when the crew of the lifeboat even seemed terror stricken at the scene before them. At one moment dashed against the bar—lying in an abyss of the foaming waves,—when, suddenly, by a violent jerk, her coxswain, Thomas Clayburn, was thrown out of her towards the wall of the Spa, and only saved by a life buoy. Three of the crew were successively washed out of her by the violence of the sea,—the oars broken in the hands of the crew, who were thus vainly contending with the furious sea. The unfortunate crew then threw their line ashore from the boat, and, being strong hands, canted the boat's head across the sea, towards a place for beaching her at the north end of the pier. The instant she touched the ground, the remainder of the crew jumped out of her, before the wave that had retired returned. Seeing their danger, a great many people had come down to render assistance, and then commenced a scene of confusion and disaster, in which some of the shore people and two of the lifeboat's crew perished. One of these was killed by being dashed from the boat against the pier; the other was drowned, being the only one who had neglected to put on his lifebelt. The lifeboat was dashed to pieces against the rocks, being under no control but at the mercy of the sea. Was this a failure? Yes! undoubtedly it was. But the crew of the sloop were saved by another means—the rocket apparatus. But still the lifeboat astonished everybody by her extraordinary qualities under the most appalling circumstances. She yielded nothing, and resisted some severe shocks. In fact, these accidents seem to render the crews of the boats more daring. During the whole of last year, so productive of wrecks, the institution did not lose a single man, and they reckon about 6,000 men in the service of these boats.

(To be continued.)

FLANDERS GALLEYS.

Previously to the days of ambassadors and consuls, and long subsequently, the chief intercourse between Venice and England was maintained by a small fleet of trading vessels, called the "Flanders Galleys;" and so powerful was the influence which these galleys exercised in developing English trade and manufactures, that I venture to enter into their history with some minuteness. This is the more necessary, because the many regulations and notices respecting them, which are to be found in the archives, though very interesting as illustrating the history of commerce generally, are not so obviously and directly connected with this country as to warrant their admission into the body

of the present work, and, in fact, they will be inserted only where the connection is apparent, or the name of England occurs.

The alliance between Baldwin, Count of Flanders and Venice, which began in conquest (A.D. 1202), was more beneficially perpetuated by trade. In the first instance, the traffic was carried on by land; though there is evidence that, even in the 13th century, shipping was occasionally employed. The Flanders galleys, under the immediate auspices of the state, appeared to have made their first voyage in 1317, and though they superseded the inland traffic to a considerable extent, the latter was never wholly abandoned; but, to prevent its competing with the shipping interest, goods sent overland from Venice to any port, and *vice versâ, whilst the Flanders galleys were on the voyage*, or even "on the berth," were compelled to pay a freight or fine for their advantage—the land carriage being always resumed without restrictions whenever the maritime communication chanced to be suspended.

The regulations under which these trading adventures were carried on, are very peculiar. When the markets at home seemed favourable to an export trade, the government proposed to the senate to vote a certain number of galleys for some given voyage. The points of destination were various; and of these, Flanders was only one. When the motion was carried, the galleys were put up to auction. The prices at which they were knocked down are known: we find by an entry in the *Misti Senato* that, in the year 1347, these galleys averaged the price of about 67 lire each; and in the year 1375, five galleys averaged a little more than 81 lire—sums which are much larger than the student would suppose, for the lire mentioned are the lire *grosse*, and these have been ascertained to be each worth twelve golden ducats, or sequins. The captain, or commodore, was *elected* by the grand council; but he was *paid* by the "masters, patrons, or merchants" to whom the vessels were knocked down at the auction; and in the lists of the captains and merchants are to be found the noblest names of the republic.

In 1517, the pay of the commodore, Andrea Piuli, was 600 golden ducats for the voyage; but even in the 14th and 15th centuries, when the salary fell far short of that sum, the captain was expected to keep three servants, and to board the naval officer, or sailing master, who was engaged to work the ship. As time went on, the regulations became more minute. A notary public, two fifers, and two trumpeters, formed an indispensable part of the expedition; and to these, a certain number of physicians, functionaries of more obvious utility, were added, as early as the year 1320. There were also minute regulations with respect to pilots, scribes, and craftsmen, of various specified denominations, whom the masters were obliged to engage. Each vessel was also ordered to take on board 30 archers for its defence, and these were to be commanded by four young patricians, who were to be sent out, "in order," says the decree, "that the noble youth of Venice may see the world, be inured to toil and peril, and learn to expose their lives for their native land." The consideration in which they were held, is

proved by the amount of pay, which was not less than 70 ducats each, and the regulation that they were to board at the upper table.

It was expressly ordained, moreover, that (with certain not very important exceptions, which are noted from time to time) that the captain should have no share whatever in the cargo; and in order to prevent the collision of interests and inclinations between the merchant-masters and a captain appointed by the state, it was enacted that the captains should consult the merchant-passengers, and the committee of Venetian merchants resident at Bruges, as to the ports to be entered, and the course to be pursued. But the senate never chose to give up its supreme control; and we may infer that the spirit of gain was found an unsafe guide for the movements of the fleet, as the senate continued to give its own special directions respecting each voyage. On one occasion, for instance, it prescribes what steps the admiral shall take to ascertain whether it is safe to enter Malaga and Almeria, in consequence of the wars with the Moors, and what ports in Flanders are rendered insecure by the disputes between the municipal governments and the Duke Maximilian. The final decision on these points is by special decree reserved to the captain; and it is further provided that, if that decision be contrary to the commercial interests of the masters, he shall be protected against all action for damages which may be instituted by them in consequence.

The oarsmen (180 in number) on board each galley, were chiefly Sclavonians from the Venetian possessions—a rude and simple, but withal, a hardy and dauntless race. They established in England a confraternity, similar to that which they possessed in Venice, for the purpose of ministering to each other such temporal and spiritual aid as might be needed, and especially the last rites and consolations of religion. They had their special place of sepulture in the neighbourhood of Southampton; and at this day in the pavement of the north aisle of North Stoneham church, four miles from that port, is to be read an inscription, which has much puzzled English antiquaries.

Around the representation of a spread-eagle is carved, in Lombardic characters,

"SEPULTURA DE LA SCHOLA DE SCLAVONI."
"ANO. DNI. MCCCCLXXXXJ."

The Flanders galleys formed the most remarkable trading fleet of the republic, because their ultimate destination was so remote, that the adventure involved an intermediate trade with the principal ports of southern and western Europe. The track of the Flanders galleys seems, with little variation, to have taken the following course;—In the first place, they made for Cape d'Istria, then passed on to Corfu, Otranto, Syracuse, Messina, Naples, Majorca, the principal ports of Spain and Morocco, and then Lisbon. On reaching our coasts, they generally repaired to Camber, before Rye, or the Downs, where they parted company; those destined for England proceeded to Sandwich, Southampton, St. Catherine Point, or London, creating in our English marts as great a sensation as ever did the arrival of the Indian fleet at Calcutta some sixty years since, while their consorts continued

their voyage to Sluys, Middleburg, or Antwerp. On the homeward voyage, they reassembled either at Sandwich or Southampton. London was almost deserted by them in the latter half of the fifteenth century.

The object of the Flanders fleet was, in the first instance, to convey to the west the produce and manufactures of Venice, and of the inland and eastern marts with which she traded, and more especially the wares and produce of Persia and India. These were collected at Trebizond, Constantinople, Damascus, Aleppo, Alexandria, Cairo, and other cities under the jurisdiction of the Soldans, whose subjects monopolised the carrying trade between the Carnatic and the Red Sea. Besides this, the galleys also carried on an intermediate trade, buying cargoes at each port, of such objects as experience proved were marketable at subsequent stages of their progress. It was a trading voyage, which seems to have occupied the greater part of a twelvemonth. The minute details of the various articles of trade are very interesting, as throwing much light on the state of European commerce and civilization; they are too voluminous to be inserted here, but will be given in a preliminary table. At Messina, the galleys loaded for the English market sugar and molasses, comfits, preserved fruits, large coral beads or buttons, Maltese cotton, yarn, and spun cotton, silk yarn, and saltpetre. The depôt of currants was at Patras, and the first mention of this important article of commerce is in the year 1317, on occasion of the first voyage of the Flanders galleys; but there is reason to believe that it was one of the earliest imports into this country, on the commencement of commercial intercourse with the Republic.

Glass and earthenware, though not included in the tariffs published by Dino and Paxi, were certainly sent to England from Venice as early as the 14th century. We find, in the *Commemoriale*, No. IX., p. 3, the registered transcript of a safe-conduct from Richard II., relating to their importation, and given on one of the last days of his unhappy reign; for the document is dated after his arrival in London from Flint Castle. Thirteen days later, according to the accounts inserted by the order of Henry IV. in the rolls of Parliament, his abdication took place.

Of an unexpected article of Venetian trade there is mention, on at least one occasion. In December, 1524, at the port of Almazarron, some officers belonging to the Venetian galleys were arrested by the Holy Office for selling Bibles, with commentaries by the Rabbi Solomon Raschi, a writer of the twelfth century. The prisoners were conveyed to Marcia; nor could the ambassador, Gasparo Contarini, obtain any immediate redress from the emperor, who assured him he would do everything to preserve the friendship of the Republic; but the inquisitors had told him the delinquents had been arrested for selling books against the faith.

The English exports to Bruges and Flanders are stated in a M.S. of the thirteenth century, now in the *Bibliotheque Imperiale*, which was kindly communicated to me by M. L. de Mas Latrie, to be "*laines, cuirs, plombs, estains, charbon de roche, fromage*," all which produce, with the exception of coal, cheese, and lead, finds a place in the "manifests"

of the Flanders galleys. The Flemings wove cloth for themselves, and required merely the raw material. But that English cloth found its way to Venice as early as 1265, is proved by an entry of the Grand Council, which regulates the duty on each piece of English "Stamford." The English cloth was at that time generally dyed abroad; but subsequently it was brought in great quantities both dyed and undyed to Venice, together with the Kerseys and other similar manufactures; and by Venetian merchants these products of English industry were distributed throughout the great fairs of Italy and the ports of the Mediterranean.

The supervision of the senate extended to the most minute details regarding the Flanders galleys, and was exercised with equal vigilance over all their officers and crews from the highest to the lowest. In 1408, special decrees were passed to regulate and enforce the payment of the sailors' reckonings at the taverns; and we find, by an entry in the *Misti Senato*, of the date of 1402, that Lorenzo Contarini, the admiral, received an express commission to go on a pilgrimage from Sandwich to the shrine of St. Thomas at Canterbury, but not to sleep out of his flag ship; and consequently, without permission, he could not, even for a few hours, absent himself from his post. A similar leave of absence granted to another member of the same family in 1429 was thought important enough to be mentioned in the index, which, unfortunately, is all that remains of the last seven volumes of the *Misti Senato*, from 1422 to 1440; these volumes probably "disappeared" in 1797, and by their loss we are deprived, if we may judge by the index, of many interesting particulars relating to the trading fleet of Venice.

The commission of the captain of the Flanders galleys in 1517, begins by charging him in the name of Christ, and as he values Christ's favour, to do his duty uprightly, and to do justice truly and righteously between the subjects of the Signory committed to his care. This was the usual form, but it probably meant much more than a pious exhortation, and, in fact, conferred those supreme powers which were conveyed by the vague vote of the Roman Senate, "*providerent consules ne quid detrimenti Respublica caperet*," and without which the captain could hardly fulfil his responsible office. The people were turbulent and the governments weak. One act of imputed wrong was held to justify reprisals *ad infinitum*. Piracy was common, and not always distinguished from private adventure of a peaceful character. The captain of the galleys must not only be a warrior but a diplomatist. He must have the courage to defend the people entrusted to his charge, and the tact not to commit any further than was inevitable his mistress the Republic.

Late in the history of the Flanders galleys,—precisely on the eve of Bosworth Field,—there occurred a tragedy which brings into view a source of danger, the magnitude of which would scarcely have been appreciated by the modern historian. It is difficult at the present time to realize to the imagination the full operation of a papal excommunication in the middle ages. Off Lisbon, on the 21st of August,

1485, the Flanders galleys, on their voyage to England under Bartolomeo Minio, were attacked by a corsair who is styled "*the son of Columbus*," and amongst whose comrades was the discoverer *Christopher Columbus*. The pirate vessels were six in number, and bore the French flag. One hundred and thirty Venetians were killed and 300 wounded, and an enormous booty was taken: a demand for restitution was made to Charles VII. But the deed was justified on the plea that the Republic was put under interdict by Sixtus IV.

The first notices which we have of the Flanders galleys, at the commencement of their trade with this country, record scenes of turbulence and bloodshed. In the year 1319 the captain or "supercargo" of a Venetian merchant vessel, who was instructed by his employer to sell his sugars in London, and buy wool at Boston for exportation to the Low Countries, was attacked off the Wash by English pirates, and lost his life in defence of his vessel. It was to obtain reparation for this outrage that the first Venetian Ambassador was sent to England: but in 1322, while the dispute was still pending, the Flanders galleys arrived at Southampton, and either with the intention of making reprisals, or, on some fresh provocation, began an affray which terminated in serious loss of life, and which is so recorded in our national annals as to show both the magnitude of the event and the importance attached by the government of Edward II. to the Venetian trade.

Scenes similar in character occurred from time to time. In 1488, Malipiero, the captain of the galleys, complained that he had been attacked by the captain of three English vessels, who claimed the salute; and that eighteen of the assailants and two of the Venetians had been killed. The charge sounds grave; but the assailants had suffered most: and we may presume there were faults on both sides, for Courtenay, Bishop of Winchester, who was sent down by the King to inquire into the matter, recommends that the affair should be compromised with what the Venetians call a "*poto di vino*." The bishop probably spoke French, and used the term "*pot de vin*," in the sense of donative or deodand.

On another occasion Henry VII., whose chief merit as a ruler was a rigid enforcement of the law, executed summary justice on some highwaymen, who had murdered certain Venetian travelling merchants, and hanged them at Southampton in sight of the Venetian fleet. In 1506 we have to calendar the particulars of a visit which Vincenzo Capello, the captain of the galleys, was invited to pay to Henry VII. The King treated him with the greatest familiarity, and, taking him into a small apartment of the palace at Richmond, showed him Catherine of Arragon, the widow of Prince Arthur, practising on the spinet with the Lady Maria Tudor, who at that time was nine years of age. He offered to the admiral the honour of knighthood, which was declined; but Capello consented to quarter the lion of England on his heraldic shield; and he is recorded on his tomb in St. Maria Formosa as the man whom "Henry King of England delighted to honour."

It is a proof of the King's sagacity that he foresaw the storm ga-

thering round the Republic, which afterwards burst upon her in the notorious league of Cambrai. Henry assures the admiral of his own attachment to Venice, but warns him that all the other Princes of Europe were only watching their opportunity to ruin her. Venice at the beginning of the sixteenth century was so steadily advancing in dominion and power that the great continental sovereigns, who aspired to rule in Italy, feared she might prove a bulwark to their ambition. The Pope found her not less in the way of his plans of terrestrial extension, while the petty Italian states feared she might absorb them, and so make some advance to that unity which is now supposed to be the great object of desire to modern Italy. All agreed in plotting her ruin. In 1509 the conspiracy took effect, and for nine years, during which the Republic was engaged in a struggle for existence, the Flanders gafleys never appeared in Southampton Water. During this long interval it is natural to suppose that her place in English commerce must have been filled up to a certain extent by other nations, and her trade with England when she resumed it was probably less valuable than it had been. On the 22nd of May, 1532, the Flanders galleys set sail from Southampton never to return. After that date the merchants of Venice, like Shakespeare's Antonio, sent their "rich argosies" at their own risk, and regulated their movements at their own pleasure.

Even in the earliest days the Flanders galleys did not exclusively engross the maritime trade with England. Vessels belonging to private Venetian merchants were occasionally to be seen at other ports, as, for instance, Boston, Sandwich, and Margate; and a considerable number of Venetian merchants always resided in London. Italy was the instructress of Europe in commerce, as in all other branches of civilization; even to this day account books are kept by the "Italian method," and the technical language of commerce is obviously derived from the Italian.—*R. Brown—Introduction to Calendar of Venetian State Papers.*

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

Ports and Harbours on the N.E. Coast of Queensland.

The following signals are in use at the ports of the colony of Queensland:—

Pilot.—Union Jack at the fore.
Pilot Boat.—White and red flag.
Customs.—Union Jack at the peak.
Water Police (Day Signal).—Ensign at the main.

Water Police (Night Signal).—Gun to be fired, and a bright light hoisted at the peak and the mizen.
Steamboat.—Rendezvous flag at the peak or mizen.
Gunpowder on Board.—Union Jack at the main.
Health Officer.—Blue flag at the main.
Medical Assistance.—No. 5 at the peak.
Mails on Board.—White flag at the fore, to be kept flying until the mails are delivered.
English Mails.—Ensign at the fore.
Exemption (Day Signal).—White flag at the main.
Exemption (Night Signal)—Two bright lights hoisted vertical at a distance of two feet between each lantern, in some conspicuous part of the vessel.
Government Immigrants on Board.—Ensign at the mizen.
Quarantine.—Yellow flag at the main.

Directions for Moreton Bay.—Northern Entrance.

Cape Moreton is the north-eastern point of Moreton Island, and is visible from a ship's deck eight leagues. When first seen from the southward it appears to be detached, as the land between it and the higher points of the island is very low.

The outlying dangers are as follow:—

Smith Rock.—This danger, though of small extent, has not more than seven feet water over it at low water. Its position is nearly midway upon a line drawn between the outer extreme of "Cape Moreton" and Flinders Rocks, and bears from the lighthouse N.b.E.$\frac{1}{2}$E. (easterly), distant two miles.

A ship can keep seaward of it by night so long as the light is not brought southward of S.S.W.$\frac{1}{2}$W., or, by day, she will be, at the least, one-third of a mile *outside* of it so long as "Mount Tempest" (bearing S.S.W.) is open of Cape Moreton; while, if bound into the bay, a safe passage between it and the cape will be ensured by not opening the "Ridge-tree Hills" northward of "North Point," with which they close, but are seen *over*, on the bearing of S.W.$\frac{3}{4}$W.

A black nun buoy is placed S.S.W. two cables' distance from the rock.

In thick weather a stranger, in navigating himself into the pilot ground of Moreton Bay, should, according to the wind, hug the foot of the cape, which is bold on his South hand, or borrow upon the breakers of Flinders Rocks on his North hand, rather than make free with the midway line of approach.

Flinders Rocks.—These are about one-third of a mile in extent, and are dry at half-tide. They lie N.N.E., distant three miles from the northern projection of the cape. The sea always breaks upon these rocks.

Hutchison Shoal has not more than twenty-two feet of water on it. It is dangerous to vessels with a heavy draught of water, and should be avoided by coasters on account of its broken water when the 1$\frac{1}{2}$-knot E.S.E. current sets against a strong easterly wind.

This nucleus of a danger is situated two miles N.$\frac{3}{4}$W. from Flinders

Rocks, Cape Moreton lighthouse bearing N.¼E., distant five and a half miles, and the southern glasshouse W.b.S.

The lighthouse in line with the centre of Flinders Rocks, and bearing S.¾W., leads half a mile OUTSIDE this shoal; or, to ensure being INSIDE, the lighthouse should not be brought southward of S.b.E.; while, to pass northward of it, the glasshouses should not bear westward of W.S.W.; but fishermen can find it, for a take of "schnapper," by bringing Mount Tempest over the Yellow Sand Slip at North Point bearing S.¾W., and the glasshouses bearing W.b.S.

By night, vessels are to the westward of the shoal while the Kerosine light at the Yellow Patch is in sight.

Vessels coming from the southward, requiring pilots, should, after passing Cape Moreton, haul up round the North point of Moreton Island, and keep a good look-out for the pilot-vessel or boat, as the case may be—the arrival of any vessel off the port requiring a pilot being signalled from the lighthouse to the pilot station. Should the wind be to the southward of E.S.E., or the westward of N.N.W., vessels may anchor under Moreton Island in safety (with the Yellow Patch bearing about S.E.), from one to one and a half miles from the beach.

N.B.—Strangers making the port of Moreton Bay would do well to pay attention to any signals made from the lighthouse for their guidance.

Directions for Ship Channel.—Vessels intending to enter Moreton Bay by the Ship Channel should, after passing about one mile North of Cape Moreton, steer W.¾N until the Black Perch Buoy off the outermost extreme of the East Banks is passed on the port hand, or until the N.W. extreme of Comboyuro Point bears S.b.E. Mount Tempest (the highest land on the island) will then bear S.S.E., and the lighthouse E.b.S.¾S. The depth of water will be seven and a half fathoms at low water, and the Buoy A will bear S.W. about a mile and a quarter distant. The glasshouses will be seen in clear weather, with the highest (Burwa) bearing W.¼S. After passing the Perch Buoy a vessel may haul up W.b.S., or, should the buoy not be seen, a vessel may steer from the position given by the foregoing bearings a S.W.b.W. course for about two miles, which will take a ship close to the northward of Buoy B, chequered black and white, Mount Tempest bearing S.E.½S., and the lighthouse E.½S. A ship will then be to the westward of the East Banks, and may steer for Moreton Island (bearing in mind that the tides set directly across the channel), by keeping the Buoy B and Mount Tempest a quarter of a point open on the port bow, and passing the red buoy on the N.E. extreme of the West Banks, bearing about S.E.¾S. one and a third miles from Buoy B on the starboard, and the black buoy on the South extreme of Hixson Bank on the port hand. The breadth of the channel between the East and West Banks is about half a mile, and the banks are generally plainly discernible from an elevated position.

Tides.—In the channel between the East and West Banks the first of the ebb sets strong to the N.E. over the banks. After half tide it

takes a more northerly direction; and later, it sets about North and N.N.W. When the tide is flood, and the wind easterly, vessels, on rounding B Buoy, should anchor until slack water, as it is useless to attempt the south-easterly reach while the tide is setting dead to leeward over the West Banks. Vessels in charge of pilots may, however, proceed through the West Channel, by passing about two cables to the westward of the red buoy on the N.E. extreme of the West Bank, in about three and a quarter fathoms at low water, increasing gradually to seven fathoms. The banks on either side of this channel are plainly visible from a vessel's deck. When Comboyuro Point bears East, the water will have deepened to twelve fathoms, and will continue at that depth until it again joins the main channel to the northward of the red buoy on the S.W. spit off Cowan Cowan Point. Strangers should not make use of this channel.

Good anchorage in Yule Roads will be found on the Six Fathom Bank, abreast the pilot station, when the Ship Patch is just open to the westward of Cowan Cowan Point.

N.B.—Strangers are advised not to attempt this channel without a pilot, the Middle Channel offering many advantages to vessels drawing less than twelve feet water.

Mariners are warned against the possibility of the buoys, in exposed situations, being temporarily absent after heavy weather, and the probability of their being for a time replaced by buoys of a description differing from those previously notified.

Directions for Middle Channel.—Vessels, after rounding the North point of Moreton Island, which is deep to within about a cable's length, may haul up and steer W.S.W. until the lighthouse comes on with a white beacon to the N.E. of the small Yellow Sand Patch. Keep these marks on until the Ship Patch is open of Cowan Cowan Point. When Comboyuro Point bears W.S.W., a vessel will be near a black buoy placed on the eastern edge of the banks, which buoy she will pass on the port hand, and before the Ship Patch opens of Cowan Cowan Point a second black buoy will be passed, which is placed on the N.W. spit of the bank. After hauling up, keep the Ship Patch open of Cowan Cowan Point, and proceed towards Yule Roads. With even a fair wind, vessels drawing thirteen feet water should not attempt this channel without a pilot.

Directions for Entering at Night.—Two Kerosine lights are now exhibited on the North end of Moreton Island, and one on Cowan Cowan Point, for the purpose of assisting vessels at night to pass into Moreton Bay through the Middle Channel.

One light is placed a little to the north-eastward of the Small Yellow Patch, and shows a fixed white light from about N.$\frac{1}{4}$E. to W.b.S. This light in a line with the lighthouse leads in through the Middle Channel, in not less than sixteen feet water at low water spring tides—the line of lights passing at one cable's length northward of the Inner Middle Channel Buoy.

Vessels coming from the northward will be to the westward of Hutchison Shoal and Flinders Rocks while this light is kept open.

Vessels from the southward will open the light shortly after rounding the North point of Moreton Island. The light is visible at a distance of at least seven or eight miles.

The second light is placed on Comboyuro Point, showing a faint red to seaward, *i.e.*, from about N.b.E.¼E. eastward. Vessels will be clear of the East Banks while the red light is kept open. It is obscured between N.b.E.¼E. and N.N.W., opening out at the latter bearing as a bright white fixed light, and remaining visible from thence to the W.S.W. of Comboyuro Point. It is again observed between W.S.W. and S.½W., and again opens out between S.½W. and S.E. southerly.

The following directions are to be observed by vessels entering at night:—

Steer with the light on Small Yellow Patch on with lighthouse until the bright white light on Comboyuro Point opens out (the red light on Comboyuro Point having been shut out just before entering the Middle Channel). Then haul up and steer south, until the light on Cowan Cowan Point is opened out (the eye of the observer being 17 feet above the water line). By keeping Cowan Cowan Point Light open, vessels will be well clear of the western edge of the Venus Bank. When the Yellow Patch Light is shut out, a vessel is just abreast the elbow of the bank between Freeman and the Middle Channel. Due allowance must of course be made, after hauling up to the southward, for the proportionate speed of the vessel, and the rate of the tide, which runs N.N.E. and S.S.W. from two to three knots. The Comboyuro Point Light will be obscured on an E.N.E. bearing, and again open out when bearing N.½E. After opening out Comboyuro Point Light on this bearing, vessels will, by keeping this light in sight, be to the westward of the shoal water off Cowan Cowan Point, and to the eastward of the S.W. spit in Yule Roads, and of those portions of the S.W. banks on which there is less than fifteen feet water at low water.

The light on Cowan Cowan Point will be obscured when it bears E.¾N., and will open out N.E.½N., remaining visible between that bearing and N.N.E.¼E. While the light on Cowan Cowan Point is kept in sight between these bearings, a vessel will be clear of the S.W. banks on her starboard, and the Middle Bank on her port hand, being in not less than three fathoms on either side of the channel. Until, however, the Ship Patch bears east, vessels in working to the S.W. may stand across from the line of eclipsed light off the S.E. edge of the S.W. banks, until the light again opens out in a line to the eastward of the Middle Bank. Soon after dipping the Cowan Cowan Light, the lightship at the bar will be visible above the horizon.

Vessels arriving in the port at night, and wishing to anchor on the Six-fathom Bank in Yule Roads, should, while keeping in sight the light on Cowan Cowan Point, anchor as soon as convenient after opening out the Comboyuro Point Light on the N.¾E. bearing.

Directions for Freeman Channel.—No vessels should make use of this channel except constant traders to this port, as the banks are continually undergoing changes in their formation, and the position of the channel is always altering.

It is high water, full and change, at Comboyuro Point at 9h. 30m., and the rise is from three to seven feet. Strong south-easterly winds cause the greatest rise, but, during the prevalence of westerly winds in winter, the rise is sometimes scarcely perceptible. The general set of the flood in the bay is to the south, and the ebb to the north, though in many places the direction of the stream is altered by the shoals.

Directions from Comboyuro Point to the Bar.—From Comboyuro to Cowan Cowan Point the shore is tolerably bold of approach. Vessels should, however, keep the Ship Patch open to the westward of Cowan Cowan Point.

Anchorage may be obtained, as before stated, on the Six-fathom Bank, abreast of the Pilot Station, or off the position marked on the charts as the Watering Place, in from twelve to fourteen fathoms, half a mile from the shore, where wood and water can be obtained. Vessels of light draught of water can anchor on the edge of the bank, in about two and a half fathoms.

The shore between Cowan Cowan and the Ship Patch is fronted by a narrow bank, upon which there is not more than five feet at low water. The south part is about a mile off shore, but the anchorage inside is not accessible for large vessels. When Cowan Cowan Point bears about N.N.E., a direct course can be steered S.S.W. for the river bar, passing a red buoy on the S.W. spit on the starboard, and a black buoy on the Middle Bank on the port hand. A second red buoy, carrying a red flag, is placed off the S.W. spit of the S.W. banks. Anchorage off the bar will be found by the lead, according to draught of water. For vessels of heavy draught, the trees on Mud Island should be brought to bear about E.b.S.½S.; lightship about S.b.W.

Directions for Crossing Brisbane Bar.—To cross the Brisbane Bar, keep Mount Gravatt on with a small dip in the near bushes to the westward of the entrance of the river, until Mount Cotton is seen to the westward of the Inner East Beacon, when a vessel should haul up for Mount Cotton, keeping that hill between the West and Inner East Beacon, which marks clear the banks on either side.

At night, keep the light on the West Beacon open to the westward of the red light on the East Beacon—(this light should not be opened more than one-fourth of the distance between the East Beacon light and the lightship)—and pass the East Beacon at half a cable's length.

South Entrance to Moreton Bay.

Two red beacons—visible from the Flat Rock—are now placed on the South extreme of Moreton Island, to enable vessels entering Rous, or the Amity Point Channel, to pass between the outer banks and over the bar in the deepest water, viz., seventeen feet at low-water spring tides.

This channel is chiefly available for coasting steamers during daylight, when there is not a heavy swell setting in on the coast.

It is not recommended for the use of sailing vessels, except in fine weather, and with a commanding breeze, that will allow them to lay four points to the windward of their course.

The coast current runs at from two to three knots to the southward, close to the outer edge of the bar, and at a lesser speed over the outer portion of the banks, so that, during northerly winds, vessels should be careful not to allow themselves to get to the southward of the line of beacons until well inside the North Break. The tides set fair through this channel at a rate varying from three to four and a half knots, until they come within the influence of the coast current.

The sea always breaks on the north bank, but the space over which the sea breaks on the south bank varies with the amount of swell on the coast.

Seven red and six black buoys and beacons mark the channel for crossing the bay towards Mud Island, between the inner banks.

There is not less than two fathoms at low water spring tides in this channel, except at a point of junction with the Cleveland Ship Channel, where the depth of water is never less than nine feet at low water, spring tides.

Directions.—Vessels from the southward intending to enter Moreton Bay by the South or Amity Point entrance, or Rous Channel, must, after passing either inside or outside of the Flat Rock, keep the northernmost Sand Patch on Moreton Island on the port bow, until the two red beacons on the south extreme of Moreton Island (the innermost of which is the higher of the two, and is surmounted by a red ball) are in a line: keep these beacons in line until inside the north break, when haul up to the southward gradually, keeping at about a cable's length from the edge of the north bank, which is steep-to, and always shows. When near the detached sandbank, haul up for the N.W. extreme of Stradbroke Island, and round the red bouy off the shoal extending to the S.W. of the detached sandbank, after passing which, keep away west, and pass at two cables' length from the S.W. extreme of Moreton Island, which is steep-to. Leave the first black buoy on the port hand, at a distance of about half a cable, and haul up W.b.S. for the S.E. end of the high land on St. Helena. After passing the second black buoy and two red beacons on the starboard hand, haul up S.S.W. for a black beacon about two miles distant, keeping it on with the eastern extremity of Mount Cotton, passing the third red beacon placed on the edge of a sandpit on the starboard hand, and continuing the same course until abreast the second red buoy, when keep away W.b.S.$\frac{1}{4}$S., and pass the fourth red beacon; from thence keep away for and pass on the port hand the third black beacon at a distance not exceeding half a cable, and steer out W.b.N.$\frac{1}{4}$N. in mid-channel, between the inner black and red buoys.

When these buoys are passed, a vessel is in the Ship Channel to Cleveland, across which a course must be steered for the centre of the opening beween Mud and St. Helena Islands; a mid-channel course must be kept between these islands; and a vessel may from thence steer for the anchorage off the bar.

A red buoy is placed off the S.W. extreme of the shoal off Mud Island.

Vessels outward bound through the South entrance should, after

passing Mud Island, steer for the north extreme of high land on Stradbroke Island, until a small smooth-topped cone near the north end of Stradbroke Island bears E.b.S.¼S.,, when they should haul up and steer for it, passing the inner red and black buoys, and passing the inner black beacon as previously directed.

Plans of the South entrance can be obtained at the Port Office.

N.B.—Masters of vessels about leaving Brisbane, and wishing to pass out by the South passage, can ascertain the state of the wind and sea by referring to the Weather Table at the Port Office, which is transmitted daily from Cape Moreton by electric telegraph.

The Light Ship at the Brisbane Bar.

Tidal signals in use on board the light ship, showing the height of water on the bar:—

Day Signals.

Ball at mast head	8 feet
Ball half mast	8½ ,,
Two balls at mast head	9 ,,
Two balls at half mast	9½ ,,
Ball with white flag under at mast head	10 ,,
Ball with white flag under at half mast	10½ ,,
Two balls with white flag under at mast head	11 ,,
Two balls with white flag under at half mast	11½ ,,

Night Signals.

Green light	8 feet.
Red light	8½ ,,
White light	9 ,,
White with red under.	9½ ,,
Red with white under	10 ,,
White with green under	10½ ,,
Green with white under	11 ,,
Green with red under	11½ ,,

(To be continued.)

Particulars of Lights Recently Established.

(Continued from page 219.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
22. Lissa Island	Premontore Point	43° 4·3′ N., 16° 15·3′ E.	Ffl.	125	15	Est. 15th March, 1865.
23. Wicklow Head	Light-vessel	.....	F.	39	9	Est. 30th June, 1865. Red light. The upper light on the Head discontinued.
Kish Bank	.....	.....	..	..	..	Altered from three fixed to show one revolving every minute.*
Arklow Bank	.....	.....	..	..	..	Altered from revolving every minute to revolving every half minute.*

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

* The changes will take place on the same day as when the Wicklow light-vessel is at her station.

Naval Movements at Home and Abroad.

At Home.

The *Phaeton*, 39, screw frigate, Captain George Le G. Bowyear, lying in the basin at Sheerness, was paid out of commission 24th March, the continuous-service blue jackets being allowed leave of absence for six weeks. The *Phaeton* is to be placed in the 3rd division of the Sheerness steam reserve.

In accordance with the orders of the Admiralty, the general court-martial which tried Sergeant Charles Wentworth, Royal Marines, and adjutant's clerk, on a variety of charges, and of misappropriating public money which came into his hands as adjutant's clerk, reassembled 28th March, at the Royal Marine Barracks, Chatham, to reconsider their finding. The Court occupied about two hours in revising its proceedings. The result of its deliberations has been forwarded to the Admiralty.

The *Salamis*, dispatch vessel, Commander Francis A. Suttie, at Portsmouth, steamed to Stokes Bay to try her machinery and speed at the measured mile. She left at half-past eleven, and made altogether eight runs—six at full boiler power, and two at half-boiler power. The mean speed attained at full power was 13¾ knots, and at half power 11½ knots. She returned to the harbour in the afternoon.

The *Sparrowhawk*, screw-corvette, Commander Porcher, left Spithead for Plymouth, *en route* for the South American station.

The *Industry*, screw storeship, Master-Commander Edward C. T. Youell, arrived at Spithead 26th March, with naval stores and a few supernumeraries, from Rio de Janeiro.

The *Shannon*, 35, screw wooden frigate, 2,667 tons, and 600-horse power, Captain Oliver J. Jones, arrived at Spithead 28th March, from the North American and West India stations. She sailed from Port Royal on the 25th of February last, and sighted Bermuda on the 16th March, bringing to England as passengers Captain Arthur, a military officer, and a few naval supernumeraries.

The iron-cased cupola ship *Scorpion*, 4, arrived at Plymouth 26th March from Liverpool. On her passage from Holyhead she averaged 9½ knots under steam only, and 10½ knots under steam and canvas. In her present trim she is considered well adapted for sea purposes. When her guns, ammunition, and additional fuel are on board, she will draw, it is calculated, a foot more.

The *Blazer*, gunboat, has been re-commissioned at Plymouth as a tender to the *Frederick William*, 74, Captain Heathcote. The crew of the *Foam*, gunboat, have been turned over to the *Blazer*.

We understand that Messrs. Laird Brothers, of Liverpool, have laid the keel of another large iron-clad vessel, of about 5,000 tons, for the Royal Navy, and that another well known Liverpool firm has received orders to construct several iron light draught gunboats.

The *Mutine*, screw steam vessel, having been rigged and prepared for service at Woolwich, is to be re-commissioned and receive her crew

and stores. Several of her officers have been appointed, and her armament will consist of 17 guns.

The *Harrier*, screw corvette, Commander Fenwick, has been inspected and paid off at Portsmouth.

The screw frigate *Bristol*, 39, 600-horse power, fitting for the first division of the Chatham Steam Reserve, is ordered to have her armament altered by the substitution of four 110-pounder rifled Armstrongs, in lieu of eight of the 40-pounder Armstrongs. Instructions have likewise been received at Chatham for the armament of the *Undaunted*, *Newcastle*, *Forte*, *Arethusa*, *Phaeton* and *Eurotas*, to be altered in the same manner.

The *Challenger*, 22, 1,462 tons, 400-horse power, recently paid off into the 3rd division of the Chatham Steam Reserve, after being in commission nearly four years, is again being brought forward for commission, and has been placed in No. 3 dock at Sheerness, where the work of preparing her for sea is being carried forward as rapidly as possible. The repairs to the engines and machinery are ordered to take precedence of those of the other vessels. It is reported that this fine corvette is again intended for service with the North American and West Indian squadron, the Admiralty being in favour of employing vessels of this class for that station as being more healthy, and at the same time more economical, than any others.

The Bellerophon.—During the past few weeks several hundred shipwrights, mechanics, and other workmen have been employed in working on board the iron-cased frigate *Bellerophon*, 14, 1,000-horse-power, building at Chatham Dockyard, until a late hour each evening, in order to complete the arrangements for the launch of that vessel. The rapidity with which the *Bellerophon* has been constructed is altogether without a parallel, it being exactly twelve months since the first piece of iron for the keel of the frigate was lowered into the dock in which she now lies. The contrast is the more marked when the length of time the *Achilles*, *Minotaur*, *Agincourt*, and others of our iron-plated frigates were under construction is taken into consideration. Little more than four months have elapsed since the first armour-plate was bolted to the side of the *Bellerophon*. Unlike most of our iron-plated ships, the *Bellerophon* will be launched with a considerable portion of her armour-plating attached to her, and a comparatively brief period will therefore suffice to complete her in all respects for sea.

The Royal Yacht *Elfin*, Master-Commander Balliston, has been placed in No. 1 Dock at Portsmouth, for the purpose of having Dr. Croft's newly patented floats removed, to be replaced by her original ones, so as to be in readiness for her Majesty's annual summer visit to Osborne.

The Commander-in-Chief has issued a notice that the storm signals hitherto hoisted on the telegraph station, Hard, Portsea, will in future be shown from the flagstaff of the semaphore tower, in the dockyard.

A naval court-martial assembled on board the *Victory*, under the presidency of Captain Oliver J. Jones, of the ship *Shannon*, for the trial of Mr. Henry Courland, boatswain of the second class, and doing

duty on board the ship *Harrier*, on a charge of "absenting himself without leave from H.M.S. *Harrier* on the 30th of March last." The court sentenced Mr. Courland to lose one year's seniority, and to be severely reprimanded.

The screw steam gunvessel *Plover*, 5, Commander the Hon. Armar L. Corry, from Port Royal, Feb. 12, arrived at Plymouth 2nd April, and after coaling, she proceeded for Chatham, where she has since arrived.

The *Megæra*, 6, iron screw troop-ship, Captain Montagu B. Dunn, left Plymouth 6th April for Ascension and Rio Janeiro with stores, taking also supernumeraries.

The *Narcissus*, 39, screw frigate, was commissioned at Devonport by Captain Colin A. Campbell.

The iron-cased ship *Research*, 1,253 tons, and 200-horse-power, Captain Arthur Wilmshurst, left the outer basin at Woolwich, on the 11th April, and was made fast in the stream preparatory to the embarcation of her powder and shot to be used in the forthcoming trial of Commander Scott's wrought iron carriage and platform fitted on board for experimental practice under sea way.

Mr. William Pellatt, late master in command of the War Department steam store vessel *Balaclava*, lost on the coast of Wexford, on the 24th February last, was a few days ago examined by a committee, consisting of Captain Gordon, C.B., Superintendent of Military Stores at Woolwich; Captain Harris, from the Board of Trade; and Commander Biddlecombe, Master-Attendant in Woolwich Dockyard, for the purpose of investigating the circumstances attending the wreck of the above-named vessel. The result of the inquiry has been made known at Woolwich, and was that—"Taking into consideration the high testimonials and character of Mr. Pellatt during the lengthened period of service of upwards of twenty-seven years, he is sentenced to be superseded from his duties, and to be mulcted of all pay and emolument for the ensuing three months."

Commander W. F. Blake has hoisted his pennant on board the *Mutine*, 17, screw steamer, on his appointment to the command of that vessel, which is commissioned for service on the Australian station. The *Mutine* is fully rigged, and is shipping her stores. She will have a crew of 175 men, and a detachment of the Woolwich division of Royal Marines.

The armour-plated screw frigate *Minotaur*, now being completed for commission at Sheerness, will be furnished with her armament from the Royal Arsenal, consisting of two 300-pounder Armstrongs on each broadside, for armour-plate penetration, and twenty 110-pounder Armstrong guns on each broadside.

The wrought-iron carriages for heavy guns, of the kind now in use by the Blakely Ordnance Company, have at length been introduced with the approval of the War Department. The first carriage and platform have been tested at Woolwich. The huge 600-pounder gun, known familiarly by the name of "Big Will," was mounted on it, and was fired with a charge of 60lb. of powder and a shot weighing 514lb., but after the first round it was discovered that some of the bolts intended to secure the transom, to which the compressor abuts at the

rear of the carriage, had become displaced. The whole framework was otherwise perfectly sound. The further trial is postponed for a few days in order to repair the defect. The recoil was only two feet.

The *Bristol*, 35, 600-horse-power, fitting for the first division of the Chatham Steam Reserve in the place of the *Arethusa*, 35, 400-horse-power, intended for commission, has received her first instalment of the new pattern 64-pounder muzzle-loading rifled Armstrong guns from the Royal Gun Factory, together with a supply of the 110-pounder breech-loading Armstrongs, which have been sent to her from the Ordnance Wharf, Chatham, in lieu of eight of the 40-pounder Armstrongs previously ordered.

The screw gun vessel *Serpent*, 4, 200-horse power, attached to the steam reserve in the Medway, is now in the hands of the shipwrights and engineers for the purpose of undergoing a thorough refit, overhaul, and repair, as she is required for a lengthened commission in eastern waters, where she will be employed as a surveying ship on the coast of Japan, under the orders of Commander Bullock.

The *Plover*, 5, screw gun vessel, moored alongside the anchor wharf at Chatham, was paid out of commission April 13th. The men received the usual six weeks' leave of absence.

The *Valiant*, iron-clad, lately received out of the hands of the contractors, and sent from Sheerness to Portsmouth to be docked, is ordered to have various defects made good; the estimate for the shipwrights' work alone being £1,500.

The *Revenge* (s.s.), 73, Captain the Hon. Fitzgerald A. C. Foley, bearing the flag of Rear-Admiral Hastings R. Yelverton, arrived in Plymouth Sound 11th April. She brought home 22 invalid soldiers, 16 women, and 40 children.

A court-martial was held 12th April on board the *Royal Adelaide*, guard ship at Devonport, to try Mr. John Chappel, boatswain of the second class, serving on board the *Gladiator*, on a charge of absenting himself without leave and of having been drunk. The prisoner pleaded guilty; but the court, in consideration of the excellent character given him by his testimonials and by Commander Brian, under whom he had served two years, adjudged him to lose 14 days' pay, to forfeit all seniority as a boatswain, and to be dismissed from the *Gladiator*.

The *Edgar*, screw steamship, Captain Hornby, flag ship of Rear-Admiral Sir S. C. Dacres, is under orders to be ready to sail for Lisbon on the 18th April, with Lord Sefton and suite, for the investiture of the King of Portugal with the honour of K.G. His lordship and suite will embark on board the *Fire Queen* steam yacht, Staff-Commander Paul, for Spithead, where the *Edgar* will be in readiness to receive them. His lordship will be accompanied by Lord Henry Percy, Colonel Dudley Carlton, and Mr. Abbott, from the Foreign Office, as well as other gentlemen from the Herald's Office.

The *Tilbury*, 2, gunboat, at Devonport, having undergone a thorough overhaul, is ordered to be commissioned by Lieut. Frederick Harding, late senior of the *Jason*, 21, on the North American and West Indian station. She will have a complement of 40 officers and men.

The *Spider*, 2, gunboat, on the south-east coast of America, is ordered to be recommissioned by Lieut. John Knott, now in command of the *Sheldrake*, on that station.

The *Doterel*, 2, gunboat, on the south-east coast of America, is ordered to be recommissioned by Lieut. Robert Elliott, late senior of the *Hawke*, 64, screw, coastguard vessel on the coast of Ireland.

The *Pigmy*, Commander Veere, left Portland April 13th for Portsmouth.

The following ships are now on their way home:—The *Conqueror*, Captain W. G. Luard; *Euryalus*, Captain W. M. Dowell, C.B.; and *Tartar*, Captain John M. Hayes, C.B., from China. *Miranda*, Captain Robert Jenkins, C.B., from Australia. *Charybdis*, Captain E. W. Turnour, from the Pacific. *Griffon*, Commander J. L. Perry; *Dart*, Commander F. W. Richards; and the *Mullet*, Commander C. H. Simpson, from the West Coast of Africa. *Orestes*, A. H. Gardner, from the East India station. *Curlew*, Commander J. S. Hudson, from the South East Coast of America. *Medea*, Commander D'Arcy S. Preston, from the West Indies.

The *Gleaner*, screw gunboat, at Devonport, has been ordered to be commissioned by Lieut. F. Hardy, for service on the south-east Coast of America. She is to have a complement of 40 officers and men.

The *Revenge*, 73, screw ship, Captain the Hon F. A. C. Foley, at Devonport, is to be put out of commission on the 26th April, and placed in the steam reserve.

The screw frigate *Arethusa*, 35, 3,141 tons, 500-horse-power, Mr. V. F. Johnson, master in charge, attached to the first division of the Chatham Steam Reserve, has been taken into dock for the purpose of having her bottom and valves examined. She has shipped her revised armament from the Ordnance Wharf as follows:—namely, main deck, fourteen 8-inch and twelve 64-pounders; upper deck, eight 40-pounder Armstrongs and one 110-pounder Armstrong; total, 35 guns. The *Arethusa* is the last of the 50-gun sailing frigates converted at Chatham dockyard to a screw steamer, and since her alterations she has not been placed in commission. She will be succeeded in the first division of the steam reserve by the *Bristol*, 39, 3,027 tons, 600-horse power. The armament of the *Bristol* has been altered by the substitution of four 110-pounder Armstrongs for eight of the 40-pounders.

The 17-gun steam sloop *Mutine*, commissioned on the 9th April by Commander William H. Blake, recently commanding the *Alecto*, paid off at Woolwich during an unexpired commission of two years and three months on the south-east coast of America, has left the ordinary and been taken down to the powder-buoy off the Royal Arsenal, to receive her ammunition in readiness for sea. Her destination is the Pacific station. Her armament consists of 13 old 32-pounders and 4 Armstrong guns, and her crew 175 of all ranks.

In accordance with the instructions issued from the Admiralty to Captain Cowper P. Coles, R.N., and to the Master Shipwright's Department at Portsmouth, the chief draughtsman has prepared a set of

drawings, under Captain Coles's supervision and direction, of a seagoing turret ship embodying Captain Coles's ideas in full of the turret principle as applicable to a seagoing ship. The vessel is designed to carry 600-pounder guns or "Big Wills" in her turrets, and the drawings, complete in all their details, were sent in to the Admiralty by Captain Coles during the first week in the present month.

The remaining portion of the Channel squadron, consisting of the *Black Prince*, Captain Lord F. Kerr; the *Prince Consort*, Captain O. Willes, and *Defence*, Captain Phillimore, left Portland Roads on the 17th April to join the *Edgar*, (flag-ship of Admiral S. C. Dacres,) off Portland, after which they proceeded down Channel *en route* to Lisbon. The *Achilles* (ironclad) Captain Vansittart, will join the squadron off Plymouth.

The examination of sub-lieutenants in the royal navy for lieutenants' commissions terminated 13th of April, at the Royal Naval College, Dockyard. The following officers passed:—Messrs. W. J. L. Wharton, W. B. Walpole, J. Hext, W. M'Neil, P. Aldrich, H. F. H. Hallett, J. H. Hodgson, J. Bevan, F. R. B. Kemp, S. C. Holland, and A. Gresley.

The *Formidable*, 84, flag-ship of Vice-Admiral Sir C. Talbot, Commander-in-Chief at the Nore, has sent up topmasts and topgallant masts for the summer season, and has commenced painting down.

Abroad.

The *Psyche*, Sterne, arrived at Malta on the 14th of March from Naples.

The *Revenge*, Hon. F. Foley, arrived at Malta, on the 18th March from Naples. This ship was to leave in a few days for England to be put out of commission, and it is generally understood that Rear-Admiral Yelverton will shift his flag to the *Caledonia*, ironclad frigate.

The *Phœbe*, Captain Fortescue, arrived at Malta on the 20th of March, from Alexandria.

Orders have been received at Malta from the Admiralty to make a series of trials of the ironclads in the Mediterranean, to determine the most economical application of their steam power at given rates of speed.

The *Enterprise* left Malta on the 21st March for Tripoli.

The *Victoria* arrived at Malta March 24th.

The *Aurora*, Sir F. L. M'Clintock, arrived at Barbadoes March 4th from Madeira.

The *Pylades*, Captain Hood, left Malta March 6th for Bermuda.

The *Steady* and the *Duncan*, Admiral Hope, left Demerara for Trinidad on the 25th of March.

The *Fawn*, 17, Commander Hon. W. C. Talbot, arrived at Kingston, Jamaica, March 8th, from Honduras.

The *Rosario*, 11, Commander Vestrium, arrived at Kingston, Jamaica, March 6th, from Vera Cruz.

At Port Royal, March 10th—The *Aboukir*, 80, Commodore Cracroft, C.B.; *Cordelia*, 11, Commander Luxmore; *Fawn*, 17, Commander Hon. W. C. Talbot.

The ship *Tribune*, Captain Lord Viscount Gilford, sailed from Esquimalt on the 28th of January for the South Pacific.

The *Charybdis* arrived at Valparaiso February 10th from Vancouver Isl and.

The *Clio* and *Alert* arrived at Valparaiso February 11th from Juan Fernandez.

The *Archer*, from Fish Bay for Ascension, arrived at St. Helena on the 22nd of February.

The *Tamar* transport arrived at Hong Kong on the 7th February from England.

The *Curlew*, from Monte Video, arrived at Rio Janeiro February 21st and left the 6th of March for England; arrived at Pernambuco on the 20th.

The *Resistance* and *Royal Oak* left Malta for sea, and the *Enterprise* for Tripoli, on March 25th.

The *Pelican* arrived at Malta on March 31st.

The *Revenge* left Malta for England on the 25th of March.

The *Princess Royal* steamer left Bombay March 4th for China with Rear-Admiral St. V. King, C.B., who will take up the Command-in-Chief of the naval forces in China.

The following is an extract of a letter from an officer on board H.M. gunboat *Grasshopper*. It is dated *St. Swatow, December 13th*, 1864:—"When we left St. Swatow in search of pirates, and were going to Amoy on a little business, we were steaming at full speed when we sighted six small junks. As soon as they saw us they set all sail and made off, but we lay to and gave them some grapeshot, and all the men in the junks leaped overboard, and we picked up seventy-six of them naked. It was a horrible sight to see, when we brought them on board, some with their arms and some with their legs off. We then stowed them away like as many pigs, and brought them to the supreme court of mandarins, to whom we gave them up. After we were at Amoy, we returned in the course of three days to the same place we had left the pirates, and there was a sight! there were twenty of them crucified, with nails in their hands and their feet; twenty drowned with stones to them; twenty hanged; sixteen tortured and burned to death."

The ships *Sutlej* and *Alert* arrived at Callao March 12th and 13th respectively from Valparaiso.

The *Steady*, from Barbadoes, and the *Duncan*, from St. Vincent, arrived at St. Lucia March 22nd; and both left 23rd.

The *Aurora* left Trinidad March 11th.

The *Nimble*, Lieutenant Hallowes, arrived at Jamaica March 13th from a cruise, and left 21st for Honduras.

The *Cadmus* arrived at Jamaica March 20th from Portsmouth.

The *Cordelia* left Jamaica March 15th for Honduras.

At Port Royal, March 24th.—The *Aboukir*, 80 guns, Commodore Cracroft, C.B.; *Cadmus*, 21, Captain Gordon; *Fawn*, 17, Commander Hon. Talbot.

The *Cossack*, 20, Lieutenant-Commander Borlase (in charge), returned to Malta 7th April from the Ionian Islands and Greece.

The *Caradoc* 2, despatch-vessel, Lieutenant-Commander E. H, Wilkinson, left Alexandria on the 30th March, with Sir Henry Bulwer. for the coast of Syria and Constantinople. She arrived at Alexandria, from Beyrout, April 7th.

The *Rattler* arrived at Yokohama February 7th from Shanghae.

The *Barossa* arrived at Yokohama February 11th from Shanghae.

Assassination of President Lincoln.

At the last moment we make room for the following extract from the *Daily News*; the foul deeds which it relates have met with general execration!

The following official telegram from Mr. Secretary Stanton has been furnished to us by the United States Legation in London:—

Sir,—It has become my distressing duty to announce to you that last night his Excellency Abraham Lincoln, President of the United States, was assassinated, about the hour of half-past ten o'clock, in his private box at Ford's Theatre, in this city. The president, about eight o'clock, accompanied Mrs. Lincoln to the theatre. Another lady and gentleman were with them in the box. About half-past ten, during a pause in the performance, the assassin entered the box, the door of which was unguarded, hastily approached the president from behind, and discharged a pistol at his head. The bullet entered the back of his head, and penetrated nearly through. The assassin then leaped from the box upon the stage, brandishing a large knife or dagger, and exclaiming, "*Sic semper tyrannis*," and escaped in the rear of the theatre. Immediately upon the discharge the president fell to the floor insensible, and continued in that state until twenty minutes past seven o'clock this morning, when he breathed his last.

About the same time the murder was being committed at the theatre, another assassin presented himself at the door of Mr. Seward's residence, gained admission by representing he had a prescription from Mr. Seward's physician, which he was directed to see administered, and hurried up to the third story chamber, where Mr. Seward was lying. He here discovered Mr. Frederick Seward, struck him over the head, inflicting several wounds, and fracturing the skull in two places, inflicting, it is feared, mortal wounds. He then rushed into the room where Mr. Seward was in bed, attended by a young daughter and a male nurse. The male attendant was stabbed through the lungs, and it is believed will die. The assassin then struck Mr. Seward with a knife or dagger twice in the throat and twice in the face, inflicting terrible wounds. By this time Major Seward, eldest son of the secretary, and another attendant, reached the room, and rushed to the rescue of the secretary; they were also wounded in the conflict, and the assassin escaped. No artery or important blood-vessel was severed by any of the wounds inflicted upon him, but he was for a long time insensible from the loss of blood. Some hope of his possible recovery is entertained.

Immediately upon the death of the president notice was given to Vice-President Johnston, who happened to be in the city, and upon whom the office of president now devolves. He will take the office and assume the functions of president to-day.

The murderer of the president has been discovered, and evidence obtained that these horrible crimes were committed in execution of a conspiracy deliberately planned and set on foot by rebels under pretence of avenging the South and aiding the rebel cause; but it is hoped that the immediate perpetrators will be caught. The feeling occasioned by these atrocious crimes is so

great, sudden, and overwhelming, that I cannot at present do more than communicate them to you.

At the earliest moment yesterday the president called a cabinet meeting, at which General Grant was present. He was more cheerful and happy than I had ever seen him, rejoiced at the near prospect of firm and durable peace at home and abroad, manifested in marked degree the kindness and humanity of his disposition, and the tender and forgiving spirit that so eminently distinguished him. Public notice had been given that he and General Grant would be present at the theatre, and the opportunity of adding the lieutenant-general to the number of victims to be murdered was no doubt seized for the fitting occasion of executing the plans that appear to have been in preparation for some weeks; but General Grant was compelled to be absent, and thus escaped the designs upon him.

It is needless for me to say anything in regard of the influence which this atrocious murder of the president may exercise upon the affairs of this country; but I will only add that, horrible as are the atrocities that have been resorted to by the enemies of the country, they are not likely in any degree to impair the public spirit or postpone the complete final overthrow of the rebellion.

In profound grief for the events which it has become my duty to communicate to you,

I have, &c.,

EDWIN M. STANTON.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, *in March and April*, 1865.

England, East coast, No. 1,607, Thames River, sheet 2, Ramsgate to the Nore, Staff-Commander Calver, R.N., 1864, (3s.)

Canadian Lakes, No. 519, Huron Lake, Admiral Bayfield and United States surveys, corrected to 1864, (2s. 6d.)

Newfoundland, No. 2,918, Saunders Port, with Keppel and Hawke Bays, French survey, 1860, (1s. 6d.)

Newfoundland, 619, Heart's Content and New Perlican Harbours, Captain Orlebar, R.N., 1864, (1s. 6d.)

Tables for converting French Metres, &c., into English Feet and Fathoms, R. C. Carrington, F.R.G.S., 1865, (6d.)

British Lights, 2nd edition, corrected by Dommander Cunsterville, R.N., to April, 1865, (1s. 6d.)

Mediterranean, Africa, North coast, No. 241, Gharah Island to Dernah, Captain Spratt, R.N., C.B., 1861, (2s. 6d.)

Newfoundland, East coast, No. 520 Trinity Harbour and Bays, Captain Orlebar, R.N., 1864, (1s. 6d.)

Nova Scotia, No. 352, sheet 1, Bay of Fundy, Captain Shortland, R.N., 1862, (2s. 6d.)

West Indies, No. 391, Baxo Nuevo or New Bore, Commander Richard Owen, R.N., 1835, (6d.)

West Indies, No. 499, Castries Bay, J. Parsons, Master, R.N., 1863, (1s.)

British Columbia, No. 570, Quatsino Sound, Koprino Harbour, and Hecate Cove, Captain G. H. Richards, R.N., 1862, (1s. 6d.)

South Australia, No. 2,731, Port Phillip, Geelong Harbour, Commander Cox, R.N., 1864, (1s. 6d.)

Pacific Ocean, No. 1,730, Samoa or Navigator Islands, Pago Pago, late Mr. G. Johnson, Master, R.N., 1838, (6d.)

EDWARD DUNSTERVILLE, *Commander R.N.*

Admiralty, Hydrographic Office, 20th April, 1865.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

JUNE, 1865.

SALONICA GULF AND HARBOUR.—*Alterations in the Banks, &c.; and Volo to Enos, both inclusive.*

Barque "Mary Anne Curry," at sea, 3rd April, 1865.

Sir,—Having had the misfortune to be stranded in the inner gulf of Salonica, and such accidents being of frequent occurrence, and my directions for the Black Sea, &c., (which originally appeared in your valuable journal) being generally known, I was particularly requested by Messrs. Abbott Brothers, Lloyd's agents and principal merchants in Salonica, to write on this subject, which it is hoped by appearing in your Magazine may warn others and lead to the desired improvements. By inserting the enclosed article you will greatly oblige

Yours, &c.,

RD. LEIGHTON.

To the Editor of the Nautical Magazine.

1.—The best route to Salonica from the Doro Passage is to pass eastward of Skyros, (which is very irregular, and alters its appearance much in passing it,) and proceeding northward Piperi is the first of a chain of rugged islands extending northward and westward to the main land. They have many rocky islets about them, and the passages should only be used in daylight or with fair winds and favourable circumstances.

2.—In the night care is required in rounding the elbow of these islands, as Psathoura is low and flat, and there is foul ground inside of it.

3.—When in the fairway the lofty cone of Mount Athos is seen to rise boldly out of the sea, and the two peninsulas forming the gulfs of Monte Santo, Kassandra, and Salonica appear bold. Salonica is much the largest gulf, and has a back ground of mountains all round from Mount Athos to Mount Olympus, &c., on the western coast.

4.—Proceeding northward, Cape Kassandra comes in sight like an island, being much lower than the land behind it, and it is found that the lighthouse stands on a low point projecting out from what appears like an island. (This is the first of those deceptive points, and is now indicated by a light fixed and flashing.)

5.—The gulf has deep soundings in the middle, and shallows too suddenly at the sides; and the inner gulf or harbour of Salonica has a general depth of 14 fathoms, and the banks of steep approach.

6.—Proceeding up the gulf. Point Panomi, and nearly opposite to it Point Atherada, are the first dangers. Panomi has a red light on it. The village stands on a low plain, from which the point projects out, very low, off which is again a dangerous spit, that is found to be extending seawards and requires great caution. There is anchorage on both sides of it, and it would form a good pilot station. Remember, there are no pilots as the books lead you to expect.

7.—In the last paragraph I have mentioned the extension of the spit off Panomi Point. The extension of the banks from the shores generally in the inner gulf is what leads to so many accidents, together with the overshadowing of the low marshy lands by the high back ground and the *almost constant mirage* over them. In fact, I have only once seen the north-western side of the inner gulf clear of mirage; when two or three low objects would be visible, probably sandy mounds, more generally the native lateen craft, appearing like windmills, &c., *on the land*, or when the water is muddy, occasioned by the outset of the river, gullies, &c., they seem sometimes as if sailing *beyond the land*.

8.—When I state that the gulf and harbour were surveyed by the staff under Captain Graves, R.N., from what I know of their works in other parts, I think it a sufficient guarantee that the charts were originally correct. I believe the lighthouse on Cape Kara Bournou was placed there contrary to their opinion. But it is now much needed that they should amend the survey and recommend to the Ottoman government to establish some guides, &c. The chart here referred to is that by R. H. Laurie, additions to 1863.

9.—Inside of Point Panomi (6th paragraph) the coast forms low square cliffs; then the land falls to the marsh and salt-pans and the salt-pans point runs out very low about two and a half miles southward of Cape Kara Bournou, (called Touzla Point in the Admiralty chart,) and between them (where the fort is marked on the chart) are some buildings connected with the salt works and large mounds of salt covered with red tiles.

Kara Bournou is a bluff, square cliffed table land, 70 to 100 feet high, rising from the salt-pans, the lighthouse on the point, (light fixed and flashing,) and thence running north-eastward to the next

point, where the coast breaks down and sweeps round in a bay to Mikra Point or Little Kara Bournou. The bottom of this bay is low marshy land, just above high water; one part forming a lake with a small gully to the sea: here some fishing is carried on. Along the edge of this marsh are some sandy mounds.

I have stood into the foregoing bay carrying the general depth of 14 fathoms until the lighthouse was shut in, then standing along shore toward the first point north-eastward of the cape I suddenly shallowed to 9 and 6 fathoms.

[The ship must have been then much too far in shore.—ED.]

The spit with 2 and 3 fathoms on it marked off the point of Kara Bournou [query, Point Touzla] has extended north-eastward toward the next point, and also filled up the bight between the spit off the cape and the salt-pans point southward.

I have watched the discoloured water from the delta of the River Vardar running across and falling directly on Kara Bournou and the salt-pans.

The light on Kara Bournou is useless or worse. The cape itself is the only good natural object to be seen, but there is no leading mark for its shallow water, and as one is induced to borrow on it, it should be known that there is only a channel of about *two miles* of entrance although it is *apparently seven or eight miles across.*

Beyond Mikra Point to the N.E. are some steam mills, &c., from them the white walls and towers of Salonica, climbing up the rising ground, render it conspicuous; but at night nothing is seen excepting in times of illuminations. Immediately northward of Salonica the land is low but not marshy.

10.—Point Atherida (ten miles outside of Kara Bournou) runs out very low, but does not appear to have any spit off it. There are some low square cliffs inside of it, and anchorage in the bay on soft mud, but the water shallows suddenly, and as this agrees with the chart, I think it may remain correct, as there are no deposits.

Then the land breaks down to very low marshes, and the delta of the River Vardar, which projecting out only leaves a breadth of three miles from the bluff Kara Bournou, including shallow banks, whilst the mountains fall back and give the inner gulf or harbour of Salonica the appearance of a large circular bay equal in diameter to the distance across to Salonica, or eleven miles. In reality, however, the channel lies in a direct line from off Kara Bournou to the town, and the low marshes to the north-westward (as described in the 7th paragraph) and the shallow water on that side are extending. See where the "Pole" is marked, about three miles northward of Kara Bournou. [This is the Naziki Bank of the Admiralty chart.—ED.]

11.—I would strongly recommend for the safety of this navigation the following alterations and additional guides:—

The light now on Kara Bournou should be placed on the salt-pans point (see 9th paragraph) and shaded *red* both ways, southward to clear Panomi Spit, and northward for the shallow bank off Kara

Bournou, on which three buoys should be placed, that on the elbow should have a staff and ball.

A new light should be placed on Mikra Point, shaded *red* both ways, southward to prevent a vessel from standing too far into the bay, and northward to indicate the anchorage off Salonica town.

A large conspicuous beacon should be fixed on the outermost point of the Vardar River, opposite Kara Bournou, distant about three miles.

A lightship should be moored off where the shallow water is extending only where the "Pole" is marked about three miles northward of Kara Bournou; both the beacon and the lightship should be adapted to form conspicuous *day marks*, considering the almost constant *mirage* over the adjacent marshes.

Volo to Enos, both inclusive.

In charters for the Grecian Archipelago it is usual to say,—"To load at one safe port between Volo and Enos, both inclusive, orders at Syra." Sometimes it is put in, "orders at Salonica," which should never be allowed, it being the most difficult port to reach, and attempts made to reduce the rate of freight rather than remove to another port.

Orders should always be given at Syra, which has telegraphic communications, but the cable to Athens was broken in 1864.

Much trouble and loss of time have occurred by these places not being well defined in the charts and books. They are five in number. Volo and Salonica well known. Keromoutee (called Kalamoutee on the charts) is a small lake harbour near the S.W. point of the main land inside of Thasso Island.

Port Lagos or Lagos (north-eastward of Thasso Island) in Karagatch Bay by the chart. It is not in the lake, but inside the point forming the East side of the bay, which point has a long spit off it, steep to, and going in you should take soundings on the port hand.

Enos (in the N.E. corner of this sea, northward of the gulf of Xeros). The gulf of Enos is too shallow for ships, and they have to lay on the open coast. It is a bad place, especially in the winter season.

RD. LEIGHTON.
Barque "Mary Anne Curry."

CROZET ISLANDS.

Ship "Transit," Melbourne, 16th February, 1865.

Sir,—I take the liberty of transmitting to you for insertion in your valuable columns the following respecting the position of the Crozet or Desert Islands, Indian Ocean.

In pursuing the circle track to Bass Strait, after reaching the meridian of 38° E., I was forced through stress of weather to deviate from that route, whereby I reduced my latitude to 46° 30′ S. by the time I had reached the meridian of 47° 50′ E., and although the gale at that time had moderated to a whole sail breeze, I did not feel justified in pursuing my course again to the southward to regain the vertex of another circle in consequence of the uncertainty respecting the position of those islands in the vicinity of which it would have led me.

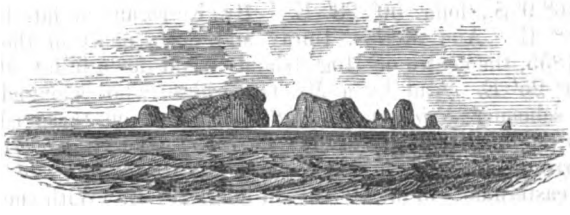
According to the various published works, their position is given varying to the very alarming extent of 120 miles North and South, and the same East and West, which is shown as follows:—

By Norie they are said to be in 46° 45′ S., long. 48° E. By Raper in lat. 46° 9′ S., long. 50° 28′ E. By Kerrigan, in lat. 48° 5′ S., long. 48° E. And Messrs. Imray and Son's chart of the Indian Ocean, 1855, the centre of Hog Island is laid down in lat. 46° 5′ S., long. 50° 25′ E. And by a Mr. Goodridge, who belonged to the London schooner *Princess of Wales*, wrecked on these islands in 1821, as published in *Horsburgh's Directory*, the three westernmost of this group of islands is said to be in lat. 48° S., long. 48° E., and the two easternmost in lat 46° 30′ S., long. 49° E. With such a perplexing account respecting the position of a group of dangerous islands unsurveyed, I deemed it prudent to shape a course to pass to the N.W. of the position laid down on the above named chart.

On the following morning, after a night's run of 120 miles, I made Hog Island, bearing East (magnetic), twelve or fourteen miles. I hauled my wind and passed to the N.W. of them. And by the bearings of the centre of the island taken at two different times, and the course steered during the intervals, and distance run carefully measured by Walker's register log, I found my distance at noon, when the last bearings were taken, to be eight miles from the island, which then bore S.S.W. (mag.), and the largest of the small group, named the Twelve Apostles, bore S.b.E.½E., eight miles by estimation. My latitude, by a good mer. obs., was 45° 47′ S., and longitude by chronometer brought up to noon, 50° 35′ E. Variation by azimuth 34° W., by which I made the centre of Hog Island in lat. 45° 55′ S., long. 50° 37′ E., and the largest of the Twelve Apostles in lat. 45° 52′ S., long. 50° 44′ E. I shaped a course to pass within sight of Possession Island, but saw nothing of it, although the afternoon was both clear and fine. I therefore concluded it must lie to the South of the position assigned it on the chart.

Hog Island is mountainous, rising in the centre to a peak, with hills and valleys on both the North and South sides, and terminating in a rugged point to the S.E., with a bold descent to the West, and might be seen at the distance of from twenty to twenty-five miles, clear weather. I was unable to measure its elevation, as it was greatly enveloped in fog; but the accompanying sketch, taken at the time of passing by my second officer, Mr. Richard Jones, although in pencil may convey a better idea than I am able to describe.

Twelve Apostles and Hog Island as seen with the middle of Hog Island N.N.W. about eight miles. West end bearing S.b.W.; East end S.b.E.¼E. West end of the largest of the Apostles bearing S.E. East end S.E.b.E.



Twelve Apostles as seen from the N.N.W. distant about eight miles. West end bearing S.b.E., and East end S.E.b.S.½S.

Looking at all the dangers lying in this route to her Majesty's possessions in the East, with which this part of the ocean appears to be studded, none of which seem to have been surveyed or their position ascertained with any degree of accuracy, certainly reflects little credit on the British government.

And on my own mind there remains not a doubt but many of those fine ships which of late years have left our shores with valuable cargoes and still more valuable lives of crews and passengers and never been heard of, have taken this route and run against some of these desolate dangers and all perished.

It is certainly high time the commercial and mercantile community of Great Britain was looking into such, and requesting a survey of these regions at the hands of H.M. government.

I have, &c.,

DAVID MOORE,

Commanding the British Ship "Transit," of Bristol.

To the Editor of the Nautical Magazine.

There can be no doubt that the correct position of this group on the chart is most important to navigation, and had our correspondent supplied himself with the South Polar chart, No. 1,240, he would have found them there. He has quoted several authorities, but as the islands are of some extent and points are not mentioned, they must not be expected to coincide. A survey of them is quite unne-

cessary, inasmuch as they have already been examined by the French, and published in their chart of the Southern Ocean.

They are so much out of the way of shipping that they have been but very seldom visited. Sir James Ross touched at Possession Island in 1840, and describes the western sides of the islands as quite unapproachable. In our volume for 1841 we gave Captain Cecille's account of them, and as that volume may not be within reach, we may repeat that account for the benefit of navigators.

"I was enabled during my stay at the Cape of Good Hope to gain correcter information respecting the situation of the islands of Croxet, which are erroneously placed on the charts, even on Horsburgh's. I had learnt that, being exposed by their situation to violent winds they had been so often the scene of disaster that the seal fishery established there had been abandoned some years, and not only that the fishery had ceased, but that all the materials belonging to the establishment had been left behind, a ship not daring to go there for them. The people belonging to it had been recovered with great difficulty by a government vessel, which had made two voyages from the Cape,—thus saving thirteen Frenchmen which the *Harmony*, of Bordeaux, had been obliged to leave there. This information, together with the knowledge that the passage-vessel *Bordelais* would be there in November, and the thoughts of the danger to which she would be exposed, determined me to visit them; a presentiment hinted that I might be serviceable to the cause of humanity. The sequel proved that I had not deceived myself.

"Our voyage across to these islands (Croxet) although short was not without difficulty. Scarcely had we quitted Prince Edward Island when we were obliged to reef; the wind increased more and more during the night, so that by the morning it blew very fresh, accompanied with squalls and heavy rain. The barometer fell rapidly about three quarters of an inch,—towards midday it stood at 28·8 nearly, and within two hours it fell to 28·6." The gale was then at its height, the sea running very high, reduced the *Heroine* to storm sail, and after some boisterous weather, with hail and its general accompaniments, Captain Cecille continues,—"At 4h. a.m. we perceived high land to the eastward, and soon afterwards more bearing S. 57° E., though considerably less than the first. The wind favouring us, we steered for the former for the purpose of examining it: this duty, owing to the very high sea and the bad state of the weather, was a difficult one; but we considered it indispensable that all the islands offering either bay or harbour for anchorage should be visited. We were ignorant which of the four islands (that composed the group of Croxet Islands) was Possession Island, and also in what part of it the bay of Navire lay, in which we expected to find the passage-vessel *Bordelais*.

"We began our task in the N.W., with land which we have since found to be part of Hog Island; and running to the southward along the western shore of it, a mile distant, we satisfied ourselves that it was inaccessible. Having reached its southern extreme, the Twelve

Apostles (a group of rocky islets) bore N. 25° E.; at the same time breakers were reported at a considerable distance bearing S. 50° E. We returned along the eastern coast of Isle Aux Cochons, and ascertained correctly that only the western coast of that island and the Twelve Apostles offered no shelter for ships. We then retraced our course to examine the dangerous breakers which had been reported, and which we had lost sight of, and at 11h. they were three miles W. 28° S. of us. At midday we were enabled to obtain tolerably good observations, notwithstanding the horizon was not perfectly clear, and the sea was very high. We thus fixed the relative positions of the three* islands, as well as the dangerous reef, which was still in sight.

"We then steered for the eastern group. At 4h. p.m. we perceived an island, not only more elevated but of much larger proportions than those we had visited, and which we concluded to be Isle Possession. It was six in the evening when we neared a large perforated rock to the N.W. of the island, and not far from the shore; from this rock we were enabled to see distinctly the whole of this steep coast entirely exposed to the wind, and against which the sea broke with all its fury. As I wished to avail myself of the remainder of the day to explore the eastern coast, we hauled our starboard tacks on board."

In following up this intention, however, Captain Cecille met with unexpected danger, and was glad to work up again to his old acquaintance, the perforated rock before mentioned, and before night got sight of the eastern isle. The next day land was seen at 3h. 30m. a.m., but the wind being light, it was lost sight of, probably from haze, until nine, when Captain Cecille continues:—"We approached the perforated rock in order to proceed with our survey of the eastern coast.

"We had been for some time keeping a southern course along the land, when on the 23rd of November, at three o'clock, we perceived off a point ahead of us two boats coming to meet us; they were soon on board. The crews were Americans, each one being commanded by a captain of that nation. who acquainted us with the loss of their two vessels, the *Atlas* and *Colossus*, on Possession Island, on the 4th of October preceding; they also told us that the passage-boat, *Bordelais*, had been lying in the bay of Navire since the 6th of November. We proceeded thither, intending to anchor at the entrance of the bay, where we found her engaged in the fishery.

"The resources of the *Heroine* offered to Captains Barnum and Randall, as well as twenty-five of their crews, were accepted with

* Hog Island, Twelve Apostles Island, and Penguin Island. These islands are thus situated by Captain Cecille:—

Hog Island. . . .	Latitude	46°	9′	Longitude	50°	28′
Twelve Apostles Island	,,	46	1	,,	50	39
Penguin Island . .	,,	46	33	,,	50	44
And the breakers in .	,,	46	18	,,	50	40

But the parts of islands, whether East, West, North, or South, to which these positions refer are not stated.—ED.

gratitude. I took them on board, in order to transfer them to any ships of their own country that I might happen to meet at the different fishing stations, or at any of the English colonies of Australia where there are consuls. My first care on arriving at this anchorage was to cause a correct survey of the Bay of Navire to be made, so as to enable us to fix its position, hitherto so badly known; a service which was performed by M.M. Fournier and D'Ubraye, in the course of the day.

"The Isles Marion and Croxet, situated between 46° 9′ and 46° 34′ lat. South, 50° 24′ and 52° 20′ East long., are five in number, and are divided into two groups. The largest of the western group is Hog Isle, which is mountainous and high; the coast in many places steep, without any bay or anchorage for ships. The only parts which are at all accessible, and that with difficulty, are a few places on the eastern coast. It abounds with wild hogs and seals. At the distance of nine or ten miles E. 40° S. from the southern point of this isle is a dangerous reef, which appeared to extend about a cable's length. It blew a gale all night, which made the danger formidable.

"About eight or nine miles to the N.E. of the island are the Twelve Apostles, which, strictly speaking, are connected together. Formed by two islets of moderate height, separated by a narrow channel, and surrounded by ten or twelve small rocks, they appeared inaccessible on all sides. A danger is reported to lie three miles S.E. of the Apostles, but we could not see it.

"The most southerly of the Marion Group is Penguin Isle, formed by two very elevated and closely situated islets. It is six miles in circumference, and has the appearance of a sugar-loaf when seen from the N.E. It abounds with seals. The eastern group is composed of Possession Island and the Eastern Isle. To the S.E. of the former one is a small bay, about a quarter of a mile in depth, and about half that in width, called the 'Bay of Navire.' It is situated at the termination of a deep valley, from whence a stream of delicious water runs into the sea. Being open to the East and S.E. winds, which seldom blow with much violence, but sufficiently so as to produce a high sea and considerable surf, it is then very dangerous; but these winds seldom blow between November and the end of February. The N.W. wind, which comes down the valley, is very violent; and when the N.E. and S.W. winds, which blow along the coast, are strong, the surf breaks violently, and renders the communication with the land very difficult. Vessels intending to remain here any time should ride with strong chains secured to the rocks on the shores of the bay, with the strongest chain to starboard, on account of the sea. The Bay of Navire is the best of all the islands, and the most frequented by fishermen: water is easily found there. Its latitude is 46° 26′ 18″ South, longitude 51° 50′ East, and the variation 35° West.

"Two miles to the North of the Bay of Navire is the Bay of Chaloupe, which offers no shelter except for boats. Three miles further to the northward is American Bay, tolerably large. A ship anchored

in eight fathoms water at two cables' length from a rock on the starboard side of the bay on entering, is tolerably protected from any wind between North and South by the West; the bottom is sand and rock. It is not advisable to stay long at this anchorage; good water is found in a small river at the bottom of the bay. Three miles further North is Hebe Bay, where a vessel of that name was lost in 1831. It is small, and only fit for boats, which may find shelter under the lee of a rock in the middle of it. The western coast, with the exception of a reef lying three or four miles off the western point of Possession Isle, is clear of danger; but as the sea there runs extremely high, it should be carefully avoided under a light wind or uncertain weather.

"The Eastern Isle, the most eastern of all the islands, is very high and steep, access to it being only attained by a very small bay, situated on its N.W. part. It is not favourable for fishing, although seals in great numbers find more shelter on its southern side than on any of the other islands. All these islands are plainly visible in clear weather at the distance of twenty and twenty-five leagues; but, like Prince Edward Island, they are totally destitute of trees or bushes. Being nearly always covered with snow, the only vegetation is grass and a very hard sort of hollow-stemmed moss, which grows on a soil nearly everywhere marshy, as well as on the sides of the mountains. This moss is of a reddish colour, and when squeezed emits a juice of the same colour. The islands are an asylum for a prodigious number of birds of several species, and three kinds of penguins, viz., the royal, the tufted, and the common.

"During our short stay at this anchorage, the barometer remained steady between 28·8 and 28·9, and the thermometer at about 45°. With the exception of a trifling fall of snow, the sea was still and the weather very fine."

Lifebelts for Shipwrecked Sailors.

The Committee of the Royal National Lifeboat Institution have for several years been painfully impressed by the fact, that, notwithstanding all the efforts made to rescue shipwrecked seamen, by means of the numerous lifeboats and rocket and mortar establishments which now happily surround our coasts, there are yet large numbers of sailors, amounting to several hundred annually, who miserably perish on our shores.

After a full consideration of the subject, and taking for their data the results of accidents to lifeboats, the crews of which have been provided with efficient lifebelts, and of others which have not been so, the committee have come to the conclusion that a large number of the unfortunate men who are thus every year lost to their friends and

their country, might be saved, if they were invariably supplied with really efficient lifebelts.

With a view to bring about so desirable an end the committee of the National Lifeboat Institution have, in the first place, caused to be prepared an efficient cork lifebelt of so simple and inexpensive a character, that its costliness, at all events, should be no barrier to its universal supply to our merchant seamen. Secondly,—They have decided to make an appeal to the owners of all merchant vessels, but especially of those in the home and coasting trade, on behalf of the seamen who work their craft, and whose lives are risked in their service, and to implore them to provide their servants with this important means of safety. Thirdly,—The committee have determined to undertake, at least for a time, the supply of lifebelts of the description above referred to, at cost price, with a view to bring about their general use on board our merchant ships.

It is proposed to supply these belts in chests, containing the requisite number for every size of vessel, through the custom-houses and shipping-offices at the principal ports, and to which sample chests will be at once forwarded.

The cost of each belt will be four shillings, and the average cost of the chest to contain them will be ten shillings.

A popular writer lately commenced a tale by asking the question, "Is a man's life worth 10s. 6d.?" In now appealing to the owners of ships and employers of seamen, the committee would ask the question, Is a man's life worth 4s.?

There can of course be but one reply to such a question.

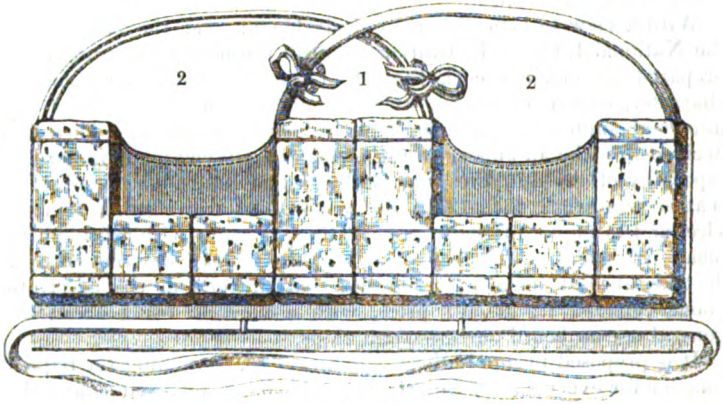
Lest any shipowner should, without reference to amount of cost, think that it is not his duty to provide his men with such a means of safety, it is suggested that, whilst he should provide, in the first instance, the chest of belts, as a part of the ship's furniture, he should require his master and crew to pay sixpence each man annually, or one penny each on short voyages, in consideration of being thus provided for; which amount would be a good interest on the sum thus invested, and it is thought that it would rarely happen that men would decline to insure their lives at so trifling a cost.

It had at first occurred to the committee that the Lifeboat Institution might undertake the gratuitous supply of lifebelts to the crews of merchant vessels, but on further consideration the magnitude of the undertaking appeared so great as to be likely to interfere with the present ample sphere of its operations on the coasts of the United Kingdom.

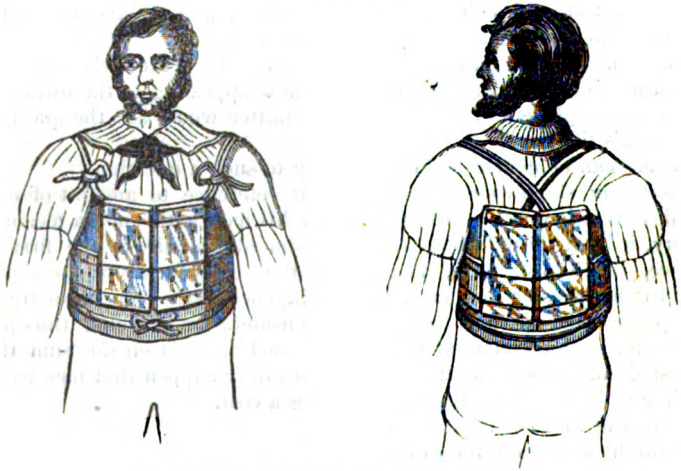
It is hoped, however, that those immediately interested in the movement, namely the owners of ships and fishing-vessels, and the crews themselves, will so readily undertake its direction, that there will be no need for the more direct action of the society.

We will now proceed to give a description, accompanied with drawings, of this important adjunct to the shipwrecked sailor.

Instructions as to the Manner of Putting on and Tying the Belts.



View of Lifebelt, with the Shoulder Strings Tied as Worn.



Lifebelt as Worn, Front and Back View.

The lifebelts should be kept in the chest, which should be stowed and lashed on the upper deck, each belt with the upper or shoulder strings ready tied in a half bow, so that it can be put on over the head without untying, the head being put through the central opening (1), and the arms through the side openings (2). The lower or waist strings are then brought round from behind, and tied in front. The shoulder strings, it will be observed, cross behind like trouser-braces. They should be drawn tightly over the shoulders, so as to keep the belt close up under the arms, and being tied close to the breast corks

in front, they can be readily pulled up tighter and re-tied at pleasure. The belts, if damp, to be occasionally taken out and exposed to the air.

Sample chests of two sizes may be seen at some of the principal custom-houses and shipping-offices of the United Kingdom. The smaller chests contain six belts; the larger ones twelve. The cost of these belts is 4s. each when bought in chests; that of single belts, 5s. The belts are of two sizes, and are distinguished by the colour of the shoulder strings.

The prices of the chests are as follows:—To contain 6 belts, 15s.; 8 belts, 17s.; 10 belts, 19s.; 12 belts, £1 1s.

Applications to be supplied with chests of lifebelts to be made to the institution, through the collectors of customs, shipping-masters, and superintendents of sailors' homes at the several ports to which the vessels belong, or from which they sail; the honorary secretaries of the branches of the institution; or direct to the wholesale manufacturer, Mr. Joseph Birt, 4, Dock Street, London Docks, London.

The Samoan or Navigator Islands,—*Pacific Ocean.*

A hurried glance from a European stand-point causes many passing visitors to conclude that the Samoans have nothing whatever in the shape of government or laws. In sailing along the coast of any island of the group, you can hardly discern anything but one uninterrupted mass of bush and vegetation from the beach to the top of the mountains; but, on landing and minutely inspecting place after place, you find villages, plantations, roads, and boundary walls, in all directions along the coast. It is the same with their political aspect. It is not until you have landed, lived among the people, and for years closely inspected their movements, that you can form a correct opinion of the exact state of affairs. To any one acquainted with the aborigines of various parts of the world, and especially those of the Papuan groups in Western Polynesia, the simple fact that the Samoans have but one dialect and free intercourse with each other all over the group, is proof positive that there must have existed there, even in heathenism, *some* system of government.

In the days of heathenism a good deal of order was maintained by the union of two things, viz., civil power and superstitious fear.

As to the first of these, their government had, and still has, more of the patriarchal and democratic in it than of the monarchical. Take a village, containing a population, say, of three to five hundred, and there will probably be found there from ten to twenty titled heads of families, and one of the higher rank, called chiefs. The titles of the heads of families are not hereditary. The son may succeed to the title which his father had, but it may be given to an uncle or a cousin;

and sometimes the son is passed over, and the title given by common consent to a perfect stranger, merely for the sake of drawing him in to increase the numerical strength of the family. What I now call a family is a combined group of sons, daughters, uncles, cousins, nephews, nieces, &c., and may number fifty individuals. They have one large house as a common rendezvous and for the reception of visitors, and four or five other houses,—all near each other.

The chiefs, on the other hand, are a more select class, whose pedigree is traced most carefully to the ancient head of some particular clan. One is chosen to bear the title, but there may be twenty other individuals who trace their origin to the same stock, call themselves chiefs too, and any of whom may succeed to the title on the death of the one who bears it. A chief before he dies may name some one to succeed him, but the final decision rests with the heads of families as to which of the members of the chief family shall have the title and be regarded as the village chief. In some cases the greater part of a village is composed of parties who rank as chiefs, but as a general rule it consists of certain families of the more common order which we have just mentioned, and some titled chief, to whom the village looks up as their political head and protector. It is usual in the courtesies of common conversation for all to call each other chiefs. If you listen to the talk of little boys even, you will hear them addressing each other as chief this, that, and the other thing. Hence, I have heard a stranger remark that the difficulty in Samoa is, not to find who is a chief, but to find out who is a common man.

As the chief can call to his aid, in any emergency, other chiefs connected with the same ancient stock from which he has sprung, and as he looks upon the entire village as his children, and feels bound to avenge their wrongs, it is thought essential to have some such character in every settlement. If anything in the clubbing way is to be done, no one but the chief, or his brother, or his son, dare do it. With few exceptions, he moves about and shares in every-day employments, just like a common man. He goes out with the fishing-party, works in his plantation, helps at house-building, and lends a hand at the native oven. There are still, however, although not at first sight to a European eye, well-defined marks of his chieftainship. If you listen to the conversation of the people, or attend a meeting of the heads of families for any village business, you hear that he is addressed with such formalities as might be translated into our English Earl, Duke, Prince, or King So-and-so; and instead of the plebian *you*, it is your Highness, your Grace, your Lordship, or your Majesty. When the ava-bowl is filled, and the cup of friendship sent round, the first cup is handed to him. The turtle, too, the best joint, and anything choice is sure to be laid before the chief. Then, again, if he wishes to marry, the heads of families vie with each other in supplying him with all that is necessary to provide for the feasting, and other things connected with the ceremonies. He, on the other hand, has to give them ample compensation for all this, by distributing among them the fine mats which he gets as the dowry by his bride. A chief is careful to marry

only in the family of a chief, and hence he has, by his wife, a portion worthy of the rank of a chief's daughter. To some extent, these heads of families are the bankers of the chief. His fine mats almost all go to them, and other property too. They, again, are ready with a supply whenever he wishes to draw upon them, whether for fine mats, food, or other property.

No lover of money was ever fonder of gold than a Samoan is of his fine mats. Hence, in the days of heathenism, the more wives the chief wished to have, the better the heads of families liked it, as every marriage was a fresh source of fine mat gain. To such an extent was this carried on, that one match was hardly over before another was in contemplation. If it did not originate with the chief, the heads of families would be concocting something, and marking out the daughter of some one as the object of the next fine mat speculation. The chief would yield to them, have the usual round of ceremonies, but without the remotest idea of living with that person as his wife. In this way a chief in the course of his lifetime might be married well on to fifty times. He would not, however, probably have more than two living with him at the same time. As the heads of families were on the look out to have the sons and daughters of the chief married as often as they could also, it can be imagined that the main connecting links between the heads of families and their chief, and that which marked him out most prominently as a superior, was this marriage or rather polygamy business.

At the very outset of missionary work this was one of the things which occasioned great practical difficulty. If a chief became a true follower of Christ, he had constant annoyance from the dissatisfied heads of families, who could not, as formerly, make a tool of him to get property. Or, if the head of a family wished to act consistently with the Word of God, and oppose the adulterous schemes of an ungodly chief, he, too, was subjected to all sorts of ridicule and petty annoyance. It served, however, as a test of character; and we have had many noble instances in which a person has thrown up his title from a desire to be eminent in conformity to the law of God rather than in the reckless violation of God's will.

The land in Samoa is owned alike by the chiefs and these heads of families. The land belonging to each family is well known, and the person who, for the time being, holds the title of the family head has the right to dispose of it. It is the same with the chiefs. There are certain tracts of land which belong to them. The uncultivated bush is claimed by those who own the land on its borders. The lagoon, also, as far as the reef, is considered the property of those off whose village it is situated. Although the power of selling land and doing other things of importance affecting all the members of the family is vested in the titled head of the family, yet the said responsible party dare not do anything without formally consulting all concerned. Were he to persist in attempting to do otherwise, they would take his title from him and give it to another. The members of a family can thus take the title from their head, and heads of families can unite and take

the title from their chief and give it to his brother, or uncle, or some other member of the chief family, who they think will act more in accordance with their wishes.

The chief of the village and the heads of families formed and still form the legislative body of the place, and the common court of appeal in all cases of difficulty. One of these heads of families is the sort of Prime Minister of the chief. It is his special business to call a meeting, and it is also his province to send notice to other heads of families on the arrival of a party of strangers, and to say what each is to provide towards entertaining hospitably the village guests. Having no written language, of course they had no written laws; still, as far back as we can trace, they had well understood laws for the prevention of theft, adultery, assault, and murder, together with many other minor things, such as disrespectful language to a chief, calling him a pig, for instance, rude behaviour to strangers, pulling down a fence, or maliciously cutting a fruit tree. Nor had they only the mere laws; the further back we go in their history, we find that their penalties were all the more severe. Death was the usual punishment for murder and adultery; and, as the injured party was at liberty to seek revenge on the brother, son, or any member of the family to which the guilty belonged, these crimes were all the more dreaded and rare. In a case of murder, the culprit and all belonging to him fled to some other village of the district, or perhaps to another district; in either case it was a city of refuge. While they remained away it was seldom any one dared to pursue them, and risk hostilities with the village which protected them. They might hear, however, that their houses had been burned, their plantations and land taken from them, and they themselves prohibited, by the united voice of the chief and heads of families, from ever again returning to the place. Fines of large quantities of food, which provided a feast for the entire village, were common; but there were frequently cases in which it was considered right to make the punishment fall exclusively on the culprit himself. For adultery, the eyes were sometimes taken out or the nose and ears bitten off. For other crimes they had some such punishments as tying the hands of the culprit behind his back and marching him along naked, something like the ancient French law of *amende honorable;* or, tying him hand to hand and foot to foot, and then carrying him suspended from a prickly pole, run through between the tied hands and feet, and laying him down before the family or village against whom he had trangressed, as if he were a pig to be killed and cooked, compelling the culprit to sit naked for hours in the broiling sun,—to be hung up by the heels,—or to beat the head with stones till the face was covered with blood,—or to play at hand ball with the prickly sea-urchin,—or to take five bites of a pungent root, which was like filling the mouth five times with cayenne pepper, It was considered cowardly to shrink from the punishment on which the village court might decide, and so the young man would go boldly forward, sit down before the chiefs, bite the root five times, get up and walk away with his mouth on fire. But these barbarous penalties are done away with,

and fines now are generally levied in food and property. In cases of murder and adultery, however, the old law of indiscriminate revenge is still at times carried out.

Should two families in a village quarrel and wish to fight, the other heads of families and the chief step in and forbid; and it is at the peril of either party to carry on the strife, contrary to the decided voice of public opinion.

These village communities of from two to five hundred people consider themselves perfectly distinct from each other, quite independent, and at liberty to act as they please on their own ground and in their own affairs.

Then, again, these villages, in numbers of eight or ten, unite by common consent, and form a district or state for mutual protection. Some particular village is known as the capital of the district! and it was common of old to have a higher chief than any of the rest as the head of that village, and who bore the title of King. Just as in the individual villages, the chief and heads of families unite in suppressing strife when two parties quarrel; so it is in the event of a disturbance between any two villages of the district, the combined chiefs and heads of families of all the other villages unite in forbidding strife. When war is threatened by another district, no single village can act alone; the whole district or state assemble at their capital and have a special parliament to deliberate as to what should be done.

These meetings are held out of doors. The heads of families are the orators and members of parliament. The kings and chiefs rarely speak. The representatives of each village have their known places, where they sit under the shade of breadfruit trees, and form groups all round the margin of an open space, called the Malæ, (or forum,) a thousand feet in circumference. Strangers from all parts may attend; and on some occasions there may be two thousand people and upwards at these parliamentary gatherings. The speaker stands up when he addresses the assembly, lays over his shoulder his fly-trapper or badge of office, similar to what is seen on some ancient Egytian standards.

But I hasten to notice the second thing, which I have already remarked was of old an auxiliary towards the maintenance of peace and order in Samoa, viz., *Superstitious Fear*. If the chief and heads of families, in their court of inquiry into any case of stealing, or other concealed matter, had a difficulty in finding out the culprit, they would make all involved swear that they were innocent. In swearing before the chiefs the suspected parties laid a handful of grass on the stone, or whatever it was, which was supposed to be the representative of the village god, and, laying their hand on it, would say, "In the presence of our chiefs now assembled, I lay my hand on the stone. If I stole the thing may I speedily die." This was a common mode of swearing. The meaning of the grass was a silent additional imprecation that his family might all die, and that *grass* might grow over their habitation. If all swore, and the culprit was still undiscovered, the chiefs then wound up the affair by committing the case to the village god, and

solemnly invoking him to mark out for speedy destruction the guilty mischief-maker.

But, instead of appealing to the chiefs, and calling for an oath, many were contented with their own individual schemes and imprecations to frighten thieves and prevent stealing. When a man went to his plantation and saw that some cocoanuts or a bunch of bananas had been stolen, he would stand and shout at the top of his voice two or three times, "May fire blast the eyes of the person who has stolen my bananas! May fire burn out his eyes and the eyes of his god too!" This rang throughout the adjacent plantations and made the thief tremble. They dreaded such uttered imprecations. Others cursed more privately when a thing was stolen, as we may suppose the mother of Micah did (Judges xvii. 2. In common disputes, also, affecting the veracity of each other, it was customary for the one to say to the other, "Touch your eyes if what you say is true." If he touched his eyes the dispute was settled. It was as if he had said, "May I be cursed with blindness if it is not true what I say." Or the doubter would say to his opponent, "Who will eat you? Say the name of your god." He whose word was doubted would then name the household god of his family, as much as to say, "May god so and so destroy me if what I have said is not true." Or the more expressive course still, of taking a stick and digging a hole in the ground, which was as if he said, "May I be buried immediately if what I say is not true." But there was another class of curses which were also feared, and formed a powerful check on stealing, especially from plantations and fruit trees, viz., the silent hieroglyphic taboo or tapui (tapooe) as they called it. Of this there was a great variety, and the following are a specimen:—

1. *The sea-pike taboo.*—If a man wished that a sea-pike might run into the body of the person who attempted to steal, say, his breadfruits, he would plait some cocoanut leaflets in the form of a sea-pike, and suspend it from one or more of the trees which he wished to protect. Any ordinary thief would be terrified to touch a tree from which this was suspended. He would expect that the next time he went to the sea a fish of the said description would dart up and mortally wound him.

2. *The white shark taboo* was another object of terror to a thief. This was done by plaiting a cocoanut leaf in the form of a shark, adding fins, &c., and this they suspended from the tree. It was tantamount to an expressed imprecation that the thief might be devoured by the white shark the next time he went to fish.

3. *The cross stick taboo.*—This was a piece of any sort of stick suspended horizontally from the tree. It expressed the wish of the owner of the tree that any thief touching it might have a disease running right across his body, and remaining fixed there till he died.

From these few illustrations it will be observed that Samoa formed no exception to the remarkably wide spread system of superstitious

taboo; and the extent to which it preserved honesty and order among a heathen people will be readily imagined. At the present day the belief in the power of these rude hieroglyphics is not eradicated. In passing along you still see something with streamers flying, dangling from a tree in one place, a basket suspended in another, and some reeds erect in a third. The sickness, too, and dying hours of some hardened thief still bring out confessions of his guilt. Facts such as these which have just been enumerated still further show the cruelties of the reign of superstition, and exhibit in striking contrast the better spirit and the purer precepts taught by that blessed volume which is now received, read, and practised by many in Samoa. In days of heathenism there was no good rendered for evil there, and the only prayers for injurers and enemies were curses for their hurt and destruction.

More about Merchant Ships' Compasses.

Sir,—In a former number of the *Nautical Magazine* I pointed out the loose manner in which the important matters of charts and compasses are treated in the merchant service.

The loss of the *Seahorse* in the China Sea, and the opinion of the court at Singapore, will doubtless excite some little stir in the commercial world, since the circumstances which caused the wreck so glaringly point out evils which must be patent to all who read the magistrate's decision.

A valuable ship and cargo are lost from no want of skill or caution on the master's part, but from the entire absence of the ordinary good charts and compasses which alone can safely guide a ship through channels of such intricacy as those of the Chinese waters are known to be.

I fear this lesson, like many others of a similar nature, will pass unheeded by those who ought to take a warning from it. The masters of English merchant ships will still, with a few exceptions, cling stubbornly to the old blue-backed chart and ancient sailing directions, in lieu of those published by the Admiralty, although they must be aware that theirs are only ill-arranged piracies from the labours of the officers on the surveying staff of the Royal Navy.

The officers of the merchant service are jealous of the slightest interference on the part of the legislature in their affairs. Indeed, a very large meeting at Liverpool a few months since pronounced the marine court* an institution which deprived an Englishman of his natural rights. While this feeling exists, anything emanating from an

* Why don't they take their opinions in a petition to parliament?—*P. D.*

official quarter is certain to be neglected and opposed as from an inimical source.

In the long run the insurance companies suffer to an enormous extent from this cause; but they appear to think that to cavil at any event short of actual fraud would be dishonourable. However beneficial this may be to the shipowner, it cannot be doubted that it is the parent of neglect, by inducing him to send a ship on a distant voyage with furnishings and equipment which are not equal to the service on which she is to be employed. The remedy of insurance—to him at least—covers a multitude of defects.

Among large companies, who are their own insurers, we never find this negligence. There, every appliance which can conduce to the safe navigation of a ship is supplied with a wise liberality. Mark the result! How rarely do we now find the ships of our great ocean lines getting into difficulty! The Cunard, Inman, and West India Mail seldom lose a ship, although they—the former two especially—are always employed on a service of more than ordinary difficulty, frequently obliged to grope their way up-Channel in a thick south-wester, after having been without observations for many days; or they may cross the Banks of Newfoundland in a fog like a wall. Such ships as these are a credit to the country, and justly raise their commanders and owners to the first rank in the mercantile world.

While touching on the subject of compasses, I will mention a vexatious and useless regulation which the Board of Trade will do wisely to repeal. It is this:—When an iron ship is re-surveyed (which she is every six months), if the chief-officer has left in the interim, she must be re-swung for deviation, although the captain may have been in her for several years, and can produce tables of deviation compiled with the closest observation. When it is kept in mind that in ninety-nine ships out of a hundred the chief-officer has nothing to do with the navigation, the uselessness of subjecting owners to the repetition of such a serious expense must be evident. In fact, the sole person benefitted thereby is the compass adjuster; and the celerity with which those persons often swing a long steam-ship in foggy weather in the strong tides of some of our rapid rivers has frequently excited my surprise, if not my admiration.

In the navy, if the whole of the executive officers are changed, the ship is not re-swung, but the deviation cards simply turned over to the new comers. Why should not the same regulation apply to the merchant service?

Yours, &c.,

AN ENGLISHMAN.

To the Editor of the Nautical Magazine.

Our Lifeboat Institution.

(Concluded from page 258.)

Not satisfied with equipping and keeping in good order this fleet of safety boats, the society distributes rewards, consisting of silver medals and honourable certificates on vellum, to all those who distinguish themselves by their gallant conduct. After every attempt at rescue by a lifeboat the crew are presented with a sum proportionate to the dangers which they have undergone. They are paid ten shillings each for day duty, and twenty shillings for night, every time they launch forth to save the crew of a wreck in a gale; but this sum is increased when the circumstances are of special danger.

The medals are either in gold or silver. They bear the effigy of Queen Victoria; and on the reverse a lifeboat, in which the men are represented as saving seamen from a wreck. Above this, engraved by W. Wyon, are these words,—"Do not leave me to perish in the abyss." These medals are only awarded to persons who have actually risked their lives in saving others. A minute inquiry is made before the committee arrive at their decision, and all the circumstances of the transaction are gone into. Thus, the gold medal of the society especially, is only awarded in extraordinary cases, and for services which excite general approval. In the year 1863 the institution distributed fifteen silver medals, twenty-six certificates on vellum, and £1,297 sterling, for deeds of daring by which the lives of 714 persons were saved.

The society does not limit its gifts and honours to the persons employed in their boats. They undertake also to promote what may be called the devotion to such duty. Thus they instil courage into the individual and the desire to risk his life to save others,—establishing, as it were, a school for feats of such enterprise. And in this way the institution exercises an influence over the whole country; they give rewards for cases which may not have arisen from their own boats. Fishermen who have launched their boats for the purpose of saving life,—the intrepid mariner who snatches a fellow-creature at a favourable moment from drowning,—those, in fact, who have displayed such courage, have a right to the distinctions and rewards of this impartial body. No class of society in Great Britain is considered too low for such recompense. After the misfortune at Scarborough, Lord Charles Beauclerc, Mr. W. Tindall—the son of the banker there, and Mr. John Iles having nobly perished in attempting to save the crew of the lifeboat, the committee presented gold medals to their families.

Occasionally to seamen only are presented similar honours. I was at Campbelltown, in Cantyre, on the Scotch coast, when a public meeting was assembled for presenting a medal awarded by the institution to James McMillan, a man in humble life, over seventy years of age, who in the course of his life had saved many lives from shipwreck. It was not long since he had saved a life from the *Genoa*, a merchant ship wrecked on the 13th October, 1862. The meeting was

most enthusiastic, and to show the interest excited throughout the kingdom by such courageous acts, I will quote a few words of the chairman, Mr. Stewart.

"James," he said, "I knew your father: he lived on my father's property and mine. Every one honoured him as a brave and honest man. He never raised his arm in his own cause, but often for that of others, and especially for that of the weak. I may say, with the utmost truth 'If his arm was ready to strike it was no less so to save.' You, James, his son, have inherited from him the disposition to risk your own life to save that of others. This is not the first time that you have shown yourself worthy of such a father. You saw this man holding on, all but exhausted, to a rock,—you also saw him lose his hold of it. What would have become of him if an heroic hand had not gone to his assistance? He would undoubtedly have been carried away by the waves. While others were looking on, and amongst them some young men, you threw yourself into the foaming waves, and, with your strong arm and noble courage, you succeeded in bringing him on shore safe and sound. God was with you: He protects the brave. James, your conscience has already told you what happiness it was to save a brother's life, amidst the dangers and horrors of that night from the death of drowning. I will say no more. Take this parchment, on which the National Lifeboat Institution have inscribed their appreciation of your noble conduct. Another will attach the medal to your breast. Long after you have been laid at rest in the ground your sons will see this medal: it will remind them of what you were, and will incite them and their children to deeds of compassion, courage, and heroism."

It is easy to see the moral effects of such scenes on the coast population. The men have converted an old sail into a flag; for that, worn to a rag by the storm, serves as a rallying point and a signal of appeal to those who would emulate deeds of glory.

Success to public liberality! The institution has unceasingly animated the whole country in favour of their shipwrecked seamen. They have recourse to everything that will move the heart—to music, poetry, pictures, publications—and, thanks to this happy union of literature and the fine arts, the lifeboat has become, in the estimation of the multitude, a sacred object—the palladium of the sea.

I well remember having followed, in the streets of London itself, a procession that conducted to the Thames a new lifeboat built purposely for Tynemouth. Some fifty seamen of the Royal Naval Reserve, with music in front, led the procession, the boat being drawn on its car by four magnificent horses. Volunteers in uniform accompanied the *cortege*, and the crowd everywhere gave demonstrations of enthusiastic respect for an institution which gave its services to the whole world without considering rank, religion, or nationality. It was not like the imposing visit of Garibaldi to London, I admit, but still it was a kind of ovation. In the towns on the coast where the lifeboat appears for the first time, there is firing of cannon, ringing of bells, and waving of handkerchiefs by fair hands.

It is this force of opinion that touches the springs of voluntary donations and subscriptions. In 1863, the total amount received by the society amounted to £21,101 6s. 3d. Among the gifts presented in that year there was one that was really munificent. It was from a London firm, the house of Messrs. Cama and Co., Indian bankers. Parsee merchants alone sent the sum of £2,000. Nor have others a less touching character, such as five shillings, the savings of a child; £20 by the daughter of a sailor, the produce of her needlework; £100, the gift of a person unknown, in gratitude to God that his life was saved from the sea in the storm of October 31st, 1863. Foreign governments, also, have more than once proved their gratitude to the society for services rendered to their subjects by the society's boats. On the 20th of October, 1862, the *Annie Hooper*, a large American ship from Baltimore to Liverpool, was endeavouring to get into the Mersey in tow of a steamer, when the captain and pilot found it necessary to haul out to sea again: but the ship was unmanageable, and by the effects of wind and tide was drifted on shore at Southport. For some time her forlorn condition was actually concealed by the tremendous seas that were washing over her. At length her signals of distress were seen from South and Lytham Points on the coast, at which there were happily lifeboats. The two boats started on their duty. Such, however, was the state of the sea that these boats, which are generally speaking swift, took four hours to get over four miles; but by the most gallant determination the crew of the vessel, consisting of eighteen persons, with the pilot, who belonged to Liverpool, was saved by the two boats. Mr. Lincoln, the President of the United States, having learnt the heroic manner in which the lives of his countrymen had been saved from their perilous position, sent £100 to the institution, and £31 to the crews of the boats. The pilots of Liverpool were no less generous; they presented the Lytham boat with £14, in recognition of the services done to their companions the pilots. We may thus see how it is that the society is encouraged: on one part by those who owe their lives to them, and on the other, by those who are animated by sentiments of compassion for such disasters, and contribute to aid a society which is considered as one of the glories of Great Britain.

The principal office of the society is in John Street, Adelphi, London, having nothing to distinguish it from the other houses of the street, for the English delight in doing great things in small houses. The administration consists of two branches; a committee which exercises a sort of legislative authority, and the office which is under the direction of Mr. Lewis, the secretary of the institution, who exercises to a certain extent the executive power. The secretary's office is a large room, where models of the principal kinds of lifeboats used from the establishment of the invention are to be seen. The walls of the apartment are ornamented with pictures and photographs representing stations of the boats and scenes of wrecks. Over the fire place is displayed the great wreck chart published annually by the Board of Trade, and which the institution reproduces every year on a reduced

scale. Along with numerous black spots that indicate so many wrecks are red crosses denoting the presence of lifeboat stations. The services of the committee are gratuitous, those of the officers only are remunerated, but on a strictly economical scale. The appointments of the secretary and clerks for keeping accounts, &c., do not exceed £670 per annum. The duties of the latter consist mostly in receiving the subscriptions and attending to the expences of the establishment, as well as the accounts paid to different stations.

Thus the institution is always in correspondence with the coast; it is the connecting link between the contributors and the stations, it controls their movements without restraint, establishing a kind of union of action. The districts over which the stations are spread extend to the three countries,—England, Scotland, and Ireland, and the work of the office is simplified by a very ingenious mode of correspondence. A set of questions are printed relating to the payments of the crews, the exercising of the boats, and their going off to vessels, and the material of the boat are sent to all the stations, which questions are returned with their answers, which serve as ground work for the secretary's proceedings.

The institution has besides another officer in the inspector, Captain J. R. Ward, who is charged with visiting the different stations and reporting the results of his inspection. With the assistance of all these documents the secretary presents annually to the committee assembled at the London Tavern a general report of the pecuniary condition of the society, the services rendered by its boats, and the rewards assigned to them. This report, by means of the daily papers, obtains the utmost publicity. The lifeboat administration, according to the expressed opinion of an Englishman, is a glass case in which the enlightened eye of charity can detect the effect of the widow's mite, and thus perceive the manner in which it is applied to a useful purpose.

On the subject of the means of the society, we have seen that in 1863 there was expended by it £16,372. This is not much when the expence of a fleet of war ships is considered. The pacific fleet of lifeboats has nevertheless its victories: it is when the tempest rages amidst darkness, and the stormy wiud prevails, that they hasten to contend with the fury of the wave. After any victory over an enemy the dead are reckoned: after the victories of lifeboats over the yawning abyss, the living, those that have been saved are counted. But not content with saving lives from wreck, the institution endeavours to make the lifeboat general. Employing its influence with the mercantile marine, it would substitute for their heavy boats one of their lifeboats. Indeed they would introduce their boats among the fishermen of the coast, or at least a new kind of boat which would withstand the rough usage to which they are exposed. It is easy to see the importance of such a measure when it is known that the United Kingdom possesses about 40,000 fishing craft, manned by about 160,000 men always ready to extend the hand of help to the shipwrecked mariner. Every life is sacred, but in the estimation of the

English, that of the mariner and the fisherman is twice as precious as any other; first in a humane point of view, and then in the sense of political economy. The latter render services which demand peculiar courage, and the loss of one is a loss to society at large. Volumes would be required to relate their noble deeds. Let us adduce some few traits of heroism which of late years have acquired a sort of national interest.

On the 5th of September, 1838, the steamer *Forfarshire* left Hull for Dundee. She had on board more than forty passengers, and her crew consisted of twenty-five hands. The captain's wife was also on board. As the wind was strong and a heavy sea running, the motion of the vessel somewhat disturbed the boilers, which were not in good condition. In fact, they leaked, and the water put out the fire, and the engine was useless. It was then nine in the evening, and the vessel was off St. Abb's Head, a large promontory of the Scotch coast. The danger was, drifting on a lee shore: all sail was made, and the vessel made good her course along the land; but a thick fog came on, so that it was impossible to see how they were going. Suddenly breakers and the Fern lights were seen, and there was no doubt of the great danger the vessel was in. An attempt was made to work up between the Fern Islands; but the vessel refused her helm, and about three in the morning she struck heavily on the reefs off Longstone Island. At the moment of striking, some of the passengers asleep in their cabins and awakened by the shock, rushed on deck in their night dresses, that then presented a dreadful scene. A boat was lowered, into which every one rushed; but such was the violence of the sea that the boat was swept from the vessel, and many of the passengers were thus lost. The boat herself escaped only miraculously. There was but one lane between the waves and the rocks into which she could get without being dashed to atoms. The sailors could save nothing, they abandoned all to chance, that is, to the wind and the sea in the midst of darkness. But the boat, as if by instinct, found her way into this narrow channel, and after this escape and drifting about amidst the heavy seas, she was picked up by a sloop and conveyed to Shields. Meanwhile the condition of those who remained on board was most deplorable. Five minutes after her first striking another shock broke her into two parts. The bows of the vessel only remained firm on the rock, and here it was that the passengers who could do so held for safety. Clinging to this last hope for safety, they expected every moment to share the fate of their unhappy companions whom they had seen swept away by the waves.

Happily on one of these islands there was a lighthouse, selected on account of its outer position, and placed on the Outer Fern, and in this lighthouse, on the night in question, the daughter of the light-keeper, Grace Horsley Darling, was keeping watch. In the midst of the noise of the stormy winds and seas she heard a piercing shriek; it must be a cry from some wreck, immediately filled her mind. She went and woke her father and asked him if he did not hear the cries, as they were repeated. Yes, said the old man, but it is the wail of the

wind between the seas. No, she cried,—to me it is the cry of despair for help. To launch a boat on the waves running so high as they were seemed to be the height of folly. It was getting towards morning, and the little light that there was served but to render the huge waves more distinct, and to make the danger more evident. The veteran who had charge of the light was well experienced as a seaman and hesitated. With an oar in her hand, the daughter rushed to the boat, which had no fittings like a lifeboat of these days, and the father, unable to resist the example of his daughter, followed her. An old man and a young girl! what a weak crew to snatch from the dreadful sea that was running any of the lives that were already nearly lost by the seas that were perpetually washing over them. But the exertions of these two were as determined as the storm as they directed the boat's bows towards the part of the horizon where they saw the wreck and that some persons were yet clinging to it. The fury of the storm abated not, and every moment the frail boat seemed certainly overwhelmed: but she reached the rock on which the vessel had struck, and the fate of the vessel seemed destined for the boat, but the good management of the two saved her only from being dashed to atoms. Nine persons, five of the vessel's crew and four passengers, had survived the disaster; the rest, who had got on to the rock, had been successively carried away by the waves, which were perpetually washing over it. The captain and his wife were thus drowned, closely locked in each other's arms. A mother held in her withered grasp two children, a boy and a girl, about eight and twelve years of age, both long dead from exposure to the seas: but the nine survivors entered the boat. Pallid and hardly sensible from the effect of their exposure, they beheld with mute astonishment their deliverers, a girl, the intrepid Grace Darling, and her father, who were now rescuing them from death, and hastening with them to the lighthouse, for it was impossible to approach the shore except with daylight in the course of the Sunday, which was dawning. Grace Darling had the satisfaction of seeing the nine persons thus saved safe in the lighthouse, and such was the state of the weather that for three nights and three days she had to take care of them after saving their lives. Such noble conduct excited throughout the whole country the most lively enthusiasm. By the artist, the composer, at the theatre, and in poetry, was celebrated the heroic achievement of Grace Darling in the horrors of that dreadful night, and her noble example was not only the theme of conversation everywhere, but was emulated in the storms which followed. It seemed as if English women, imbued with the feelings of Grace Darling, were echoing her words,—"My father, they are drowning, and we shall save them."

The Wicklow station, one of those established by the society of London, proposed two or three years ago to reward the exertions of Eliza Byrne, an Irish girl, who had saved one of her country girls. She was bathing, when on a sudden she disappeared in the waves. Eliza Byrne was some distance off, but making a line fast round her, the end of which was held by a companion, she rushed into the sea as

she was, plunged and seized the unfortunate drowning one, and carried her to the shore in time to save the vital spark, and this was the third person whom she had saved.

One of the most remarkable shipwrecks on the coast of England was that of the *Royal Charter*, which occurred on the 25th of October, 1859. This vessel was bringing to England 490 persons, when she was assailed at night by tremendous gales off Anglesey. The sea was breaking with unparalleled violence on these rocks when a seaman, Joseph Rogers, believing that the ship could not possibly long withstand the severe shocks of the seas that were striking her, determined to save the passengers. To do this, he jumped into the sea to swim to the shore with a line, the other end of which was secure on board. There was a tremendous broken sea running, and the ground, which was formed of sand and shingle, and the seas such that in the drawback of the surf they seemed sufficient to defy the most expert swimmer. But how much more terrific are such seas when they dash with all their fury against the angles of rocks as hard as iron itself. And a thousand times more dangerous still is the condition of a person thus swimming when all is darkness around him, with the pieces of wreck carried on the waves about him, and when the temperature is low enough to freeze the blood of the bravest man. Joseph Rogers knew that he had to contend with all these dangers, but he did not for a moment hesitate in his undertaking. It is true he would save his own life in saving others; but it was not of himself he thought: he was bearing a line, which added to his difficulties, that was to save others. At the moment he left the ship he had a fairer chance of being saved on board than of reaching the shore under the difficulties which he had to encounter. But a noble sentiment had emulated Rogers, and that was, to save the lives of all on board. His efforts were crowned with success. He reached the shore in safety, and opened a communication by means of the line between the ship and the shore, and twenty-five persons were safely landed. Even the whole 490 passengers would have been saved in the same manner if during the process the vessel had not broken up and slipped off the rock into deep water. The Lifeboat Institution rewarded Rogers with the gold medal and five pounds,—a poor return for his bravery: but such a noble deed as he had performed carried more honour and was a source of consolation in his breast far greater than any reward that could have been bestowed on him.

The English appear to be more endowed than others with courage for this kind of enterprise. It is what they call pluck,—that is to say, a cool, determined, and overpowering valour, backed by a sentiment of innate bravery to overcome all difficulty. If anything is calculated to awaken this feeling it is a compassion for the sufferings that are endured in shipwreck. On the 7th of November, 1859, a fishing-vessel was wrecked on the Norfolk coast,—on the Hasborough Sands, near Bacton. The vessel being lost, four men and a boy, who formed her crew, clung to her mast. For a day and a night they had been in this situation, about eight feet above the raging sea, without food or

scarcely clothing. One of them took off his shirt and held it up to the wind as a signal of distress, but the wind tore it from his weakened grasp. The boy held on to the mast like the others till the second day, when he could no longer hold, and slid down into the sea. One of his companions, seeing relief approaching, caught him, and replaced him on the mast in the position which he had lost. Nor had they any means of securing themselves to the mast, and could only get across it to rest themselves. On the second day the poor boy, nearly insensible from cold and his strength quite exhausted, again lost his hold, and perished in the sea. On the following morning the sufferers had a ray of hope. A ship passing at a distance observed their signal, heard their cry for help, and sent a boat to recover them. But after buffeting in vain against the sea and tide, the boat abandoned her object, and returned on board.

The four unhappy sufferers, seeing themselves thus forsaken, lost all hope of being saved. Two of them despaired utterly, and bade adieu to their companions, still resolving to hold on while life yet remained, and with a frenzy of despair clung still harder to the mast. An hour or two after they heard the report of a cannon,—a sound which once more inspired them with courage. A yawl had, in fact, been launched to save them; but as night was coming on, and they were but a spot on the horizon, they could not be seen. Night again closed on them in their miserable condition, and the yawl returned to the shore. This was the third night, and it was passed like the two former, clinging to the head of the mast, fearing more and more that the lower part of it would give way, and they would be all washed away with it.

The morning came, and with it the Bacton boat sallied forth on another attempt, which was crowned with success; and about ten they were landed, more like the dead than the living, at Palling. As soon as they were capable of performing the voyage they were taken to the Sailors' Home at Yarmouth. Their swollen limbs, their pallid looks, and their mournful silence, which proceeded from sheer weakness, all bespoke the terrible trial which they had undergone, and it was some weeks before they had recovered their feet. The Lifeboat Institution gave £18 to the boat's crew which had rescued them from the jaws of death.

These different exploits in saving life were performed with ordinary boats, and it is curious to contrast them with the behaviour of lifeboats. While the largest vessel is as uneasy as an enervated man, or trembles like a frightened woman, the lifeboat is quite at her ease, and even at home, so to speak, in the most troubled sea. She may be compared to other boats as the stormy petrel to the land bird. But it must not be imagined that her crew should not be endowed with their share of courage also. As these real lifeboats are often required in the most desperate cases, the amount of danger is nearly the same, and the circumstances under which they are managed are well calculated to appal the bravest heart. On one occasion, when there was what the English term a ground swell, a smack, the *Countess of Lis-*

burne, struck on Cardigan Bar. Her sail and mast were carried away in a squall. The sea broke over her with all its force, making a deep hollow-toned noise, as if striking on a coffin. Scarcely was the danger of the vessel known in Cardigan than the lifeboat was launched; and the crew observed the wreck lifted by the seas on the horizon like a living thing looking for help. The sea was so heavy that it was dangerous for a ship: how much more so to a vessel that had lost her only mast, and whose hull was tossing about like an egg-shell. As she approached the vessel the rollers were sufficiently heavy to appal the stoutest heart. The wrecked crew had lost their boat, and their only hope was the lifeboat. With the prospect of death before them, their cry was that of despair. Nevertheless, the lifeboat's crew had sworn to save them or perish in the attempt; and they succeeded, in spite of winds and waves, in rescuing the three persons who formed the crew of the *Countess of Lisburne*, and landing them safely.

Men who contend with the elements in saving life from wreck are naturally brave. Thus the seamen and fishermen who form the crews of lifeboats along the coast are distinguished by an exemplary life. Who is he that cannot perceive the force of moral feeling in the noble nature of the services which they are called on to perform? Has not a devotion to their cause even something inspiring to overcome their difficulties? I should be tempted to think so after what has been related to me in Cornwall. A fisherman named Jemmy, if we may so call him, in his youth was stern and jealous. Of a brave disposition, he was engaged as one of the crew of the lifeboat of the coast. His companions had nicknamed him "The Taciturn." But Jemmy had a very simple reason for being so. He was in love with a girl, and had a rival in another fisherman, and he had clearly seen that he was not the favoured one. So he meditated a cruel resentment against his rival. One evening, as he was returning from sea, Jemmy was on the shore. It was lowering, dark weather, with lightning, and he was groping his way among the rocks, and he stopped at a narrow pathway by which his rival, George, had to pass to reach his cottage. Projects of a malicious nature rushed through his mind as the waves followed each other before him. Suddenly the thick clouds above, which had been as dark and heavy as they could be, broke apart, a thunder-clap occurred, and by the light on the sea Jemmy saw a vessel with signals of distress flying. In the course of an hour the wind had got up, and with it the sea was boiling.

Another flash of lightning enabled Jemmy to recognize the boat of his rival, George, in danger of being thrown on the rocks every instant. It was a moment of savage joy; the sky itself seemed as if it would satisfy his revenge, and he had only to let it do so. If it was a crime, at all events the secret lay between himself and the elements; but his conscience told him that this was neglect, and he was sorrowful. Suddenly he heard, in the midst of the wind and rain, voices along shore in the direction of the lifeboat, and he could not doubt that the situation of a vessel requiring her services had come to the knowledge of his companions, and he soon saw them in the act of launching the

boat. His place was being filled by another, but the call of honour was sufficient, and he ran to prevent it. When he arrived the boat was manned, another man had his oar, but in a fury of mind he displaced him, snatching his oar from his grasp. The boat was launched, but they could not discover where the wreck was: she had probably gone to pieces among the rocks.

The lifeboat turned back with her crew dispirited, when, by the constant flashes of the lightning, Jemmy discovered a human form rising and falling with the seas. This was evidently one of the crew of the fishing-vessel struggling under the lifeboat. Jemmy seized a rope and jumped into the sea, and laying hold of the drowning man, got him into the boat. He was completely insensible, and was laid on his back, and when the boat reached the shore attempts were made to recover him. They were successful, and George learnt by whom he had been saved. He would have shaken hands with Jemmy, but the latter would not. "Let me alone," he said, "we shall never see each other more." The following day he took an engagement in a ship for a three years' voyage, and left for the Pacific.

A respect for human life is one of the most honourable traits of modern civilization. Formerly, society went on totally different principles—immolation, slavery, and war. They gloried in destroying their victims, while, now, we glory in saving life. The Lifeboat Institution is a good index of this progress of society: in its eyes every life is precious.

An Audience of Queen Elizabeth.

There is an interesting passage in the "Calendar of State Papers and MSS. relating to English Affairs existing in the Archives of Venice and in other Libraries of Northern Italy," in which we found the account of the Flanders Galleys, that, as an historical record, will be no less interesting to our readers. The volume is edited by Mr. Rawdon Brown, who introduces it with the following remarks:—

The letters of the Secretary Scaramelli, whose mission to England has already been mentioned, prove that six weeks before the death of Queen Elizabeth she was in all the vigour of a green old age. He does not describe the scene at the Countess of Nottingham's deathbed, but from about that time the Queen's illness dates.

Something then occurred which so violently agitated the Queen, as to bring on one of those acute liver attacks which are rare in England, but are a common result of extreme agitation amongst the more susceptible temperaments and weaker constitutions of the South.

The whole of the correspondence is extremely striking, but I venture to transcribe only the envoy's first letter, which gives an account of his interview with the Queen; besides its other merits, it is perhaps

almost the only letter of sufficient brevity to warrant its insertion in this place as a specimen of the diplomatic correspondence of the Signory.

A.D. 1602–3, *Feb.* 19*th*, *N.S.*, *London.*

Most Serene Prince,—

The Queen and the Council being acquainted with your Serenity's resolve and the causes of my coming, both through Paul Pindar, now here, who is intimate with Secretary Cecil, as likewise from what I myself told those members of the Privy Council whom I visited, it having been arranged for my audience to take place on Sunday, the 10th inst., one of her Majesty's fifty gentlemen pensioners came to me on the evening of Saturday, to announce that the Queen had commanded him to conduct me to her on the morrow at two p.m.

At the hour appointed for my departure, the pensioner having passed all the fore part of Sunday with me, I went to Richmond, although the weather was bad; and on arriving there, several gentlemen received me below at the foot of the stairs, making civil speeches out of respect for your Serenity; and above I was met by the Lord Chamberlain, who first took me into the Presence Chamber, and very soon afterwards into the other, where her Majesty was.

The Queen wore a dress of silver and white *tabi*, edged with bullion, and rather open in front, so as to display the throat, enriched with pearls and rubies midway down the breast; the swell of her gown was much greater than is fashionable in France, and descended lower, her head-dress being of fair hair, such as nature could not have produced; on her forehead were large pear-shaped pearls, and with frontlets resembling an imperial crown or cap; she made a great display of jewels and pearls, her person even below the boddice being well nigh covered with jewelled golden girdles, and with detached precious stones, such as carbuncles, balass, rubies, and diamonds; and on her wrists, in lieu of bracelets, were double rows of pearls, above the middle size, and although seventy years of age, she bears them well, from Nature's great bounty to her, rather than through the aid of art.

Thus, in regal dignity, sat the Queen on a chair, raised by two steps on a small square platform, below and around which stood the Archbishop of Canterbury—the Metropolitan of this Kingdom, the Chancellor, the Treasurer, the Admiral, the Secretary, and the whole Privy Council, all uncovered; the rest of the apartment being filled by lords and ladies, and by the ball musicians, who had played until my entry; whereupon the Queen stood up, and I advanced with the due obeisances. On reaching the platform, I was in the act of kneeling on the first step to kiss her garment, but this her Majesty would not permit, and with both her hands well nigh raised me, giving me the right, which I, in fact, kissed, and saying simultaneously, "Welcome to England, Mr. Secretary; it is high time for the Republic to send to see a Queen who on every occasion has done it so much honour."

I then made a slight retrograde movement, and adapting my dis-

course to the greeting she had given me, said in substance that during a long course of years a variety of accidents had prevented the verbal announcement through any special envoy, of that great affection and observance borne by the Republic towards her Majesty individually; and of the esteem in which the Signory held this, her most ample and noble kingdom; but that notwithstanding the lapse of so long a period, and the passage to another world of so many of ourselves, yet had there not passed away from the Republic, who is always the same, that most ardent desire to do what was agreeable to her Majesty, towards whom the State maintained that fullness of affection with which it has ever loved and revered her, and been ever anxious for her life and prosperity; that should she on all occasions have honoured the Republic, this she did in acknowledgement of its constant good will; and that in like manner as your Serenity evinced reciprocity, so would I fain have it in my power adequately to express your gratitude and sense of the obligation, but at any rate I should give her an opportunity of now proving in effect through her great justice, all that her own lips had so courteously announced to me.

Before going further, however, I said that in execution of the first clause in my commission, I congratulated myself in your Serenity's name on the perfect health in which, by God's grace, I found her, vowing that the entire Republic wished her the greatest possible happiness and contentment.

Although I made a full stop at the close of this compliment, the Queen vouchsafed it no reply; so I proceeded to business, and after presenting my credentials, stated briefly the excellent treatment received by her Majesty's subjects throughout your Serenity's territories; and on the other hand, the grievous excesses perpetrated by English corsairs. I expatiated on the important losses incurred by Venetian subjects within the last few years, saying how much the Signory had at heart the speedy restitution of the plunder by her Majesty's order, concluding by a remark on the consequences of mutual misunderstanding, and expressing hopes that the world might see the result of this mission appointed by your Serenity on such just accounts.

The Queen, who held your Serenity's letter in her hand, then gave it to the secretary, who having opened it, returned it to her; whereupon she sat down and read it through; after which, again standing up, and again giving the letter to the secretary, whereas until then her countenance had been placid and well-nigh smiling, it suddenly became rather more grave, and she spake as follows:—

"I cannot but feel deeply that throughout the forty-four years of my reign the Republic has never made itself known to me, save by demands; and for the rest, whether my affairs were prosperous or adverse, never did the State ever give any sign of holding me and this kingdom in such account as that wherein she holds other princes and potentates. I am not indeed aware that my being of this sex can have degraded me, for this my sex has committed no fault, nor can it injure those who treat me as other sovereigns (to whom the Signory sends her ambassadors) are treated; but I well know, and with this I in

part excuse the Signory, that throughout the many debates held on this subject she could not obtain permission from certain powers.

"For all this I will not be discourteous with her, but with regard to the affair in question, I must tell you that this kingdom's population is not so small as not to contain rascals and ribalds; though as the matter concerns my own subjects I will appoint commissioners to confer with you and report to me, and will do as much as I possibly can to give satisfaction to that most serene Republic, for I do not choose to be discourteous."

She then assumed a listening attitude, and in reply I said,—

"Madam, I am glad your Majesty mentioned having worthily reigned over this your most ample realm during forty-four years, as it proves you no novice in the affairs of this world and aware that all sovereigns regulate themselves according to circumstances, so I will say no more about your proposition, save that the Republic of Venice, a power, by the grace of God, great and free, although it proceed with great respect towards those to whom such is due; yet has the State never been accustomed to ask permission for its resolves of any sovereign in the world, either spiritual or temporal."

Her Majesty contented herself with the truth of this reply, and then remained almost always laughing, still standing, until my departure, before which I added that since for the thorough comprehension of my business she meant to appoint me commissioners, I besought her to do so without delay, and to remember that services are by so much the more acceptable, inasmuch as they are rendered easily and generously.

To this the Queen said,—"I will do it and let you know; but am not sure whether I spoke well in this Italian tongue, though I think I did, and that I have not forgotten it, for I learnt it as a girl;" and then graciously offering me again her hand to kiss, she said in conclusion precisely thus:—"For the present I will not detain your lordship any longer."

Whereupon I took my leave and returned to London that same evening by night.

Then this morning her Majesty sent me word that she had appointed the Admiral, the Secretary, and the Counsellor Wotton, to hear my demands and report them to her; and shortly afterwards they themselves sent to me saying that if convenient to me, the conference should take place to-morrow afternoon in the house of the Lord Admiral, to which I readily consented, and thus will it be, and of the result, the principal parties concerned, shall be acquainted in due time.

The position of the secretary in this dialogue is sufficiently embarrassing. There is no doubt that the deference of the Venetian government for the Pope and for the King of Spain had prevented their keeping up their diplomatic relations with Elizabeth, and the only possible excuse to her for this was the constraint which these powerful and overbearing neighbours imposed; but the secretary is obliged to disclaim this apology in order to save the dignity of the Republic. Elizabeth knew exactly how matters stood, she had long ago told one

of the many Venetian travellers to whom she had already addressed her complaints on this subject, that she well knew the cause of the Republic's neglect was "that old man," "meaning," he says, "his Holiness," who was, in fact, a few years younger than herself. But the Queen with remarkable forbearance and dignity, waived the further discussion of this unmanageable point. When the secretary next applied for an audience, she declined seeing him till all matters in dispute were amicably settled and she had none but agreeable topics to dwell on. But that time never came. Soon a vague report of the Queen's illness was spread abroad, and then the alarming certainty of it was averred beyond the possibility of doubt.

The letters which follow are very interesting. Some are written in duplicate, on slips of paper to be smuggled across the water as they can; for when the Queen's danger could not be concealed, the ports were closed. The various rumours; the alarm of the citizens; the supposed movements and the actual arrests of the Roman Catholics; the difficulty of maintaining order in a town "scarcely less than Paris and incredibly ill fortified," the interview of the Council with the dying Queen; her suggestion in favour of the King of Scots; the decision of the Council and the departure of the Baron Gree (Sir R. Carey) for Scotland when all was over; the Queen's own directions respecting her person after death; the details of the court ceremonies previous to interment; the attempts made by some of the Roman Catholics to claim the deceased as a co-religionist from her dying expressions of regret and the ornaments of her chapel when alive,—all these, and many more such particulars are told with an awe-struck earnestness which almost makes the reader a contemporary witness, as the writer of the dispatch was, of the events which marked the last scene of the great Queen's life.

The period to which the last mentioned letters relate will not be reached in the present volume, which concludes with the death of Henry the Seventh in the year 1509.

THE SUEZ CANAL.

The undersigned delegates of the chambers of commerce to the Canal of Suez, after having examined the works already done, and taken into consideration the possibility of the enterprise, report:—

"*Cairo, April 17th*, 1865.

"We started on the 7th inst. from Alexandria by railway for Cairo, where we remained until the morning of the 9th. We then proceeded by railway to Zagazig, where we embarked at nine o'clock a.m. in boats drawn by mules and camels on the fresh water canal made by Mehemet Ali, and arrived the same day at Telel-Kebir, a station of the company.

"On the 10th, in the morning, we continued our journey in the same manner, and at noon we entered upon the fresh water canal made by the company. At five o'clock p.m. we arrived at Ismailia the central station on the Suez Canal.

"The 11th we remained at Ismailia to examine the works there, as well as those of Serapium, the most elevated point of the isthmus.

"The 12th we started from Ismailia by the sea canal in boats of small draught drawn by mules and camels. We arrived at Kantara at four o'clock p.m., having visited the important workshops and works of El Guisr and El Terdan. From this point, in many places, and for a length altogether of sixty kilometres, (about thirty-six miles,) the canal is already excavated to its full width. The portion previously traversed was only about one third of the width proposed.

"The 13th we left Kantara in the same way for Port Said. Twenty kilometres (twelve miles) before reaching this place we found five small steamboats, which brought us to the Mediterranean. There we examined the piers in course of construction.

"The 14th we remained at Port Said to visit the important buildings, workshops, and materials which the company possess in that town.

"The 15th we returned by boat to Ismailia; and the 16th, in the morning, we started for Suez by the fresh water canal in boats drawn by mules and camels, arriving at Suez in the evening. The two locks intended to connect the sea canal with the fresh water canal, in course of construction at Ismailia, are not yet finished, and a transhipment here is now necessary.

"Our passage from the Mediterranean to the Red Sea was accomplished in twenty-seven hours, as follows:—eleven hours from Port Said to Ismailia, and sixteen hours thence to Suez.

"A telegraphic wire extends the whole length of the canal, communicating with the wires of Cairo, Alexandria, and Suez.

"During our voyage we had opportunity to observe the excavators and other machines used for digging the canal. All the works belonging to the company appeared to us built and equipped in a solid and permanent manner. In our opinion the construction of a ship canal across the isthmus is only a question of time and money.

"We are informed that the company has already made contracts with various contractors for the completion of the ship canal by the 1st of July, 1868, without exceeding the actual capital, including therein the indemity due by the Egyptian government under the award of the Emperor Napoleon III.

"During the whole of our trip we received the greatest hospitality from M. de Lesseps and the engineers of the company, and these gentlemen answered freely all the questions which we put to them.

(Signed by the Delegates.)

Merchant Shipping and the Tarifa Forts.

Our readers will be glad to learn that the odious and unnecessary practice of the Spanish forts of Tarifa firing into our merchant shipping for neglecting to show their colours in the Strait of Gibraltar, is at length abolished. The process of showing her colours is no great tax on a ship, and the neglect of doing so has mostly arisen from our merchant captains being ignorant of that requirement. In war time (for it is a remnant of war) there was no doubt good reason for knowing what ships were passing, but in such advanced times as these all pretensions of that kind have vanished, and with them, we may now say, this barbarous practice also.

A little time ago an English schooner (the *Dartmouth*) was sunk by a shot from Tarifa, so that it really became high time to look seriously at the state of the law itself which produced such results. This has been done, and our representative at the court of Madrid, with authority from our cabinet, has effected its abolition. The following is the first clause of the treaty; the remainder relating to the power of renewing the measure in the event of war, and the present abolishment of it not interfering with points of etiquette between the ships of each state:—

The government of her Majesty the Queen of the United Kingdom of Great Britain and Ireland, and the government of her Majesty the Queen of Spain, taking into consideration that the cause which gave rise to the establishment of certain precautions in the fortified places which surround the Straits of Gibraltar, in the case of vessels approaching them within the distance of cannon shot while sailing in those waters, no longer exists; and having regard to the inconvenience to which the navigation of merchant vessels has been liable by a compliance with the formalities to which they are subjected by reason of the aforesaid precaution, when the currents or the winds oblige them to enter into the waters belonging to the maritime jurisdiction of the aforesaid fortified places; and taking into consideration, finally, that these fortified places under normal circumstances are exempted by the good faith of nations from surprises or attacks, which the law of nations condemns, have agreed upon what follows.

1. In the places of war and fortresses belonging to Great Britain and Spain which command the Straits of Gibraltar, those regulations are abolished, in virtue of which it is required that merchant vessels which cruize in the said straits shall show their flag in passing within cannon-shot of those places or fortresses; and it is agreed equally to abolish the intimation by means of shot, at first with powder only, and afterwards with ball, to those vessels which neglect or refuse to comply with the aforesaid obligation of showing their flag.

Royal National Life-Boat Institution.

At the meeting of this institution on the 4th May, the minutes of the previous meeting having been read, a reward of £13 was voted to the crew of the Whitby lifeboat of the institution, for putting off through a very heavy sea and saving fifteen persons, including the captain's wife and a lad twelve years of age, from the screw steamer *Ocean Queen*, of Newcastle, which was wrecked on the rocks off Whitby, on the 19th April.

A reward of £5 was also voted to the crew of the lifeboat of the institution stationed at Rosslare, County Wexford, for going off and rescuing the crew of six men from the lugger *Peep o' Day*, of Wexford, which was totally wrecked during a strong wind from the E.N.E., on the Dogger Bank off that place on the 21st April.

A reward of £4 10s. was likewise granted to the crew of the institution's lifeboat of Fowey, Cornwall, for putting off and remaining alongside the Hanoverian galliot *Eintracht*, which was in distress on a lee shore in St. Austell Bay, during a very strong wind from S.E. on the 30th April.

Rewards amounting to £22 17s. were also granted to the crews of the lifeboats of the institution at Pembrey (Llanelly), Cemlyn, Portrush, and Cahore for different services during the past month. Various other rewards were also granted to the crews of shore boats and others for saving life from shipwreck on the coast of the United Kingdom. Payments amounting to £800 were ordered to be made on various lifeboat establishments.

The meeting expressed the deepest regret to learn of the death of Admiral R. Fitzroy, F.R.S., and their sincere sympathy for his widow and children. The gallant admiral had been a member of the committee of management of the institution for many years past, and was in every way a valuable coadjutor in its humane work.

Lady Martin had forwarded to the institution a contribution in memory of her brother, the late Admiral Sir Byam Martin, K.C.B. The Duke of Leeds had also sent the institution a liberal annual subscription of £10, and £7 1s. 3d. had likewise been received from the Rev. W. Ll. Benyon, M.A., after sermons preached by him in Seale Church, Surrey.

During the past month the institution had sent new lifeboats to Sunderland and Dunbar. The cost of the Sunderland boat had been raised in the town and county of Derby by Thomas Roe, Esq., the mayor; William Peat, Esq., and other friends. The lifeboat was sent to Derby *en route* to its station, and a great demonstration took place there on April 22nd, on the occasion of naming the lifeboat. Public demonstrations had also taken place at Sunderland and Dunbar, on the arrival of the new lifeboats at those places. The institution had also sent a new lifeboat to New Quay, Cornwall, to replace one previously there, which had become unfit for service. The several

railway companies had, as usual, readily given free conveyances over their lines to the lifeboats to their respective stations.

The institution had sent a beautiful model of its lifeboat and transporting-carriage to the Naval Department of the South Kensington Museum.

It was stated that the institution was taking active steps to provide our seamen generally with a cheap and efficient lifebelt for use on shipboard in cases of shipwreck. The Board of Trade and the Commissioners of Customs had promised that their officers at the outports should render every assistance to the institution in carrying out its benevolent object in this respect. It should here be stated that much credit is also due to Mr. Charles Kilburn, of Richmond, for publicly calling attention to the necessity of providing our seamen with a cheap and handy lifebelt on his own plan.—*(See* page 290.)

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

Particulars of Lights Recently Established.

(Continued from page 271.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
24. Tipara Reef	Light-vessel	Spencer Gulf, Australia	F.	12	3	Est. 1st April, 1865. (*a.*)
25. Danube	St. George Mouth	Black Sea	R.	..	10	Est. 4th May, 1865. (*b.*)

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a.) 24.—The vessel has two lights:—A *fixed* natural light at the mainmast, 24 feet high, seen seven miles off; and a *fixed red* light at the foremast, 12 feet high, seen 3 miles off.

The vessel is red, with a ball at the mainmast head, and lies close to the rocky patch near the South end of the reef, with Elizabeth Point S.E.¼S., and Long Point N.E.b.E.

Approaching the light from N.N.W., do not approach the northern end of the reef while the red light is visible, nor into less than 7 fathoms water.

The *Tipara Reef* is mostly of sand, but has a rocky patch near its southern end that dries at low water. From this patch the shoal extends northward about 2 miles; the western edge trends to N.N.W.; the S.E. edge takes a N.E.½E. direction; its greatest breadth East and West is nearly 2 miles. In places it has 1½ fathoms water, but on the N.N.E. part of it only 2 or 3 feet. Its South end lies N.W., 4½ miles from Elizabeth Point; and the North end S.W.b.W.¼W. from Long Point buoy.

A red nun buoy lies off Long Point in 3 fathoms water, with Elizabeth Point S.½E., and Long Point E.b.N.½N.

Directions.—Vessels rounding the South end of Tipara Reef should not bring Elizabeth Point to bear southward of S.E.b.E.¼E.; and in rounding the North end, when bound into or out of Tipara Bay, Long Point buoy should not be brought eastward of E.b.N.½N. To pass westward of the reef, approach the light-vessel no nearer than a mile, nor stand into less than 6 fathoms water; a N.N.W. course will lead along on the West side of the reef.

When Long Point buoy bears East, if bound into Wallaroo Bay, steer a N.E. course, taking care, as the buoy is brought to the S.E., not to stand into less than 4¼ fathoms. When Long Point bears South, steer E.b.N., and the pilot and harbour-master will come off.

At night, a vessel in the vicinity of Tipara Reef, must not stand into less than 7 fathoms water, nor attempt to enter the bay until the lights at the smelting works are clearly seen bearing E.b.N., then steer for them, taking care not to go into less than 6 fathoms water, unless well acquainted with the bay, or the pilot has taken charge.

The tides in the vicinity of the reef, and Long and Elizabeth Points, are irregular and rapid; care should therefore be taken to guard against their influence when in the stream of the reef or near the points.

All bearings are magnetic. Variation 4° 35′ E. in 1865.

(b.) 25.—The light attains its greatest brilliancy every *minute*, showing alternately *red* and white faces; the eclipses are total.

The tower (wood) stands on the small sandy islet at the South end of Olinka Island, in lat. 44° 51′ 5″ N., long. 29° 36′ 52″ East of Greenwich.

Cape Spartel Light.

We have received the following notice from the *Dépot des Cartes et Plans* in Paris.

"Three wrecks have taken place on Cape Spartel since the commencement of the light on that cape in November, 1864. The commanders of the wrecked vessels, one French, the others English, assert their ignorance of the cape being lighted, and that they mistook it for Tarifa, being the same character of light and visible at the same distance. These wrecks are to be regretted, and this notice will suffice, (it is to be hoped,) by giving the utmost possible publicity, to prevent the occurrence of more.

"But should not these be attributed in a great measure to the neglect of navigators in not informing themselves of the changes which are constantly going on in the lighting and buoying of the different seas? The lighting of Cape Spartel was announced in the *Moniteur* of 17th March, 1864, also in a notice from the Depot on the 16th April following, and in a second notice from the Depot on the 15th October, 1864. It is also mentioned as being *building* in the book of Lighthouses of January, 1863, as well as in that of January, 1864. If, as stated in the report of these wrecks, the light of Cape Spartel appears as *projected* only in a lighthouse book of 1864, printed and published by private hands, it is a very serious mistake. Why then are not captains, who are anxious to supply themselves with these matters, careful to obtain the official publications of the minister of public works in France, and the Dépot de la Marine, which supplies the whole world, at so small a cost that they may be considered as given away to remove every pretext for ignorance.

"As to the similarity between the lights of Cape Spartel and Tarifa it is certainly inconvenient, but a glance at the chart will show that it is almost impossible that a commander making the entrance of the Strait can help seeing the eclipses of the light on Cape Trafalgar, lighted in 1862, and visible from all parts of it. A sight of this light would remove all doubt, and enable a ship to enter the Strait in safety."

We are not aware of the circumstances under which the wrecks above alluded to occurred, but it was an unfortunate decision to make Cape Spartel a *fixed* light, since it is only separated from another fixed light by a distance in latitude of thirteen miles, and a difference of about nineteen or twenty minutes of longitude, and that light is the beautiful light of Tarifa in the Strait of Gibraltar.

But it is no less unfortunate that the numerous copies of the notices of lights everywhere as they are established, either abroad or at home, do not meet the eyes of navigators as they should do. And yet they are carefully distributed by our government to foreign consuls and our naval commanders-in-chief on the several home and foreign stations. More than 700* copies are distributed by the Admiralty alone. The French hydrographer is no less active in their distribution, and notice of the lights in our own journal contributes to the good work of making them public. There stands the account of the light on Cape Spartel in our number for October last year. Are any of these attended to by navigators? The fault is theirs if they are not, for more cannot be done for our absent friends than to provide for them as is done both at home and abroad.

Port au Prince,—*Haiti.*

Navigators have been cautioned when entering this port on the probable erroneous position of the light on Point Lemantin,—this light having been supposed to be on Point Tor, as appears by the notice on the plan of the port given by Captain Cummins, of the screw steamer *Darien*. It appears, however, that Captain Cummins's suspicion of the light being on Point Tor is entirely unfounded, the consul having sent home a full report confirming the correctness of its position on Point Lemantin. Navigators may therefore rely on the correctness of the light on the plan of the port; and they are moreover warned that as the light is stated to be distinguished with difficulty from the town lights, it is shortly to be altered to a *red* light to seaward, the limit of the red being probably to show the outer edge of the shoals in the bay.

Lights on the Coast of Queensland.—*Extract of a Letter.*

I hope that this year the expenditure of some £22,000 on lighthouses for the coast and harbours northwards will be sanctioned. I

* A thousand are distributed if it be a home light.—Ed.

have proposed a fixed light, first order, on Sandy Cape, the light of which will be about 380 feet above the sea level, to be on the holophotal system, and varied by short eclipses. Vessels will sight this light when coming from the northward some six or seven miles off the extreme of the spit; that, with a bearing, will pretty nearly indicate their position; some simple table being published with the directions showing the different distances at which it will be seen by the eye at different heights.

The next point will be Bustard Head: there I have proposed a revolving light of the second order, on the holophotal system, and one minute revolutions. Bustard Head is the land first made by vessels passing through Curtis Channel and bound northward; and off it to a distance of some three miles lie some dangerous detached rocks. The channel here is only some twenty-seven miles wide, and it is a turning point on the coast for the country steamers.

I have also proposed to have a lightship in Keppel Bay, with other lights. A light on North Head, Port Denison, fifth class. Two lights on Woody Island, Hervey Bay, fifth class, for leading through the outer point of the Banks. These will by and bye require to be more powerful lights. It will, however, be a great improvement to have these lights, as they are very much wanted on this coast. The light dues already pay more than the expences of the Moreton Bay lights, so that it is quite time some improvements were made.

The lights on Moreton Island are also going to be improved, as I have got fifth class dioptric apparatus for them out from England, and the lights on the beacons at the Brisbane Bar will also be much increased in power. I have just obtained permission to have small permanent light-rooms erected on iron screw piles, in which I propose to exhibit a kerosine light inside a cast dioptric glass circular lense, fluted inside. This is a patented arrangement, and the effect in smaller lenses is wonderful. I have ordered some to be manufactured in England, one foot in diameter, for this purpose, and expect to hear by this mail that they are on their way out. I should be glad if at any time you could send me out any suggestions as to lighting arrangements, as many things are daily being discovered in England which here we might be in blissful ignorance of for a great length of time.

WALAROO AND TIPARA BAYS,—*South Australia.*

Notice is hereby given that, on and after the first day of April next (1865), the floating beacon now moored on the Tipara Reef will be replaced by a temporary lightship, which will be moored close under the rocky patch near the southern extremity of the Tipara Reef, with the following bearings:—Elizabeth Point, S.E.$\frac{3}{4}$S.; Long Point, N.E.b.E. The lightship has two masts, is painted red, and exhibits during the day a red ball at the mainmast head.

Lights.—From sunset to sunrise will be exhibited the following lights:—A white light from the mainmast twenty-four feet above

the sea level, visible from all points of the compass at a distance of seven miles in clear weather. A red light from the foremast twelve feet above the sea level, visible from N. to S., round by W., a distance of three miles, in clear weather.

Vessels making the light from the N.N.W. should not stand towards the northern extremity of the reef whilst the red light is visible, by observing the direction a ship will be well clear of the reef.

Should the weather be hazy, and the red or less intense light be obscured, no vessel should approach the reef with the white light bearing S.S.E., under seven fathoms.

The following description of the Tipara, and sailing directions for Walaroo or Tipara Bays, are published for the guidance of mariners.

The Tipara Reef is an extensive shoal, the southern extremity being four and a half miles N.W. from Elizabeth Point.

The reef consists principally of sand, but there is a rocky patch of small extent near the southern extremity, which dries at low water; it is under the shelter of this patch where the lightship, referred to above, will be moored.

From the rocky patch the reef extends in a northerly direction about two miles, the outer edge trending to the N.N.W.; whilst the S.E. part takes a N.E.½E. direction; the extreme breadth from east to west nearly two miles.

The soundings on the reef vary:—in some places there being a fathom and a half, whilst in others—particularly to the N.N.E. part of the shoal—there are only two or three feet. From the northern extremity of the reef, the buoy off Long Point, referred to in this notice, bears N.E.b.E.¾E.

Vessels rounding the south part of the reef should not bring Elizabeth Point to bear to the southward of S.E.b.E.½E.; whilst those intending to pass to the northward of the danger, into or out of Tipara Bay, should not bring the buoy off Long Point to bear to the eastward of E.b.N.½N.

A red nun buoy has also been placed off Long Point in three fathoms, with the following bearings:—Elizabeth Point, S.½E.; Long Point, E.b.N.½N.

To pass outside or to the westward of the Tipara Reef, do not approach the lightship from the westward, under six fathoms, or come within a mile of the same; from this position, when to the westward of the reef, steer a N.N.W. course, in which the same soundings will be maintained.

When the buoy of Long Point bears east, a course of N.E. may be shaped, taking care as the Long Point buoy is brought to bear S.E., not to come under four and a half fathoms.

When Long Point bears South, a course of E.b.N. may be shaped, when the pilot and harbour master will come off, and conduct the vessel to the anchorage or jetty.

At night, no vessel in the vicinity of Tipara Reef should come under seven fathoms, or attempt to enter the bay until the lights from the smelting works are clearly defined, bearing E.b.N., when that course

may be shaped for the anchorage; taking care not to come under six fathoms, unless the commander is sufficiently well acquainted with the bay to take the ship in, or the pilot has taken charge.

The tides in the vicinity of the reef and Long and Elizabeth Points, are irregular and rapid; care must therefore be exercised to guard against the influence of the tides when in the stream of the reef, or near the points referred to.

It is high water at Port Wallaroo at 5h. 45m. F. & C.; rise and fall four feet eight inches at ordinary springs.

To pass inside Tipara Reef give Elizabeth Point a berth of a mile and a half, to avoid the shoal rocky patch which extends nearly a mile from the Point in a north-westerly direction.

With the Point bearing S.E., distant a mile and a half, steer due N., which course will lead through the inner passage in not less than four fathoms.

In beating through, keep the lead going, and do not, in a vessel drawing more than seventeen feet, when standing in shore, bring Long Point Buoy to bear to the westward of W.N.W.

In standing off, when to the southward of the north end of the reef, do not bring the Long Point Buoy to bear to the eastward of N.N.E., by which the eastern part of the reef will be avoided.

Small vessels may pass inside the Long Point Buoy, taking care not to bring Elizabeth Point to bear to the westward of S.b.W., so as to avoid the Walrus Rock. With the above bearing a vessel will be in two (2) fathoms at low water, spring tides, with the Walrus Rock distant about half a-mile.

The Walrus Rock lies nearly a mile off Long Point, when bearing S.E.b.S., and is nearly dry at low water.

N.E. a mile and a-half (1½) from the Walrus Rock lies the Bird Reef, which is awash at low water.

Coasters should give this danger a wide berth, not bringing the Long Point Buoy to bear to the westward of S.W. With this bearing a vessel will be in two (2) fathoms at low water.

In the bay there is excellent anchorage in four (4) fathoms, with the jetty end bearing E.S.E., distant about two (2) cables' lengths.

Small vessels can anchor in three (3) fathoms, with the end of the jetty bearing S.S.E. to S.

Along the jetty will be found good berths, from eight (8) to fourteen (14) feet, shoaling towards the shore.

All bearings are magnetic, variation 4° 30′ E.

B. Douglas,

President of the Marine Board of South Australia.

Marine Board Office, Port Adelaide, Feb. 23rd, 1865.

Directions for Wide Bay.—*Great Sandy Island Strait, and the Mary River.*

A vessel having made Double Island Point (a bold bluff headland

safe to approach to two cable lengths) should look out for a rock awash (which always shows) lying due north about a mile from the Point. The rock is safe to approach on all sides to a cable's length, and there is a good passage between it and the Point. Having passed outside the rock at a convenient distance, steer N.W.b.N. After running on this course four or five miles, the entrance will be seen opening out to the southward of the termination of the high land of Frazer Island. Do not approach the heads nearer than five miles, as the shoal water forming the Bar extends out nearly that distance. It is steep-to, and shows itself by the discoloration of the water in fine weather, and by the break, if there is any swell on. Stand to the northward until the hollow in the centre of Baupal Mountain (a very conspicuous mark on the mainland) is shut in behind the high land on Frazer Island, the North Head bearing about S.W.b.W.$\frac{1}{2}$W. Keep these marks on until across the Bar, when haul up for the entrance. Should Baupal Mountain be obscured by thick weather or other causes, bring the North Head and the point of land which forms the South Head on with each other (the sandy beaches and not the bushes touching each other), and cross the Bar with these marks on.

A vessel will not have less than three fathoms upon the Bar if following these directions. The spit running out in an E.N.E. direction from the South Head nearly always breaks, and will easily be seen. Borrow a little on the south side as you approach the entrance, to avoid a spit running out a third of a mile from the North Head. This is the best entrance for a stranger, as there is less chance of mistaking the marks, as the Baupal Mountain is the only high land visible in that direction. It shows itself immediately after passing the high land of Double Island Point, and is about twenty miles from the coast.

In westerly winds or smooth water there is a channel further to the westward, with 2$\frac{1}{2}$ or 3$\frac{1}{2}$ fathoms in it (according to tide). To enter by this channel, after passing Double Island Point at a distance of half a mile, and inside of the detached rock, steer N.W.b.N. When the entrance is beginning to show, a sand patch will be seen at the south end of a range of low sand hills or cliffs, which terminate at their northerly extreme in a low sandy point. Bring this patch on with an abrupt elbow or fall in the high back land of Frazer Island. Keep these marks on; the ship's head will be about N.W.$\frac{1}{2}$N., and Double Island Point *nearly* right astern. You will shoal suddenly upon the Bar, to 2$\frac{1}{2}$ or 3$\frac{1}{2}$ fathoms (according to tide). When on the shoalest part, Baupal Mountain will be just opening out to the northward of the South Head. Keep the marks on. You will carry 3 to 3$\frac{1}{2}$ fathoms three quarters of a mile; after which the water will deepen to five fathoms, when you may haul round the spit and steer for the entrance.

In strong S.E. or easterly winds the sea breaks heavily upon the Bar, rendering it unsafe to cross; and this is particularly the case in the summer months, when the sun is to the southward of the equator, more especially in the months of February, March, and April, when

the wind is almost always blowing from the S.E. and eastward. A vessel would have notice of the state of the Bar by the swell on the coast before reaching Moreton Island, where she might shelter, or might, if she thought it desirable, run round the north entrance by Breaksea Spit. With south, south-easterly, or easterly winds, there is, however, good shelter under Double Island Point. But supposing the *swell* is not great, the Bar is quite safe to enter, though breaking across. The break is always much less towards high water.

In leaving Wide Bay, do not attempt to *proceed* to *sea* if there is any break across the Bar, as it is attended with great risk and danger, from the short abrupt sea which comes in, in the shape of rollers, with great velocity.

After entering the Heads, the channel is clear from side to side. Steer along the Frazer Island shore at the distance of one or two cables' length, until abreast of the first high land; then steer N.W.$\frac{1}{2}$W. The Fairway Buoy will soon be seen—steer for it, and pass close on either side of it. When abreast of the buoy, haul up north, or steer for the highest part of the ridge of high land on Frazer Island. The lower beacon (red) will be seen a little on the starboard bow;—when abreast of this beacon (which leave a cable's length on the starboard hand) the channel beyond is shown by four black beacons, which are placed on the edge of a bank, and are to be passed on the port side. The banks on either side of the channel are here steep-to. Continue a northerly course until abreast the second black beacon,—a N.W. course until abreast the third,—and a N.W.b.W. course until abreast the fourth beacon. You will now be one-third of a mile N.W.b.W.$\frac{1}{2}$W. from the red buoy off the sand spit running out from Stuart Island. Haul round this buoy, within a ship's length, and steer N.N.W.$\frac{1}{2}$W., leaving on the port hand a large white beacon, which will be seen to the westward, and two black beacons beyond. Before passing the second of these black beacons, a large white and a red beacon will be seen near together to the northward; steer for the white beacon until within a cable's length, then keep away, and pass on the starboard hand, within a ship's length, a second red beacon placed on the end of the spit. The next beacon is black, and will now be seen in a N.N.W. direction, and is to be passed on the port hand. Then steer N.N.W., until you see a black buoy, which is to be passed on the same side;—pass also, on the port hand, within a short ship's length, a green buoy a short distance beyond; it denotes the position of rocky ground in mid-channel. Abreast this rock is a shoal, on which there is not more than six feet at low water. From this point the tides separate, and run in opposite directions—one towards Hervey Bay, and the other towards Wide Bay.

Not far from the green buoy is a black beacon to the N.W., placed on the port side of the channel—the round bush which formerly stood near the position of this beacon having been washed away. After passing this beacon, haul up N.b.E.$\frac{1}{2}$E., and pass, on the starboard hand, two red beacons—the second of which is placed on the

N.W. extreme of a sand bank—and leave a black buoy on the port hand. A third and fourth red beacon will be seen to the N.E., defining the edge of the same shoal. After passing the third red beacon, a black beacon will be in sight, on with some low sandy cliffs on Great Sandy Island, bearing N.E.½N., and a black buoy in the same direction, but still further on, showing the extreme point of the spit. In hauling up to the northward round this buoy, two more black beacons will be seen bearing about N.W., which are also to be passed on the port hand. Hence, the channel follows the shore of Great Sandy Island (which is here low, and fronted with mangroves) as far as a low point: from this point the shore trends away in a north-easterly direction towards the white cliffs opposite the mouth of the River Mary. From the low point steer about N.W. for the dip at the north-west end of Woody Island. This course will take you to the eastward of the Fairway Buoy. As you approach this buoy (which is to be left on the port hand) the heads of the Mary River will open out in a W.S.W. direction. The channel then runs exactly in a line between the mouth of the river and the white cliffs opposite on Great Sandy Island, and you will carry from three to five and six fathoms as you approach the river heads. Pass at a distance of about half a cable's length from the extreme rocky point of the north head (which is marked by a red beacon), and steer for a small dry sand bank, which will be seen about half a mile inside the mouth of the river, taking care not to shut in the heads with one another. Then pass, on the port hand, a black buoy, which lies off some rocky ground, and round a second black buoy, which will be seen beyond. Then steer to the southward for a white beacon, in a line with some high trees on the opposite side of the river, passing a black beacon on the port hand. Off the small island which lies on the port side of the channel there is a patch of rocky ground; it bears W.b.S. from the island, from which it is distant about two cables' length. It is marked by a red buoy, which is to be left on the starboard hand.

After passing about a cable's length from the white beacon, keep away S.W.b.W.½W. towards the north shore, and steer for another white beacon, which will be seen in that direction. Two red beacons will be passed, which mark out the edge of the starboard shoal, and three black beacons (which will be seen on the port hand) point out the northern limits of the Horse-shoe Bank. From this point a third white beacon will be seen on the south shore; pass within half a cable's length of this beacon, and steer along the south bank of the river, and for a white beacon on Crab Island, which pass within a short ship's length, and steer for another white beacon on the south shore, passing (on your port hand) a black beacon on the "Beaver" rock, and a black buoy a short distance above, which is placed on another rock. Keep the south shore on board—passing three red beacons on the starboard hand—until the next white beacon on the same side is reached; then haul out a cable's length from the bank, and steer for Rocky Point, passing, on the port hand, but not too closely, a black beacon, which stands well off the land about a quarter

of a mile above the last white beacon. Pass Rocky Point within half a ship's length, and retain that distance from the shore all round the bight above the point, passing two black beacons on the port hand. When a white beacon is reached, about half a mile above Rocky Point, haul off for another white beacon off the north side of the "Brothers," and then again stand in for another beacon on the mainland.

From thence you stand towards the south shore for a white beacon, bearing about S.W.b.S., and after passing, on the starboard hand, a red buoy which points out the limits of a shoal, keep that shore on board until within about three quarters of a mile of Pettigrew's Sawmills, which may be recognised at a distance by a great extent of low-pitched galvanized iron roofing. A white beacon on the south shore points out the spot from which a course is to be steered for the saw-mills, two black buoys being passed on the port side. The channel over the Flats is very narrow, and has not more than seven feet of water on it at low water springs. After rounding the first long low point of land above the saw-mills, the entrance to Saltwater Creek will be seen. Keep in mid-channel until past the creek, and then haul over to the starboard shore, until past a small low mangrove island, above which there are no other obstacles to the navigation—further than that the rocky shore on the starboard hand, before arriving at the township, ought not to be approached too closely.

It is high water on the Bar at full and change at 8h. 30m., and about 9h. 30m. at the river heads. The flood tide through Hervey Bay meets the flood through the southern entrance about the Round Bush. The springs run from three to four knots, and are very irregular. The rise and fall of the tide is from seven to ten feet, at the Heads, and from six to eight feet at the Bar.

A stranger, after entering the Heads, should procure the assistance of one of the natives of Fraser Island, some of whom are very intelligent, and have a good knowledge of the river. They will readily come on board, and will be found very useful. If care is taken to proceed when the banks are uncovered, or not later than three-quarters flood, the harbour is easily navigated, as the channels are all buoyed and marked off.

It is to be observed that all buoys and marks painted red are to be left on the starboard hand in entering and going up Wide Bay and Mary River, and all buoys and beacons painted black are to be left on the port hand. The red beacons are also round, while the black beacons are square.

Nearly all the banks are steep-to, and have deep water within half a ship's length of them.

PORT OF DAKAR,—*Senegal.*

Our neighbours have been at work in the good cause of safety and supplies for shipping. We find by a recent number of the *Moniteur*

that a coaling station has been established in the vicinity of Goree, on the African coast, by the French government,—where supplies may be obtained by shipping, as well as good shelter in the tornado season. As yet we are not informed that more than coal may be had there, but shall confidently expect that many valuable supplies as well as coal will be obtainable. Nor have we yet seen a plan of the harbour, which, however, from the following description of it, is hardly necessary to enable a ship to approach it.

The *Moniteur* says:—Some important works have been lately executed and are still going forward to afford vessels frequenting the colony of Senegal a port of shelter from the dangerous effects of tornadoes, which are common on this coast in the winter. The island of Goree had been considered as suitable for the central point of our commerce with the African coast, and works were commenced there for sheltering that island when it was discovered that the ground is not sufficiently firm for the reception of magazines and coal sheds necessary for the commerce which would take place. Therefore the bay of Dakar on the main land opposite to Goree was selected by the minister of marine and colonies as a place well calculated for the formation of a maritime establishment offering safe anchorage to the largest merchant ships.

The approaches to this place are facilitated by a light of the first order situated on a small height to the West of Cape Verd, and seen thirty miles from sea. Two secondary lights will be placed at intermediate points.

In the bay of Dakar two jetties have been constructed, forming a double basin. One above 300 yards in length, with depths of 3 and 4 fathoms, is finished, and already affords shelter to middling sized vessels and coasters: the other, which is already more than 200 yards in extent, is being carried out to a depth of 6 fathoms, and will afford shelter to vessels of the largest size.

By the last accounts from Senegal (March) the *Sevre*, troop ship, of 900 tons and 259 feet long, was in the road of Dakar. This vessel had anchored between the two jetties and 230 feet from the second, and had a depth of 5½ fathoms under her bows and 5 astern, and by the commander's account she was entirely sheltered from the sea and tide as if she were at Toulon.

Thanks to the activity and energy with which this undertaking has been managed, by the month of October next or so the second jetty will be completed to its intended length of 350 yards, the works having been performed within the estimated expence,—and matters will be so organized that the largest ships may coal there by the side of the jetty in the most convenient and secure manner. About that time the French packet vessels of the Brazil line will be touching at Dakar.

Our maritime commerce will find Dakar an excellent port,—one which has been formed by the active solicitude of the Emperor's government.

Greenwich Hospital.

What is to be done with Greenwich Hospital? Without considering the space now appropriated to officers there is ample room for some 2,600 men. When the changes proposed by the Government are carried into effect the officers' quarters will be empty, and after providing accommodation for 600 "infirm and helpless pensioners"—which will be double the number actually received into the infirmary for many years past—there will remain space enough for 2,000 more. If the Royal Navy can furnish more than 600 invalid seamen, by all means let them be accommodated. But if the Royal Navy cannot furnish more, is there any good reason why the superfluous space should be left vacant?

What are the funds to be disposed of? According to the Duke of Somerset the income of the Hospital derived from all sources amounts to £150,000 a year. Under the new scheme, out of this sum the hospital will absorb £45,000; the schools, £23,000; the pensions to widows, £5,000; the out-pensions—to the men, £48,000; to the officers, £3,990; to the flag officers, £1,500; making a total of £126,490. According to this scheme there will thus be a surplus of £27,510 a year. It is clear, therefore, that the funds of the Hospital, instead of providing accommodation for 600 "infirm and helpless pensioners," could supply the same comforts to double that number.

The next question is, from what quarter these 600 additional men are to come? The answer is abundantly obvious. Right opposite the splendid fabric erected by Sir Christopher Wren lies moored the *Dreadnought*. During a single quarter no fewer than 597 poor fellows found medical aid and comfort on board that fine old three-decker, once known in her mortal life as the *Caledonia*, before she passed into her future state of a "floating hospital. Is there any reason why these 597 men should not be transferred to the spacious wards of the Hospital hard by? They will have purer air, larger rooms, and better chances of recovery. That there is need for an additional hospital for sailors is certain. The *Dreadnought* cannot perpetuate her purgatorial existence; and it is but a few days ago since a meeting was held at the Mansion House to provide a hospital for sick merchant seamen—and the site selected was not far from Greenwich Hospital.

It seems almost superfluous to add anything further. There is a Hospital ready to receive sick seamen. There are crowds of sick seamen eager to enter its doors. Is the Hospital to remain empty, and are the seamen to remain without an asylum, because the rules framed by the Admiralty or by Parliament prevent the opening of the doors of the Hospital? Even if our merchant seamen could show no kind of claim to be admitted, common sense would show that this vast fabric ought not to be kept empty. But, curiously enough, the merchant seamen have a claim for admission, or at all events the circumstances connected with the charity are such that the State is entitled to claim

admission for the merchant seamen. It appears that from 1696 until 1834 sixpence a month was paid into Greenwich Hospital by every merchant seaman. In 1834 this payment was discontinued, but in lieu thereof a grant of £20,000 a year was made to the Hospital out of the Consolidated Fund, and that grant still continues. Thus for 138 years the merchant seamen directly contributed to the funds of the Hospital, and for thirty-one years the taxpayers of the country have contributed to the same institution. In settling the new scheme for a charity, it is both reasonable and just that Parliament should apply the funds of the charity in the most useful manner, and it would be difficult to contend that the admission of merchant seamen into wards which must otherwise be vacant would not be an advantage both to the public and to the charity. But when the merchant seamen have contributed so much to the funds of the charity, and when taxpayers still continue to contribute £20,000 a year, is it not idle to contend that there can be any serious objection to admit some 600 merchant seamen into the Hospital, the charge for whom would scarcely exceed the amount made out of the public purse?

There are, moreover, two special reasons which render the admission of merchant seamen into Greenwich Hospital especially desirable. It is to be observed that in old times there was no clear distinction between the royal and the merchant services—every sailor was liable to serve the Crown. In these times this system has been again called into action in a different shape. The object of the Naval Reserve was to amalgamate more or less the royal with the merchant service, and the numbers who have joined this new force prove the success of the idea. It is a system, however, which needs every encouragement, and there is no more effectual means towards that end than, as far as possible, to extend the privileges which belong to the officers and men of the Royal Navy to the officers and men of the Naval Reserve. In time of war these privileges would be conceded at once. In time of peace it is more difficult to overcome professional prejudices. There are some matters, however, which need present no difficulty. Is there any naval officer, however exclusive, who would object to a sick Naval Reserve man claiming admission into Greenwich Hospital even in time of peace? Surely not. And it is obvious that if this privilege be worth anything, it would furnish an additional reason why the officers and seamen of the merchant navy should enrol themselves in the naval reserve of the country.

But, further, it is certain that large naval hospitals are needed for the purpose of supplying medical students intended for the sea with the means of instruction. The addition of 600 patients would furnish excellent material. Whilst so large a hospital would diminish expense by destroying the necessity for keeping up a number of separate hospitals or for buildiug new ones, it would furnish employment to a large number of medical men, and exhibit within a convenient space diseases in every stage and of every conceivable variety.—*Daily News.*

Casualty Reports.

Loss of the Barque "Onward."

At a court of inquiry at the British Consulate, Kanagawa, on the 18th January last. Lost on 29th December, on the coast of Japan, in lat. 36° N., long. 140° 48′ E., near a place called Fanitab. Set to the northward by a current in a direction opposite to that expected. The chart being dated 1862, appeared to be incorrect, compared with that of the Admiralty in 1863; and the place where the vessel struck is ten miles South and seven East of her own chart. Loss of ship attributed to the frequent change of current on the coast of Japan. Report signed M. Flowers, Acting-Consul; E. Barkley, Lieutenant-Commander H.M. gunboat *Havoc;* and G. W. Taylor, Master ship *Bacchante.*

Loss of the "Luzon," Steamer.

The *Luzon* left Amoy 20th December last for Manila, and on morning of 23rd ran ashore and was wrecked on Palaing Reef, on the coast of Luzon. It appeared that the *Luzon* was not navigated by a good chart; that it was not correct, and on too small a scale for her safe navigation. The court considered that every precaution was taken by the captain (John M'Gowan) in navigating the vessel, although it was not prudent to hug the land so closely on a dark night without a better chart and without experience; but his efforts to save the vessel were highly creditable, and his testimonials satisfactory: he was admonished to be more careful in future. The second-mate (Mr. A. Reid) was reprimanded for not immediately shifting the helm while in charge of the deck, by which the casualty might have been prevented; and the chief-engineer (Mr. James M'Raith) was censured by the court for contempt of court, his previous good character only saving him from losing his certificate. It was observed that the vessel's compartments not being water-tight, prevented the efforts to get her off the reef from being successful. The treatment of the shipwrecked crew on the island of Luzon by the Spanish authorities was most praiseworthy.

Naval Movements.

Considerable progress has been made in getting on board the boilers and machinery of the *Bellerophon;* four of the boilers, each weigning 24 tons, have been hoisted into place by the floating sheer hulks, and two lengths of shafting have been fixed. Another barge load of machinery is now alongside, and will be placed on board immediately. The leak in the after-compartment, which was noticed on the day of undocking, has been stopped, and the ship is now, we hear, perfectly tight,—in fact, she has not been pumped out for several days, and the temporary pumps placed on board for the undocking have been

brought on shore. The leakage throughout has been, it is stated, much less than reported.

The *Curlew*, 9, screw, Commander J. S. Hudson, recently returned from the South-east coast of America, was paid off at Plymouth on the 18th May. A court martial has been held on board the *Royal Adelaide*, guard-ship, in Hamoaze, Devonport, for the trial of Mr. Thomas L. Woods, acting-lieutenant, serving on board the *Curlew*, 9, screw-sloop, Commander Joseph S. Hudson. The following officers formed the court:—Captains C. J. E. Ewart, *Cambridge*, president; R. Lambert, *Liverpool;* E. W. Vansittart, *Achilles;* C. H. May, *Canopus;* the Hon. F. A. Foley, *Caledonia;* Hamilton, *Sphinx;* and Mr. Eastlake, deputy judge-advocate. The charge against the prisoner was for having, while the *Curlew* was lying at Rio Janeiro, on the night of the 27th February last, while he was officer of the middle watch, gone below and slept in the wardroom; a stoker, a prisoner on board at the time, making his escape during that watch. The prisoner pleaded guilty, but submitted his certificates. The court sentenced him to lose all seniority as acting-lieutenant, and to be dismissed the *Curlew*.

The *Endymion*, screw steam-vessel, laid down some years since at Deptford, and the building of which was suspended, is now ordered for completion.

The *Favourite*, armour-plated screw corvette of 10 guns, is at Woolwich, to be masted, and she will then be forwarded to Sheerness, where she is ordered to be completely fitted for sea service.

The *Flora*, 40, sailing-frigate is docked at Devonport, fitting for a coal ship, to be stationed at Ascension.

The *Gleaner*, steam-gunboat, Lieutenant Commander Hardy, left Plymouth 5th May for the South-east coast of America, where she is to be stationed as tender to the flag-ship of the Commander-in-Chief.

The *Hercules*, iron-plated frigate, is ordered to be built at Chatham on the turret principle, and, in addition to her battery of broadside guns, is to carry two turrets, one forward and the other aft. The dock in which the *Bellerophon* was built is now being prepared to enable the mechanics to commence the construction of the *Hercules*.

The *Liverpool*, 35, screw frigate, Captain Rowley Lambert, sailed from Cowes, 5th May, for Gibraltar.

A number of mechanics have arrived at Chatham from Messrs. Maudslay's establishment in London, to be engaged in fitting the screw-shaft of the *Lord Warden*, 24, now building in No. 7 slip, and to attend generally to the fitting of the machinery of the ship.

The day named for the launch of the *Lord Warden* at Chatham is the 23rd May.

The *Mutine*, 17, screw sloop, Captain W. H. Blake, sailed for the Pacific on the 5th May. The *Gleaner*, screw gunboat, Lieutenant-Commander F. Hardy, accompanied her to the mouth of the Channel.

The *Revenge*, 78, Captain the Hon. F. A. C. Foley, was paid off at Devonport on the 26th of April. She is to be fitted as a coastguard ship, and will, when ready, take the place of the *Blenheim*, 60, at Pembroke.

In consequence of the success of the recent experiments on board the *Research* with Commander Scott's gun carriage and slide, the invention is ordered to be applied on board the iron-cased screw frigate *Minotaur*, now completing for service.

The trial of the engines of the screw steam iron-cased cupola ship *Scorpion*, 4, built by Messrs. Laird, of Birkenhead, took place outside the Plymouth breakwater. She made eight runs at the measured mile, which gave a mean of 11·448 knots per hour. The circle was turned in 4m. 31s. She is to be commissioned at Plymouth for Captain John E. Commerell,

The screw gunvessel *Serpent*, 4, 200 horse power, Commander Bullock,

fitted at Sheerness for surveying service in the Eastern Seas, is nearly complete in her equipment.

The *Sphinx*, 6, paddle sloop, of 500 horse power and 1,061 tons, has been commissioned at Devonport with a complement of 175 officers and men.

The *Tartar*, screw corvette, Captain John M. Hayes, arrived at Portsmouth 1st May from the China station. On passing Osborn she saluted the Queen, and on anchoring at Spithead she exchanged salutes with the port admiral's (Sir M. Seymour, K.C.B.) flagship *Victory*. She left again next day for Sheerness, where she arrived on the 3rd. She has been paid out of commission and placed in the third division of the steam reserve at Chatham.

A sub-lieutenant of the steamer *Tartar* was recently drowned in going off to his ship, in Simons Bay, in a small boat, in which were some other officers; the rest saved themselves by swimming to a cargo boat. The *Tartar* arrived at Simons Bay on the 24th of February, and at Ascension on the 15th of March, and left on the 17th for Spithead.

Some armour-plated gunboats, protected by homogeneous wire, are about to be tested at Portsmouth, in order to ascertain their textile deflection for armour-plates. The patent is that of Messrs. Head, Ashby, and Co.

Mr. Brown, a junior clerk in the Royal William Victualling Yard, was drowned near the eastern entrance to Plymouth Sound on the 28th of April during a sudden squall. Deceased and Mr. Gibson had hired a boat of a waterman who was in it with them. After she upset, the three kept themselves afloat by holding fast to the oars and loose spars for three quarters of an hour, until assistance arrived, when it was found that Mr. Brown was dead.

Lieutenant H. Hilton, of the *Canopus*, receiving-ship, at Plymouth, died suddenly on board that ship. Deceased went into his cabin before noon. Not long after, his presence being required, one of the ship's company went to call him, when the unfortunate officer was found in a fit, from the effects of which he almost immediately expired. His body was removed to the Royal Naval Hospital, Stonehouse.

The *Terrible*, 21, paddle frigate, of 800 horse-power and 1,850 tons, has been commissioned at Sheerness, with a complement of 320 officers and men. This vessel has undergone a thorough repair to both her hull and machinery. She is to accompany the *Great Eastern* on her voyage across the Atlantic.

The invention fitted on board the *Valiant* for raising an alarm in case of fire on board ship, and of indicating the presence of water, has been tested before the Master-Shipwrights of Portsmouth, who acknowledge its value.

The *Caledonia*, 31, screw iron-cased ship, is commissioned at Devonport by Captain the Hon. F. A. C. Foley, to succeed the *Revenge* on the Mediterranean station. She is to have a complement of 605 officers and men.

A court of inquiry, composed of Captain F. Campbell, *Royal Oak*; Captain Chamberlain, *Resistance*; and Captain H. Goodenough, *Victoria*; has been held at Malta to investigate the case of the grounding of the *Surprise*, on the 3rd of April, on the spit of Point Rheum, when it was ascertained that no blame could be attributed to anybody, as an unusually strong current was setting out of the gulf at the time. The *Surprise* left Malta for Tunis 22nd April.

The *Mohr* left Singapore on the 20th March with the relief on board for the Horsburgh Lighthouse. When leaving the lighthouse she lost her rudder. The Master-Attendant engaged the Sarawak steamer *Rainbow* to tow her in.

The *Satellite* ran ashore off the S.W. end of the Laga Bank, Monte Video, March 12th, in about 18½ feet of water, while entering Colonia Roads. At the time of this occurring she was under the charge of a hired English pilot, who had had forty years' experience on the river. When she struck she was steaming four and a half or five miles an hour, and had three leads going.

The engines were immediately reversed, but the vessel remained hung about the mainmast, and, as the weather was threatening and equally, precautions were taken to secure her for the night. Seven guns were thrown overboard and the water was started, and a lighter sent for to discharge the shot and shell into. During the evening the *Spider* came up from Hornos, and an attempt was made to get a cable to her, but failed. Fears were for some time entertained that the *Satellite* might break her back, as the tide was falling, but careful shoring up prevented any injury from this cause. Early in the morning the *Spider* was brought near, and a cable passed from one to the other, and at 7h. a.m., with the flood tide, the vessel was quickly and without difficulty got off. Six of the guns have been recovered, and it is hoped to obtain the other. The diver reports a good deal of the false keel torn away.

The *Stromboli* was to leave Colonia on the 27th, to accompany the *Spider* to Rio Grande do Sul, and thence was to go to Rio de Janeiro.

The screw steam troopship *Himalaya* left Malta 22nd April for Gibraltar and Canada, conveying to the former port the Bishop of Gibraltar, Dr. Trower, and to the latter troops. She arrived at Gibraltar on April 26th.

The *Edgar*, *Black Prince*, *Hector*, *Defence*, *Achilles*, and *Prince Consort*, all from Portsmouth, arrived at Lisbon 22nd April.

The despatch-steamer *Caradoc*, which conveyed H.R.H. the Duke of Brabant from Alexandria to Marseilles, was detained there on May 8th, in consequence of some damage to her machinery, but would, it was expected, leave for Malta on the 11th of May.

The *Miranda*, 15, 1,039 tons, 250 horse-power, Captain R. Jenkins, C.B., from the Australian station, is to be dismantled and put out of commission at Sheerness, after nearly five years' service. She will require an extensive repair before again hoisting the pendant.

The screw steam sloop *Amazon*, 4, of 1,081 tons, and engines of 300 horse-power, was launched at Pembroke on May 23rd.

The paddle-wheel steam sloop *Gladiator*, 6, Captain F. H. Shortt, with the gunboat *Charon* in tow, from Pembroke, arrived at Plymouth, May 24th.

The *Salamis*, paddle-wheel steamer, Commander F. G. Suttie, left Portsmouth May 25th, for Portland, to be attached to the Channel Squadron.

As we began our number with Salonica, we shall finish it with the visit of His Royal Highness Prince Arthur to those classic shores, as related in the following letter, dated

Salonica, May 2nd.

The Admiralty yacht *Enchantress*, with Prince Arthur on board, escorted by Her Majesty's ship *Magicienne*, 16, Captain Armytage, looked in here on the 28th ult., having touched at Cavalla (Neapolis) to admit of the Royal party visiting the ruins of Philippi, and having a gallop over that "even field," so eloquent of war and peace, where the Republican army of Rome was worsted in its last encounter with Imperialism, where fell the "last of all the Romans," as well as the "noblest of them all," and where another Civis Romanus, yet nobler still, first brought help to the "man of Macedonia" and to Europe. From Cavalla the *Enchantress* proceeded to the mouth of the Strymon, where she was joined by the *Magicienne*. The Prince and his party landing in front of a cotton ginning and pressing establishment—a Manchester enterprise—were welcomed on that desolate shore by

English hearts and hands, and rode up to the ruins of Amphipolis, crossing the river not far from the place where Xerxes in all probability crossed it, and where he sacrificed white horses, young men, and maidens. No time remaining for "eel" or silarius fishing with which the river still abounds, the ship got under way for Athos, where His Royal Highness was shown the traces of the Xerxes canal and the principal monasteries on the Holy Mountain. The next call was made at the Poteda, where the Prince procured a fragment of marble bearing an inscription in Greek.

About noon on Friday the *Enchantress* cast anchor in our harbour. Mr. Wilkinson, Her Majesty's Consul, received his Royal Highness on board. After taking luncheon with the Prince he conducted him to the principal sights of the place. His Royal Highness subsequently called at the Consulate, where Mrs. Wilkinson, Akif Pasha, our governor, and Sadik Effendi, the director of the Custom-house, had the honour of being presented to him. After a few hours' stay the ships steered for the mouth of the Peneus, His Excellency Akif Pasha sending horses by the Government despatch boat, and providing additional animals from the district by means of the telegraph. It is due to the Pasha to say that much of the enjoyment and success of the trip to the Vale of Tempe depended upon his kind forethought and arrangements. The vale has lost none of its ancient attractions, as evidenced by the numerous mount from the ships. Tents, camp furniture, and many a well-packed hamper were carried up to the Thessalian end of the vale. After pitching tents and placing a guard to "abide by the stuff," to protect it against the gods and nymphs of the valley, a party was formed to ascend Ossa. On their return to their tents the Prince stripped off shoes and stockings, to the amazement of all the Turkish on-lookers, and formed a weir for himself next morning against the river god's carrying him down to Oceanus. After bathing in the classic Peneus, he struck his tent and returned to his ship. Major Elphinstone and his tutor had sylvan *souvenirs* of the vale brought on board—branches of the wild vine, fern, and hawthorn in blossom, and which served to decorate the ship's saloon on his birthday. His Royal Highness begged Mr. Wilkinson's acceptance of his photograph by Mayall, as a memento of their visit to Tempe, bearing his autograph, and dated in the vale. Suitable presents of fine army, binocular, and other glasses to Turkish officers who had contributed to his pleasure were confided to Mr. Wilkinson for Akif Pasha, likewise a very handsome brooch for Mrs. Wilkinson. The party, on its entry into the vale, was met by a squadron of Turkish lancers from Thessaly, with its regimental band, who preceded the party, discoursing music throughout the length of the vale. The music, however intelligible to the local genii, was not appreciated by other ears. The red-headed lances added to the picturesqueness of the scenery, and had the National Anthem awakened the echoes, they would certainly have been answered by a British hurrah.

Volo, May 5th.

You may conceive the excitement in this quiet town, usually undisturbed by any incident whatever, when, on Sunday last, at half-past eight in the evening, the *Enchantress*, with Prince Arthur on board, and shortly afterwards the *Magicienne*, cast anchor in the port. Volo had never before been honoured by the presence of any royal personage whatever. Prince Alfred had visited Tempe and Baba, but did not go to Volo. The captain of the Turkish brig-of-war on the station immediately went to the British Consul, and offered to accompany him on board to pay their joint respects to his Royal Highness. Owing to the regulations, they could not be received on board after sunset. The Consul was only able to have an interview at a distance with Major Elphinstone, the Prince's tutor. But in the morning, at break of day, the whole town and harbour put on their holyday dress, the vessels were flag-dressed, as were the *Enchantress* and *Magicienne*, and salutes were fired from the brig and the fortress. The boats in harbour were decked out with flowers and boughs, the day being the 1st of May and the birthday of the Prince. A guard of honour of Zouaves and gendarmes was posted at the Consulate when it became known that at ten o'clock the Prince would disembark at the Consulate for the purpose of arranging an excursion to Mount Pelion.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, *in May*, 1865.—*Sold by the Agent, J. D. Potter*, 31, *Poultry, and* 11, *King Street, Tower Hill, London.*

1,934.—England, East coast, Tyne River entrance, re-surveyed by Staff-Commander E. K. Calver, R.N., April, 1865, (3s.)

590.—British Columbia, Klaskino and Klaskish Inlets and Anchorages, with views, Captain G. H. Richards, R.N., 1862, (2s.)

362.—China Sea, Pratas Reef and Island, J. Richards, Master, R.N., 1858, (1s.)

624.—Australia, South coast, Port Phillip, Hobson Bay, and Yarra River to Melbourne, Commander H. L. Cox, 1864, (3s.)

1,026.—Australia, East coast, Solitary Islands and adjacent coast, Commander Sidney, R.N., 1864, (2s. 6d.)

1,105.—New Ireland, Pacific Ocean, Cape St. George to Carteret Point, including Gower and Carteret Harbours, also English and Irish Coves, Captain Sir Edward Belcher, R.N., 1840, (1s. 6d.)

The Pilot's Hand Book for the English Channel, with corrections and additions to May, 1865, by Staff-Commander King, R.N.

EDWARD DUNSTERVILLE, *Commander R.N.*

Admiralty, Hydrographic Office, 22nd May, 1865.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

JULY, 1865.

The Return Winter Passage Round the Cape.—*May to September,—a Question for Seamen.*

The Captain of the Port of Isle Reunion, (M. Bridet,) proposes a new home route for sailing vessels during the winter months (May to September) from the Mauritius or Isle Reunion. Vessels from those islands he considers should shape their courses so as to cross the parallel of 30° S. in 41½° E., from thence to steer so as to cross the parallel of 40° on the meridian of 32½° E., and thus as soon as possible to clear the zone between 30° and 40° S., in which hurricanes are generally met with; and then from the last mentioned point to make for the intersection of lat. 45° by the meridian of 17½° E., a position in which a vessel will be most favourably situated to find the S.W. winds, and with them to pass round the Cape.

Considering the route which is usually followed this will be found to consist in making for Algoa Bay and then along the coast, profiting by the changes of wind from S.W. to N.W., as well as the currents, which generally set to the westward. D'Apres de Mannevillette recommends a vessel not to approach the coast within six leagues, nor to be further from it than from twelve to fifteen leagues, in order to keep within the set of the current. He also says, that there is no fear of a vessel being drifted in shore, for the wind never blows home on the coast, but always in a manner that enables a vessel to stand off or to lie along it.

In 1811 we find M. D'Apres expressing surprise that navigators should be careful to arrange their departure from the Indian seas, so

that they might have to pass the Cape in the bad weather months of June, July, and August. At the same time he acknowledges that in those months they meet with heavy gales, frequently get into hurricanes, and that it is well known to be a period of the worst possible weather.

Horsburgh says the contrary, that by running along shore a vessel risks being set upon it or meets with a contrary wind or loses her reckoning; that by keeping on the bank where the current is strongest, a heavy sea is found: that by running off the Agulhas Bank too far to the southward a vessel is most likely to meet with heavy gales, which will tear her to pieces, and concludes by advising navigators to keep a short distance from the outer edge of it.

This advice, which would be easy to follow with fair winds, is (as Captain Bourgois says, whom we shall quote presently,) impracticable with contrary winds and bad weather, for a ship exposed to strong foul winds is not inclined to keep her boards within narrow limits.

Maury had not sufficient data to study the winds of the Indian Ocean.

The navigator who has to make this voyage for the first time in the winter of the Southern hemisphere, after consulting the pilots and nautical directions, often finds himself at a loss what to do. Opinions are by no means agreed about it further than that in this season N.W. gales suddenly draw round to S.W. They thus blow directly against the current on the Agulhas Bank, raising a heavy and sometimes a gigantic sea, one of the principal difficulties which a ship has to contend with when coming from the eastward.

M. Bridet in his memoir, which he published in 1861, on the hurricanes of the southern hemisphere, far from agreeing with Horsburgh, gives it as his opinion that to pass the Cape from East to West would be much easier and a much safer navigation to keep between the parallels of 45° and 50° than by keeping the parallel of 35° to profit by the Agulhas current. At present the parallel of 45° is the limit, for the following reasons:—first, because the barometer has given rise to the belief, along with the shifting character of the gales off the Cape, that they are really the rotatory storms or cyclones of the southern hemisphere; secondly, that the centres of these cyclones generally travel nearly from W.N.W. to E.S.E. off the Cape, and between the parallels of 35° and 40° in the Indian Ocean, thus having the dangerous semicircle to the northward, or on their left hand side, and the favourable one on their right or southern side.

Admitting this hypothesis, M. Bridet naturally concludes that if a ship is to profit by the Agulhas current, she should not be afraid of navigating in the dangerous semicircle: it is necessary, according to the custom of the old Dutch navigators, to get on the port tack, and lay by the wind while the weather is bad; and hence it is recommended to keep forty or fifty miles from the coast, in order that, if necessary, a vessel may prolong her boards on the port tack; although, he adds, it is much more prudent to avoid the dangerous semicircle, and navigate in the safe one. In short, he thinks "that

the most advantageous mode of doubling the Cape from the eastward in winter, is to follow the parallel of 45°." He says, in p. 143 of his memoir, that he "is convinced that those who adopt this new route will make a good passage, having fresh easterly winds, always favourable and never squally or strong gales as in westerly winds off the Cape; that it is quite true they will lose the assistance of the currents carrying them to the westward; but in exchange for them they will avoid heavy contrary gales."

Let us now see if the passages that we have corroborate this opinion of M. Bridet.

Captain Bourgois, whose valuable work on nautical directions, compiled on board the *Duperré* and *Forté* during a voyage to China from 1860 to 1862, discusses the tracks of six vessels of the China expedition that made the passage from Isle Reunion and the Mauritius to the Cape between May and September, 1862.

As Captain Bridet agrees with Captain Bourgois in respect of steamers' tracks, we may confine our inquiry to sailing vessels. These are the

Forté, Captain Bourgois, which left the Mauritius on the 8th of July.

L'Andromaque, Captain Letourneur, which left the same island on the 28th of May.

And the *Vengeance*, Captain Masillon, which sailed on the 14th of July.

Captain Bourgois has laid down their positions on the chart every day with small tables of their meteorological experiences, and Captain Bridet republishing the chart adds to it the track of the merchant ship *Santiago*, Captain Albo.

The *Forté* had intended to follow the advice of Captain Bridet, but without gaining the parallel of 50°, on account of the condition of her crew in point of health. Having attained the latitude of 30° S., she met with a furious South-wester, which compelled her to get into the old track, for had she continued on the starboard tack she would have made easting without gaining anything in latitude. *L'Andromaque* also took the old route. *Le Vengeance* was able to follow the advice of Captain Bridet, and the *Santiago*, who had told the *Vengeance* that in 1861 she had successfully followed the new route, did the same in 1862.

If on the Agulhas Bank the changes of the wind from N.E. to N.W. and West to S.W.* were experienced by vessels following the old route, which are the changes that take place in the dangerous semicircle of the cyclones of the southern hemisphere, their complete change to South and East would be experienced in a manner not consistent with the changes of these southern cyclones.†

* This would indicate that the centre of the storm was N.W. of them, and passing S.W. and South of them.—Ed.

† These last changes would show that the centre of the hurricane was travelling to the N.E., which is not their custom.—Ed.

On the other hand the *Vengeance* and the *Santiago* did not meet with the winds of the safe side of the storm, that is, the fair easterly winds foretold by M. Bridet; on the contrary, they had winds from W.N.W. to S.W. The theory of Captain Bridet was not therefore confirmed by these vessels at least in respect of winds in the winter of 1862.

Leaving aside all hypothesis as to the nature of the winds off the Cape, let us now compare the practical results obtained on both routes. And first of

The Old Route.—The *Forté*, which entirely followed the old route, suffered severely from the strength of the N.W. and S.W. winds, and the heavy seas which stove her boats to leeward: she had to take precautions against being dismasted: she carried away her lower stays, lost her cutwater, and took thirty days on the passage.

The *Andromaque* being unable to keep her head to the sea, crossed into a chopping sea, took in water over her lee bulwarks; lost her boats; and on the 18th of June lost her rudder on the eastern edge of the Agulhas Bank; after some severe trials she succeeded in making a jury one, which was broken, and at length after much suffering got into Algoa Bay on the 23rd of June to repair damages. On leaving Port Elizabeth she happily had some days of fine weather, but still had considerable difficulty off the Cape from contrary winds until a north-wester suddenly shifted to S.W. and enabled her to get round it. The constrained delay of the *Andromaque* prevents us from knowing the real length of her passage.

The *Entreprenante* was also very ill treated by the weather, lost a main topsail and fore topmast-staysail, had her boats stove by the sea; on the 15th of August was standing for Simons Bay, but was blown away from it and thrown to leeward on the coast and could not regain it until the 17th. This vessel was a screw frigate, which had sailed from Isle Reunion on the 20th of July. As she had used her steam occasionally, we do not take her voyage into account.

The captain of the *Forté*, in concluding his discussion on the passage of the Cape, advises large sailing vessels when the wind is fair to sight the African coast somewhere about Algoa Bay, and then leaving it to run on the southern edge of the Agulhas Bank, and for the meridian of 19½° E., in lat. 37°. We will now consider

The New Route.—The *Santiago*, which ship in spite of her desire to follow the advice of Captain Bridet did not get further South than 42¾° latitude, was at one time embayed between Cape Lagulhas and the Cape of Good Hope: she did not stand sufficiently to the southward, and her passage occupied thirty-six days. Captain Bridet says that Captain Albo, convinced that the new route is preferable to the old, sailed in May, 1863, determined on taking no other.

The account of the voyage sent to the government by the captain of the *Vengeance* is as follows:—

Guided by Maury's wind charts, by the advice of Captain Bridet, and the information of the *Santiago's* captain, instead of following the African coast a little North of Algoa Bay, I decided on adopting

the new southern route, standing as much as I could to the S.W. (true), a course which from Isle Reunion would take me to the meridian of the Cape in lat. 50°. As this track led me to pass the coast at a distance of 200 leagues and cross the favourable semicircle of the cyclones, I expected to meet fair winds from the northward and eastward, and to profit by these hurricane winds.

Thus I lost the help of the Agulhas current, but in exchange for it between the parallels of 45° and 50° I hoped to find a smoother sea. Contrary to what is usually experienced at this season, I found the wind generally from South to West instead of S.E., and from the latitude of 30° to that of 47°, to which I went, I met with winds from N.N.W. to West, which were heavy, accompanied by furious squalls with snow and hail: on several occasions when the wind was violent and the sea tremendously high, I trembled for my bowsprit, and lay by: my topsails were blown out of the boltropes, I experienced much damage, and had considerable anxiety for the head of my foremast.

When at Reunion I took the precaution of sending the quarter deck and forecastle guns down below, and getting the small boats in board. On approaching the Cape, the sea had become so heavy, and the vessel gave such heavy lurches, that I was afraid we should lose our masts by the board. Although in taking the new route I have been thirty days in doubling the Cape at the distance of 112 leagues, and have experienced very bad weather and hard contrary gales, still I believe this is the route that should be followed in winter by sailing vessels, for they may double the Cape by it without very great damage, and certainly without that multitude of accidents that happen every year. They will certainly lose the assistance of the favourable current, and they will have twice to cross the counter-current to the eastward of the Cape, that runs from twenty-five to forty miles a day, as I myself have experienced between 37° and 42° lat.: but they will be clear of gales, and will generally find (says the author of the work on *Hurricanes of the Southern Hemisphere*) winds which will admit of making good way in doubling the Cape.

"I will also add that instead of steering to the S.W. true, to attain the latitude, they ought to steer as much as they can to the South, and if it be necessary, they should go down to 52° S. To double Cape Horn in winter, vessels go as far South as 58° or 60° lat. The cold is not so very bad in those latitudes, for I have had it in 47° at +2°. Besides it has been observed that from the parallels of 40° to 50° the wind is periodically N.W. and S.W.: the first enables a vessel to get to the South easily, and the other to make westing round the Cape when vessels that are on the bank cannot do so. At any rate if I had S.E. winds in the zone of the Trades and were afterwards to meet S.W. winds in high latitudes instead of those tenacious N.W. breezes, I would not require a month for doubling the Cape from Isle Reunion. And therefore it is to be hoped that the new route will be more frequented in the winter months, if only with the view of testing its advantages and disadvantages.

The commander of the *Rhin*, a steam transport, which sailed from Isle Reunion on the same day as the *Vengeance*, and arrived at St. Helena twenty-four hours before me, told me that he had left a number of vessels on the bank. In the course of my short stay at St. Helena, many French, English, and North American vessels arrived, all of them with damages, having been from thirty to fifty days on the bank, unable to get round the Cape in consequence of bad weather, frequent calms, and for them no westerly current. A French captain told me he had seen several damaged ships running for the Mauritius, and others dismasted being towed into Simons Bay.

A magnificent English steam screw packet, full of passengers, dismasted in five minutes off Cape Agulhas, was fourteen days getting to Table Bay, from which she was not more than forty-five leagues.

The French Captain Geoffroy, who commanded a vessel of three hundred tons, arrived at the Isle of France, was off Cape Agulhas on the 31st of July. Although he had doubled the Cape of Good Hope thirty times, he had never before found so heavy a sea,—the huge seas from the N.W. and South were like up and down walls, above twenty feet high. On the 1st of August, in consequence of the violent blows of the sea, she sprung a leak under her counter, and, with one of her pumps out of order, to prevent foundering, was obliged to bear up for Mauritius, where she arrived in fourteen days.

On the whole, the shortest voyage of the *Vengeance*, in spite of the contrary current, with but trifling damages and with less breaking seas, with winds not so strong but always foul, and the two voyages of the merchant ship *Santiago* together, are not sufficiently conclusive (from their being too few) to enable us to recommend as yet the final abandonment of the old route for doubling the Cape from East to West during the winter, that is from May to September.

Nevertheless, in spite of the winter's gales of 1862, which have been unusually severe—and so much so as to have been unknown before, the long voyages, the tremendous seas, the severe damages, the risks and accidents which in the winter season navigators have to encounter on the Agulhas Bank, prove the great and urgent necessity of making further experiments on the new route for the return voyage round the Cape proposed by Captain Bridet.

A. VILLEMAIN,
Capitan de Navio de la Marina Imperial Francesa.

[This question is well worthy of the attention of our commanders. Are Captain Bridet's conclusions correct? Another question is—Are the Cape gales of a rotatory nature like those of hurricanes? If so, the port tack is the safe one, provided a ship has room to the northward of her. In our volume for 1840 will be found a paper showing how much smoother the water is on the bank than off it. On any of these subjects any information which our readers may be inclined to send us shall meet with immediate attention.—ED.]

The Ups and Downs of Lands and Seas:—*A Geological Disquisition.*

Talk to a sailor about the ups and downs of seas and he will be as much at home with them, if not more so, than he ever was with his own happy land. He will take you from those off the North Cape of Europe to the Agulhas Bank of South Africa—perhaps, indeed, to Cape Horn—and, descanting on their enormous masses, will revel in the short hollow seas of the Bay and become grandiloquent on the long mountainous wave off either of the Southern Capes, until his stream of eloquence is suddenly frozen up by an iceberg into which he has run his bowsprit in a snowstorm, and all but lost his ship. But of the ups and downs of lands, perhaps, if he be an old salt, he may remember the British flag being planted on an impertinent submarine mountain top, called Sabrina, which once popped its head out of the sea near St. Michael Island of the Azores; or if he should be one of the modern school, he may remember Graham Island, now a nasty shoal on that uneasy, growling, volcanic shore of the South of Sicily. But for the whys and wherefores he will refer you to the book men, those who can read "sermons in stones" or find a world of natives in a drop of water! Such is life,—such the busy, active throng of every day society in this our "wide, wide, world."

Let us refer, then, to these *savans* of book men, and listen to a few of their wise words. We shall find something to marvel at now and then, and for the truth of their remarks, although they may be somewhat speculative occasionally, we shall find them founded on authority derived from well ascertained facts.

One of the most remarkable of the phenomena of this our sublunary world is that perpetual silent change always going on in its various component parts. Here are agencies continually at work, sometimes working together and at other times against each other; now the atmosphere and now in the parts of our globe Here the land is yielding, disappearing,—there it is increasing; nothing is permanent, even to the destruction of cities by the slow unerring process of time. The sea as well as the atmosphere is at work, and, along with volcanic action, is probably the most determined and restless enemy of the land. Still the land asserts its rights: in some parts it is gaining, if it be losing in others. Then, again, volcanic action will produce islands, which will again subside, or they may perhaps remain near the surface of the sea and become very inconvenient to the navigator. Still, there are changes that are perpetually going forward on the surface of our globe, ever going on in stealthy silence. Who can determine exactly their extent? No one, for science has given us no standard of former times, nothing that we can compare with any hope of accuracy. Still, changes there are, to which allusion will be made in the sequel, and from these we know that nature is never idle. To common observers this may not be apparent. The depth of a channel, like the

remains of shells in a cliff, is not evident to the common observer; but such are the indications which guide the scientific inquirer and teach him the lesson of gradual, progressive change.

The causes of change may be classed as external and internal in reference to the crust of our globe. The former depends on the presence of water on the soil or its loss, as well as evaporation and cultivation of the ground, or its privation of the protecting influence of trees and herbage. The latter is that constant effort of internal fires which occasionally shows itself in volcanic action. One of the most remarkable effects of marshy and swampy places is the formation of peat, growing into a huge mass and rising several feet above the surface of the ground. The dismal swamp of North Carolina is an instance of this, the effect of which has been to lift the railway between Portsmouth and Suffolk about six feet; and as a counter effect to this, in another part, where the peat ground has been drained, the result is that a subsidence has followed—the ground is said to be settling down to below its usual level.

No doubt a change of temperature has much to do with such disturbances. In the course of the day the sun's heat expands the whole face of nature, which again at night is reduced by the opposite effect of cold. It is stated that the national observatory of Chili, actually undergoes a change of position in the course of a day and night, produced by the change in the rocky ground on which it stands. This expansion and contraction forms one of the elements of calculation in the observations made there; and we have even heard of the observatory at Armagh, in Ireland, being subject to a sensible change of level, occasioned by the alternate presence and absence of rain.

Still, in a volcanic region, changes are also to be expected,—the sudden dryness from heat producing a subsidence, and the contrary effect from rains. These may be perpetual, but those from volcanic action are still greater. In Chili, in the year 1835, the effect of a great earthquake, which ranged over a considerable extent of the Andes, was to raise the level of the ground from four to five feet; and the island of St. Mary, about where this occurred, was raised obliquely. Lying North and South, its northern end was raised about ten feet and its southern end about eight feet; but some two months afterwards the beach at Concepcion was found at nearly its former level, and the island itself had again subsided; so that a few months after, all traces of any change of level had disappeared, the sea had reached its former place, as marked by the tide, and no visible effects of the catastrophe remained. How completely this is verified in the celebrated temple of Serapis, near Pozzuoli, the white marble columns of which show the changes of level which they have undergone.

The principal means by which the geologist determines the change of elevation of the ground is by the accumulation of shells along shore or embedded in its rocks. It was thus that the gradual elevation of the Scandinavian Peninsula was determined by Cilsius above a century ago. From accounts which he collected it appeared that the Gulf of Bothnia was becoming not only shallower, but losing in area.

The old inhabitants of the coast would point out to him places where they remembered the sea had reached in their infancy, considerably inland of where it then was; accounts that were confirmed by the names of places and buildings which had stood by the strand: and of these, again, there was ample confirmation in their position given in the popular songs of the localities, all relating to the retiring sea.

Although by the science of the day the unchangeable nature of the globe was upheld, still it was quite natural for Celsius to attribute this increasing retreating of the sea margin to a gradual depression of the level of the water. After arriving at the conclusion that the Baltic had decreased in depth about three feet during a century, Linne had the opportunity of observing a confirmation of this opinion at an island near Gefle, and that its progress, indeed, was still more rapid.

Geologists who have visited the shores of Sweden since the last century have confirmed the preceding conclusions, not in regard of the subsidence of the level of the sea, but in the actual rising of its bed, that has produced the diminished depth. And yet if the sea level had become lower it would be the same on both sides of the peninsula, which is not the case. For at the northern end of the Bothnia Gulf, about the mouth of the Tornea, the ground has risen five feet and a quarter in the course of a century; but at the Aland Islands it has not risen more than three feet, and to the southward of them again not so much. About Carlscrona the rise is nothing, while at the extreme point of Scania a subsidence of the land is found; so much so, that at Malmo, Trelleborg, and Ystad, several streets of those towns have disappeared, and the coast for several feet in extent has fallen below the sea level.

Again, in the Kattegat, the shores of Sweden have become raised, although not to the same amount as in the Baltic. The extremity of Jutland has risen one foot in the course of a century, but at Christiania it is not so much. Here for the last three centuries no change has been observed. But if we refer to the coast about Drontheim it is proved by certain observations that the elevation of the ground has been as much as twenty feet in about a thousand years. Thus much is known for certain. But, generally speaking, it would seem that it is the ground of the more northern parts that seems to emerge most from the sea; where, in fact, beaches may be traced at a high elevation on the sides of mountains, where shells may be found six hundred feet above the sea level; and the red coral, which is known only to be produced at some depth under the surface, is found far above the level of the shore. In fact, the trunks of pines, which cover the heights raised by internal pressure to the limits of perpetual snow, gradually perish in the cold atmosphere and stand forth as monuments for centuries.

Certainly, in respect of the whole country of Sweden and Norway, it would appear that one of its extremes is ascending, while the opposite has the tendency of becoming lower. The Gulfs of Bothnia and Finland are massing their waters slowly but gradually towards the southern shores of the Baltic. New ranges of islets discover them-

selves, and if this process goes on, in the space of a thousand years, the Quarken Archipelago, between Umea and Vasa, will have become an isthmus, and the Tornea Gulf an interior lake like that of Ladoga. Another thousand years will enable the Aland Islands to unite Sweden to Russian soil; and then it is not unlikely that the large and numerous lakes of Finland will have become an arm of the sea, that will form a communication between the Baltic and Polar Sea.

The name Scandinavia, signifying the Isle of Scand, and Bothnia shows that these riverain provinces are an ancient sea bed—traditional names that assist the geologist. But, again, the Baltic once communicated with the northern seas by a channel to which the Wenern and other lakes contributed; and it is remarkable that oysters are found in those lakes, as well as in the Gulf of Bothnia, being precisely the same as those of the Norway and Danish coasts. But it has been ascertained that the oyster cannot live in water that has less than eighteen parts salt in a thousand, nor where it has more than thirty-seven parts. In one of the recent volumes of the *Nautical Magazine** will be found the fact related also of fish being unable to live in the lake of an island of the Pacific, on account of the extreme saltness of the water, arising from much of it having been evaporated by the sun.

There is no doubt that the salt water of the Baltic is very much freshened by the rivers that fall into it, for at the head of the gulf the water is almost fresh. But the Baltic and the Finnish lakes are salt, and may have become so at the time when the strait of those lakes was in existence, and this may have been many thousand years ago, in the early ages of the world.

Geologists are divided as to the gradual general upheaval of the whole Swedish Peninsula, for some consider it to have been uniform. But there are signs of considerable irregularity on the sides of the mountains. Sometimes they are regular, but at others abrupt, and such irregularity might be expected. It is found, however, that there is more uniformity at the heads of the gulfs than there is along the sea coast outside. This has been accounted for by a theory which supposes that certain rocks imbibing more moisture from their component parts than others, naturally increase in size, such as the calcareous rocks; but this same moisture again produces its effects, transforming some by slow degrees into granite. The hypothesis, however, accounts for the different elevations of the sea-mark on the Norwegian mountains, although the depressions must be accounted for by some other.

There must, therefore, be other geological forces at work under the Scandinavian continent; and not under this alone, but also the rest of the northern parts of Europe. Spitzbergen is no exception to this condition, for at a height of about 150 feet in this island ancient beaches are found, as well as collections of the remains of whales and shells. These remnants among the Spitzbergen group show that they have been gradually lifted above the sea. And, again, the coasts of

* Vol. 1857, p. 662.

Northern Siberia have been also lifted in the same manner, for at considerable elevations on the hills are quantities of timber, which appear to have been washed up by the sea, now some twenty miles distant from them. The Island of Diomede, which Chalouroff visited in 1760, to the eastward of Cape Sviatoj, was found by Wrangel, sixty years later, attached to the continent.

Then, if we look at home, we find the same process going forward on the coast of Scotland as on the Norwegian coast. Parallel lines left by the sea may be traced on the slopes of the rocks, and scattered also with shells, proving that they have been lifted in the same manner above the surface. The estuaries of the Forth, the Tay, and the Clyde contain recent organic remains, and even remnants of Roman pottery, the ground appearing to be lifted about twenty-five feet, the height above the sea of the old wall of Antoninus, which served as a barrier against the Picts in the time of the Romans. Here the general lift of the ground may be considered as about 0·3 inch every year.

Again, the Welch mountains bear traits of the sea. Not far from Snowdon a terrace has been discovered recently about 400 yards above the sea strewed with many species of shells well known in the European seas, and, curiously enough, as if it were a forbidden ground, some 200 yards higher, another terrace has been found entirely destitute of such remains.

Thus from Wales to Spitzbergen and Siberia, during the glacial period and continuing in our own, the land has been gradually but slowly lifting throughout an extent of some hundred and fifty degrees of longitude. Such facts lead to the conclusion of a general lifting effect under the external crust of our planet rather than to a casual or temporary rising here and there of the rocks on its surface.

If we look to the South of Europe we find the land intersected in all directions by inland seas, gulfs, and bays, leaving peninsulas in various directions, and exhibiting curious contrasts in the rising of the ground. There seems indeed to be a labyrinth of difficulties between the lifted and lowered portions of the surface, where, in fact, more observers have been at work than in any other part of Europe. It would be next to impossible to give a complete view of the rising and subsiding of these different parts. But the ground forming the basin of the Mediterranean may be clearly admitted to have risen. From the Spanish coast to the steppes of Tartary, and from the Sahara Desert to the midst of France is a grand theatre of volcanic action. If the mountainous peninsula of Scandinavia, situated in the midst of the North of Europe, consists of elevated ground, there is an extensive tract of country southward of it, and North of Africa, which is no less gradually undergoing the same process.

Again, South of the Mediterranean, we find in the Sahara Desert the remains of shells similar to those found along the northern side of that sea; and not only considerably below the surface but also at an elevation of nearly a thousand feet in the mountains. This remarkable extent of ground has been gradually separated from the Mediterranean, and is now an extensive marsh. The Triton Lake of the

ancients (now the Sebkha Faravun) no longer belongs to the Gulf of Kabes, but is merely a marsh extending to the foot of the Atlas range, the flora of which is entirely different from that of the Lybian Desert. The shores of the Mediterranean abound with instances of the rising of the ground, of which the coasts of Tunis may be mentioned as an example. Numerous ancient ports and bays have disappeared, and points have become more and more prominent, effects which cannot be attributed to drifting sand.

Sicily, again, may be considered as the result of huge volcanic action, with a submarine connection with Pantelleria and the coast of Tunis, perpetually but slowly rising by the effect of internal forces. In the heights of that island are observed the effects of the sea action, especially at the height of 150 feet above its present level. And one of the most remarkable instances of this kind is presented in Sardinia, where there is a collection of pottery, mingled with the remains of shells, which must have been formerly at the shore, but is now nearly 300 feet above its level. The Balearic Islands also present instances of the rising of the land in several grottoes left by the sea and in beds of shells of about forty feet elevation. This occurs on the part of the shore about Cape Hospice. These are interesting proofs of the change of elevation going forward in this part of the world. The whole of France is no less undergoing the same gradual slow process, which extends to the British Islands. History, in fact, confirms the belief on several parts of the coast as to this process; for on the coasts of Poitou and Santonge the gradual elevation of the ground is a common remark of the people. So much for the western basin of the Mediterranean.

If we look to the eastern we shall find much the same kind of phenomena. The coasts of Italy and the islands, such as Cyprus and Malta, exhibit terraces at different elevations above the sea, that are composed of sandstone rocks of recent origin. The same on the coast of Asia Minor, which shows that the ground is incessantly but slowly undergoing an elevating process; so that the encroachment of the shores on the Ægean Sea have the effect of removing places such as Smyrna, Ephesus, and Troy further and further from the shore. There are islands, again, in the Ægean Sea that have become attached to the continent or to each other in the course of our era.

The shores of the Black Sea present the same proofs of the lifting of the ground. Collections of shells have been found on hills of a considerable height in Thrace and Anatolia. Salt lakes and stagnant waters are left by the Black Sea about the shores of the Crimea and Azof. The southern part of Russia leaves no doubt that the Caspian Sea was separated from the Euxine by the gradual elevation of the steppes of the Don. The extensive plains about the Caspian Sea, although low, have a slow tendency to rise, and, according to Humboldt, there is no doubt that at some far remote period there was an extensive depression similar to that South of the Atlas Range, that extended from the Black Sea to the Gulf of Obi, in the Polar Sea.

But the shores of the Mediterranean afford remarkable proofs of

this gradual rising of the land. It may be easily detected along the shores of Syria; where, in a former volume of this work, there is an account of a fountain of fresh water in the midst of salt.* The shores of the Gulf of Iskanderoon are continually encroaching on the sea; while the sea, on the other hand, has invaded the foundations of Beyrout; and still further South, the former Isle of Tir has connected itself with the continent, and many parts of that continent bear traces of the presence of the sea at no very distant period.

The coast of Egypt, to the West, seems to have been raised at a comparatively modern period. Among the bitter lakes and the borders of the Nile are beds of shells of modern date, and the ground in our own day has been rising almost sensibly. The ruins of towns are found in the marshy plains of Manzaleh covered by the sea during the greater part of the year; and, hard by, an ancient arm of the Nile and its banks is entirely concealed by the Mediterranean. Beyond the Delta the same phenomena are found.

But the ancient accounts of Alexandria and its environs cannot be received as true unless a considerable lowering of the ground be admitted. There are artificial grottoes and catacombs, formed in the time of the Ptolomies, at a certain height above the water level, and very well known by the name of the baths of Cleopatra, which in these days are invaded by the sea. Near the Red Sea, not far from Suez, sepulchral caverns formed in the calcareous rocks are similarly inundated from a depression of the ground. No doubt this subsidence of the land of Egypt is common to all this coast of the Mediterranean, which might be called the Egyptian Sea, for the isle of Crete, the western end of which is about twenty-five feet above the surface at present, is gradually sinking in that part which is nearest to the Egyptian shores. And certainly it looks very much as if the hand of Nature herself was very busy in the destruction of the Suez Isthmus, which she had formed between the two continents, and the work of man in his attempt to pierce this barrier is but anticipating the geological condition of approaching ages. The effects of depression of the ground have been also observed about the shores of the gulf of Venice to the North of Zara and Pesaro, which marks the northern limit of the great area of Mediterranean upheaval. From the middle of the sixteenth century the islets of Venice are pronounced to be subsiding about a foot in a hundred years, an opinion founded on the state of the pavement in the streets and buildings of the city. Below the level of the lagoons in Isle St. George, Roman buildings are found. Roads are covered by the sea and churches as well as bridges are lower than formerly in reference to the same level.

With regard to the Adriatic the shores may be considered as generally lowered, and it is supposed that the silt and such produce brought down by such rivers as the Po from the Appenines have much to do with the settling of the Venetian shore; but the same takes place on the opposite shore without any such cause. Possibly the whole of

* Vol. 1859, p. 575, and another in vol. 1861, p. 269.

Europe may be undergoing the same depression, for it is found on the southern shore of the English Channel and the German Sea. On the coasts of Brittany and Normandy forests are discovered as well as buildings buried beneath the surface, proving that it is lower than formerly in reference to the sea level. There seems to be no reason for doubting that much of the sea board of Europe is under the same lowering process, for it is observed on the shores of the English Channel and the German Sea. We have ourselves recorded proofs of it on the shores of Belgium and Holland, and it is seen on the shores of Brittany and Normandy, where submarine forests are found. And here again the same features are found as on the coast of Syria, layers of sand containing beds of shells at a height of forty to fifty feet above the sea. The valley of the Somme again at some distant period above its present level has indications of a slow process of subsiding in the submarine forests above alluded to and beds of moss containing the remains of animals and vegetables belonging to the shore, and the latter produced in fresh water. The coasts of Holland and Belgium present remarkable instances of subsidence and the ravages of the sea. We have already alluded to these in former volumes of this work. In the third century tradition says that the isle of Walcheren was separated from the continent. In the ninth century the Rhine inundated the whole country. About the middle of the twelfth and following centuries an irruption of the sea converted a lake into the Zuyder Zee. This occurred in 1225, and the lake of Haarlem became enlarged after settling down, and about the middle of the seventeenth century became an inland sea. In 1277 and 1421 two more large masses of water overflowed their boundaries and drowned many thousands of people. In modern times the polders surrounded by dykes are evidently settling down. In fact, Holland itself is something like a huge raft, being gradually submerging, and is only saved from being at the bottom of a sea by the series of dykes and embankments by which it is surrounded; and they themselves being one of the wonders of the world. It is the opinion of geologists that a country surrounded by dykes has a tendency to subside, to which the weight of the surrounding dykes contributes. Whatever may be the cause, there can be no doubt of the gradual subsidence of Holland, and even the neighbouring parts of England. Hanover and Sleswig afford ample proof by their substrata of turf and submarine forests, and their submerged burial grounds, abundant proof of the same subsidence. The western shores of Sleswig now show a subsidence of above twenty feet; at Bornholm it is as much again. The coasts of Prussia show the same subsidence, and submarine forests there are common. The southern shores of the German Sea, as well as the English Channel and the Baltic, may be considered as sunk like an extensive valley.

The conclusion in next number.

The Atlantic Cable Again.

When this July number of the *Nautical* is in the hands of our readers, another attempt will be in progress to connect this country with America in electrical communication by means of another cable of a superior nature to the former. The unfortunate history of that first attempt, from its beginning to its end, has been recorded in these pages, and we turn to the new cable which is now intended to effect the grand object in view, with better hopes of success than on the former occasion. For these are encouraged by several improvements observable in this before us in the shape of a specimen.

Some of the sources from which failure assuredly resulted in the former are not to be found in this. It is even stronger and what is more important is better protected in every respect, has more metallic power of conducting the electric spark, and is even lighter although larger in body. These improvements with others relating to the means of laying it down and the sheltered positions of the two ends, that at Valencia and that at Newfoundland, all contribute to encourage better hopes of success than has yet attended this great design in ocean telegraphy.

The reader will remember that the cable was divided into equal parts on the former occasion, embarked in two vessels, the *Niagara* (American) and the *Agamemnon* (English), which vessels, after uniting their ends midway between Valentia and Newfoundland, bade farewell to each other and started for their separate destinations. There can be no doubt that the time required thus for the process of laying it down was reduced to half. But this even was not sufficient to escape the terrible enemy of bad weather, which may be truly said to have contributed its share to the failure. This method, however, has been abandoned for the old fashioned one of employing but one vessel; the all important and sufficiently capacious one for the whole cable being supplied by that marine monster known as the *Great Eastern*. A great mistake of her kind as she undoubtedly has been, she is yet well capable of doing her work, attended by the assistance which will be rendered to her by the Admiralty; and if she carries out the great object in view her originators will be justly entitled to boast of her having performed a service as yet the most valuable than she has yet achieved. We found on visiting this craft a few days after the inspection of her by H.R.H. the Prince of Wales, that she was receiving the last batch of cable from a vessel deep with it alongside of her in the Medway, and that she would break ground from her anchorage about the 24th of June. The work of preparation was then rapidly approaching its conclusion, so that on quitting the Medway it is expected that she will be about ready to avail herself of the fine weather to make a favourable start, if even she should not be delayed by having to wait for it a moment longer. The weather of this month of June has been most favourable, and such favourable days in July as June has produced will be sufficient to secure her object.

On the visit of the Prince a neat arrangement was made for showing the powers of the cable by one end of a portion about 300 miles long being led to a convenient place between decks, and the other in its assigned place on deck, the one supposed to be on board the vessel on her voyage, and the other the station at Valentia where it is to remain. His Royal Highness below (say at Valentia) directs the message "Success to the Atlantic cable" to be sent, which was received on deck (having traversed the coil of 300 miles) in a second or two, and in return from this "God save the Queen" was sent in acknowledgment. By the interchange of these few words a highly satisfactory proof was afforded of the powers of the cable, which, however, in this particular could not be otherwise, aware as we are of the greatly improved method of communication by this wonderful agent.

The vessel now draws 31¾ feet, and is said to be deep in the water, but her yet towering height renders this giant with her six masts a very questionable craft at sea, and one certainly that would never have been designed by a seaman!

The cable is to be 2,300 nautical miles, or, in rough numbers, about 2,600 English statute miles long. The conductor is composed of seven moderate sized copper wires in one complete strand, which is insulated with Chatterton's patent composition. Outside this are four distinct layers of gutta percha, each also insulated with the same material that encloses the conductor. Outside the gutta percha again are wound ten good stout iron wires, each of which, before being twisted round the cable, is itself carefully covered round with strands of hemp, soaked in tar. There are about 25,000 miles of copper wire in the conductor, and 35,000 miles of iron wire in the outside covering, and upwards of 400,000 miles of strands of hemp, more than enough in all to go twenty-four times round the world. The cable has been made on an average at the rate of seventeen miles per day complete, and in some days its outside covering of hemp and iron has been overlaid at the rate of 173 miles a day, though not a fathom or a foot has been manufactured without every part being kept under constant test for "conductivity" and insulation, and to this hour it is as regularly tested as it was a year ago, when the first mile was made.

In strength the cable is equal to bearing a strain of 7¾ tons, while its specific gravity is so low that it can with safety be depended on to support eleven miles of its length in water, although it is to be hoped it will never be subjected to so severe a test. It has been made mile by mile, joined up in long lengths of 700 and 800 miles, and shipped on board the *Great Eastern* into three enormous circular tanks.

The first of these wrought iron structures, which look like gasometers, is in the forward part of the ship, and is fifty-one feet in diameter; that amid-ships over the boilers, is fifty-eight feet six inches; and that in the after part, fifty-eight feet. The first will hold a coil of 630 miles of cable, the second one of 840, and the third one of 830. All three tanks are kept filled with water, and each on being stowed with cable has both the ends of it kept on deck, so that a constant

system of signals through every part of it from the moment the expedition starts till the whole cable is laid. The tanks themselves with water and their contents of cable, weigh in all upwards of 5,000 tons. Great care has therefore been used in shoring them up from beneath the main deck and down by a succession of powerful supports to the very keelson. Some idea of the massiveness with which this part of the work has been effected may be derived from the fact that in the construction of these crossbeams, struts, and braces, no less than 400 loads of timber have been consumed. Every part of the tanks themselves also is braced with wrought iron tie rods to the sides of the ship. In fact, there seems to be no possibility of danger arising from the stowage of the cable. The mere cable, however, is but an item in the mass of heavy weights the *Great Eastern* will have to carry on this occasion, for, when all told, her weights, when starting from Valentia, will come near the stupendous mass of 18,000 tons. They are unfortunately high, and it is to be hoped that as far as it can be counteracted, the *Great Eastern's* unpleasant tendency to roll in a beam sea will be obviated.

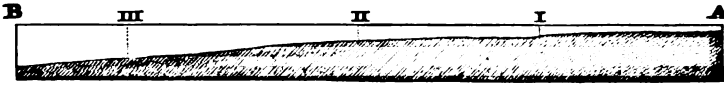
By the arrangements made it is considered that the great ship will start from Valentia in the very early part of July, and certainly, if possible, not later than the 10th. With her will also sail H.M.S. *Terrible* and another paddle steam frigate of great power, to give towing aid to the *Great Eastern* in case of mishaps to her machinery, either screw or paddle, but more especially to regulate her courses. Every care has been taken to get her engines into the highest state of good working order, but it cannot be denied that the very possibility of their breaking down is looked upon with something like anxiety. They will certainly not be overtasked, as it is said, if possible, the vessel is not to beyond a speed of six knots, a *minimum* of velocity which we do not think likely to be followed; but all this must depend much on the weather and the state of the sea.

On this occasion, however, the middle of July is chosen, as being thought even more favourable in point of weather than the middle of June, when the last *Agamemnon* cruize was commenced. In addition to Captain Anderson, her experienced commander, all the officers connected with the ship, with the exception of the chief engineer, have been chosen from the Cunard service. With ordinarily fair weather, and steaming at the rate of six knots, it is expected that the voyage from Valentia to the little cove next to the bay of New Perlican, in Newfoundland, will occupy from twelve to fourteen days, during every hour of which regular communication will be kept up in England, and we trust that for the sake of civilization and the benefit of society at large, her voyage will this time be crowned with that success which is so well deserved by the enterprising promoters of this great undertaking.

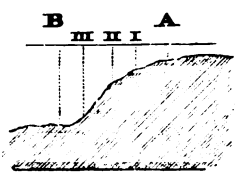
The bed that is destined for the cable is here and there a rugged one, and particularly uneven off the coast of Ireland. In the fair deep water of the ocean's bed the ground is tolerably even, the greatest

depth shown by the soundings of the *Cyclops*, Lieutenant (now Captain Dayman), in 1857 being 2,400 and 2,420 fathoms at one third and two thirds across to Newfoundland. But our Irish coast presents the greatest inequalities. Still, bad as it is, there is a portion of the line about 180 miles from Ireland that even on the chart is very much misrepresented from the well known habit of engineers exaggerating vertical distances in comparison with lateral. In the case before us, we believe, it has been absolutely injurious, for by that habit the impression abroad is that there is an absolute drop in the depth off that coast from 700 to 1,750 fathoms, which is by no means the case. In the chart of the North Atlantic, published by the Admiralty, there is a profile plan of the various depths that are laid down in figures on the same chart, and this is also shown in a pamphlet containing Lieut. Dayman's account of his soundings in the *Cyclops* in 1857. The depths as laid down on this chart are actually exaggerated to fifteen times the lateral distance,—that is, a depth of one foot is magnified to fifteen, while one foot of actual lateral distance remains one and the same. So that a hundred fathoms would appear as 1,500 if the scale of distance were applied to it, and thus the effect is to contract the distance while enormously expanding or exaggerating the vertical measurement. This may be very convenient in certain engineering operations, where it is necessary to render these vertical measurements clear and conspicuous. In the case before us it has been injurious, for it has made it appear (and wrongly too) that on the West coast of Ireland there is almost a precipitous drop in the depths from the bank to what may be considered as the deep water bed of the ocean, when, in fact, there is no such thing. Thus we find Mr. Hoskyn sent in the *Porcupine*, in 1862, to examine "whether the apparent sudden dip in the soundings from 550 to 1,750 found by Commander Dayman in the parallel of 52° 15′ extends further North or South, and to endeavour to seek out a more gradual slope into the bed of the ocean." Now Mr. Hoskyn rendered good service to the cause of the electric cable by contributing many valuable depths to the chart, and he did find various slopes, all of which tended to do away the false impression produced by the vicious manner of laying them down or making sections of them on an exaggerated scale: but yet none of these are adopted; for they were unnecessary. We already had a very good one.

The injurious effects of this method of making a profile of the ocean's bed, have been considered, and we have before us the very portion of the line sounded by Commander Dayman, laid down on one common scale for depth and distance, and have preserved a reduction of it for our readers. The distance from A to B measures about thirty



miles on the chart, and taking that line as the surface of the ocean, by using the same scale for the depths as for lateral distance, these are severally laid down, and thus the natural profile of the surface of the ground is obtained. These depths are at A 290 fathoms; at I. 570; at II. 710; at III. 1,570, and at B 1,750. Now what signs of precipitous formation are exhibited here? None whatever! And yet the very same depths, well exaggerated and huddled together, as they are originally laid down on the chart, produce the effect of making it appear there thus: presenting a tolerably precipitous fall, where there really is none: simply because a distance of thirty nautical miles on the chart is represented on it by little more space than is required for 1,750 fathoms or 10,500 feet, or one mile and three quarters. When such monstrous exaggerations are admitted, how can a fair correct view be given of the actual state of the case, necessary as such exaggerations may be in engineering works. We may rest satisfied, therefore, that there is no such precipice on the West of Ireland as one of a mile in depth; but a change of depth, even to that amount, will be found in a distance of twenty-five miles between them.



Thus then it is clear that the cable, far from hanging over a precipice with a rocky margin a mile deep, has to span a distance of twenty-five miles to get from one depth to the other, reposing on its quiet bed of rock or ooze or whatever it may be, but we believe principally sand and clay.

There is not so much to complain of on the Newfoundland coast, excepting the same exaggeration of the principal change of features. And there is a satisfaction which we may offer as a source of congratulation on the success of the whole enterprise, in knowing that the protecting wires of the cable are well planned, and so laid on it as to be capable of doing their work of protection, while they themselves, utterly exposed in the former cable, are embedded in a good strong twisted covering of hemp, well hardened by being saturated with tar and a composition altogether well calculated to preserve them.

We need scarcely say that we shall watch with intense anxiety the progress of the *Great Eastern* on her voyage, which progress we hope to be informed of from time to time as she adds day by day to her increasing distance from us, and approaches the haven of her destination. Even in our next number we are not without hopes of recording the communication between this country and America across the Atlantic by means of the electric cable among those matters of history which our friends across the water are given to designating as a GREAT FACT.

[In our January number of 1863 is the plan of New Perlican Cove, with the course of the cable to it.]

The Abolition of the Class of Masters in the Royal Navy.

As opinions appear to be very much divided on the contemplated measure of abolishing that class of officers denominated Masters in the royal navy, it is one so eminently nautical that we are induced to contribute a few words in the pages of this work to the general discussion of this very important subject.

We shall not take on ourselves to decide which view of the question is in our opinion the right one;—but all must admit that no innovation on old customs and time honoured institutions can be introduced, even to keep pace with acknowledged improvement, but that some doubt as to the result may be fairly entertained. Still it must not be argued that on this account we should not from time to time revise those institutions, and readapt, amalgamate, or even supersede them if this can be done with safety and efficiency.

The question at issue seems to resolve itself into this form; will the safe navigation of our ships of war be endangered by abolishing a distinct class of officers whose duty it now is to perform that service, and by so doing to throw the responsibility of it more immediately on the commander and the executive officers of the ship generally. We confess ourselves to lean to the latter alternative, and shall state in a few words why we do so

It appears to be tolerably evident that something should be done to remove the growing discontent (whether justifiable or not) of the masters with their present relative position among the officers of a ship; because, to intrust important duties to discontented functionaries is bad policy: the hand and heart must be in unison or we cannot expect their work to be well done.

Now we do not say this because we have reason to believe that so lamentable a crisis has arrived,—but it may be presumed that if discontent and despair of its removal once set in, no one can say what may be the result.

Now let us ask this question:—The necessity of appointing masters to our ships—now that all our officers are so highly educated in every branch of practical and theoretical nautical science,—is it not very questionable?—if not positively mischievous?—inasmuch that it is very apt to encourage the conclusion among the officers generally that a due and careful attention to the navigation of our ships of war does not, so to speak, strictly fall within the limits of their several responsibilities? And if this be so, a most dangerous and reprehensible supineness on the subject is almost sure to follow, and, as a consequence a serious neglect on their part of keeping in active practice the theoretical acquirements they were obliged to attain in the early part of their professional career.

It must be obvious that all officers are to a certain amount responsible to the public for the safety of our ships,—for in the event of loss or accident every man and boy is arraigned by court martial in order

to ascertain that each and every one had diligently performed his duty.

In alluding to the observations made by a high authority on naval matters in the House of Lords on this subject a short time ago,—we could not fail to observe that some very important points were lost sight of when the noble lord expressed so much alarm at the contemplated change.

His lordship went far back into the naval history of our country to show the antiquity of the introduction of masters into the royal service,—and of their undoubted usefulness at that time and long after. This was all quite true,—but surely we require something more than antiquity to look into for examples in order to perpetuate any institution,—what was necessary then may not be necessary now.

When masters were first introduced into the royal navy their most essential duty was that of "pilot," for in those days and for many years afterwards we were in utter ignorance of our own coasts—possessing no reliable charts, and therefore it was positively and absolutely imperative that some person having local knowledge of our coasts should be in charge of the ship when she was in what is generally named "pilot waters," or near the land.

We all know that masters are as liable as any one else to sickness or to be otherwise incapacitated for a time from performing their duty,—when this occurred in former times on a foreign station, as their place could not be filled up by another of the class, the duty devolved upon one of the officers of the ship, generally selected from what were called in those days "master's mates," to whom the charge of the holds and other parts of the master's duties were usually assigned; and this was the case, we may observe in passing, nearly down to the conclusion of the last French war. Second masters and masters' assistants were unknown in the service in those days.

It must be admitted that in those times the duties of a master were much more onerous than at present,—for our ships were almost always at sea, cruizing, or closely blockading the enemy's ports,—and yet as far as we ever heard no great mischief arose from these accidental occurrences, and we will take this opportunity of pointing to the significant fact that two, at least, of our most distinguished admirals—both of whom it is matter of congratulation to know are now living—undertook to act in the capacity of masters of the ships they were serving in, with great benefit to the service and credit to themselves.

Masters, we believe, formerly only passed one examination, that at the Trinity House, principally as to their qualification for pilots on the home stations; in fact, the master was required to do formerly what chronometers, our excellent charts and ample sailing directions do now,—convey intelligibly to the mind of the captain the nature of the coast on which his ship happened to be stationed,—supplying him with full and reliable advice how to act under certain conditions,—what "course" to steer,—to point out the strength and direction of the tides, and prevailing currents of the ocean,—the best sheltered anchorages from the most dangerous winds,—together with the depth

of water and nature of the bottom. What more can the master do now? or what better suggestions can he offer? We submit that our charts and directions ought to be the "masters" of the present day, and commanding officers should be held responsible for the proper study of them and for a due application of the knowledge and information which they will infallibly afford;—in fact, not to shift on to the shoulders of another what in truth is their own business, viz., diligence and attention to the navigation of their ships.

Perhaps we have said enough to satisfy those of our readers whose minds are not warped by old prejudices that sailing masters in our men-of-war are not *now-a-days* so absolutely necessary as some persons are disposed to think they are. But at the same time since so great a change as their entire abolition could scarcely be entertained without some substitute for the efficient performance of their duties, we will proceed to offer a suggestion that may be not unworthy of consideration.

Among other plans advanced, it has been proposed to appoint navigating lieutenants to be selected either by the Admiralty or the commanding officers themselves. We take leave to doubt the expediency of such a measure, for we cannot well see what difference in fact that would be from the present system, as a navigating lieutenant would be nothing more than a master under another name.

We should like to know what ostensible reason there is why a council or what might be called a "navigation board" should not be instituted in every ship?—a board that should be in all cases presided over by the captain, to consist of two or more officers, to the exclusion always of the commander or first lieutenant and the gunnery officer, who it may be supposed have other equally important duties of their own to perform. The naval instructor or some other such person might act as secretary to the "board," whose duty it should be to have charge of the chronometers, work the sights, overlook and check the calculations of the officers, lay down the track and position of the ship on the chart, and when in shore enter all observations and corrections in the chart and for sailing directories.

The functions of the board would be to critically examine the log board and see that due attention had been paid to the lead and the steerage of the ship, that proper observations had been made and "sights" taken during the respective "watches," to see that the remark book and ship's log were properly posted, to consider what precautions were necessary to be taken, and to decide what courses should be steered.

The "board" should sit at least once a day, and at such a time as the captain might appoint.

It should be convened in all cases of emergency or doubt, and its proceedings duly signed by all the members and approved of by the president.

Of course the captain would retain the power of adopting or not the recommendation of the council; but when differing from them his reasons for so doing might shortly be appended to the minutes,

and in so extreme a case of course he would be aware that the whole responsibility for doing so would remain with himself.

As our object is merely to sketch an outline of what appears to us a reasonable foundation of a feasible scheme for adoption should the office of master be done away with, we will abstain from entering into further particulars, leaving the detail of the measure for the consideration of properly qualified authorities.

The question naturally arises out of the subject under discussion, what is to be done with those highly meritorious officers, the masters of the royal navy, should the class be abolished? and it might be expected that we should say a word or two on this subject also;—this, however, we decline doing at present, as in our opinion it is a part of the subject which does not exactly fall within the province of this journal; but as sincere well-wishers to the stability and efficiency of the royal navy, which so much depend on the unity of feeling and general contentment of its officers, we trust that while on the one hand the interests of the masters will in no wise be overlooked, on the other care will be taken that the stream of promotion will not be checked by flooding in overwhelming numbers the already heavily burdened lists of the other officers.

June, 1865.

The Ocean Bride of Hoonga.—*A Polynesian Tale.*

Among the numerous groups and solitary islands of the wide Pacific Ocean the romance of story has frequently found its subject. In those distant wilds, where the vegetable kingdom flourishes in all the rank luxuriance of nature in a tropical clime,—there, too, mankind affords many an instance of rank superstition, no less than of touching incident, illustrative of the germs of those noble and generous feelings which adorn human nature. There our fellow beings revel in their rude and unsophisticated condition, in the absence of civilization; but there, too, glimpses of the lamp of virtue occasionally beam forth through the surrounding darkness of superstition.

There is an island named Vavao containing a population of several thousand; and on the shore of another small isle close to it there is a remarkable natural cavern, that can only be entered by expert swimmers in consequence of its entrance being at least six feet under the surface of the sea. And as this was visited a short time ago by the late Captain Sir E. Home, and the cavern was penetrated by one of his officers—an excellent swimmer and the only European known to have done so, the story attached to it, related by Mariner in his account of the Tonga Islands, derives credibility, however romantic it may appear. It is related by Mariner that—

The king of Vavao, relieved from the cares of government for an interval, resolved on a visit to the Island of Hoonga, a little distance to the southward of his own, in order to inspect his plantations there and to enjoy one of the national sports of these islanders—that of shooting.

There is a peculiar cavern in that island on its western shore, the only known entrance to which is at least six feet below the surface of the sea, even when the tide is low. It was accidentally discovered by a young chief when diving after a turtle: in swimming and diving all South Sea islanders being most expert. The nature of this cavern might be better understood by imagining a hollow rock, rising sixty feet or more above the surface of the sea, into the cavity of which there is no access whatever above the surface of the water, and only one entrance at all, which is on one side of the rock, as low down as six feet under water. Hence the sea having access to it by this entrance, fills it to the same level as it is outside; and consequently the base of the cavern may be said to be the surface of the sea itself. It is a remarkable freak of nature, and one of which there are no doubt similar instances among the numerous islands of the great Pacific Ocean.

Finow, the king, and his chiefs being on the part of the island where the cavern is, determined on paying it a visit. Mariner was not present when the proposal was made, but soon after accidentally went to the shore. Arrived there, much to his surprise he observed several of the young chiefs diving into the water and disappearing one after another without rising again. At this he was not a little amazed, and inquired of the last, who was just preparing to do the same, what they were about? "Follow me," said he, "and I will take you where you have never been before, and where Finow and his chiefs and matabooles are now assembled."

Mariner, supposing it to be the celebrated cavern of which he had heard, without further hesitation prepared to follow his companion, and, diving after him, was guided by the light of his person until he entered the opening in the rock and rose to the surface of the water in the cavern. He was no sooner there than he heard the voices of the king and the rest of his friends. Being directed by his guide, he climbed upon a jutting portion of rock and sat down. All the light that entered the cavern was reflected from the bottom, and was sufficient to enable a person after being there a few minutes to show objects with some degree of distinctness,—at least, directed by the voices, he could discover Finow and the rest of the chiefs seated like himself in the cavern.

Nevertheless, as it was desirable to have more light, Mariner dived out of the cavern for his pistol, primed it well, tied plenty of gnatoo (the native cloth) tightly round it, and wrapped the whole up in a plantain leaf. He then directed an attendant to accompany him with a torch, protected in the same way. Thus prepared, he re-entered the cavern as speedily as possible, unwrapped the gnatoo—a great

portion of which was perfectly dry, fired it by the flash of the powder, and lighted the torch. The place was now illuminated tolerably well, for the first time, perhaps, since it had been a cavern. It appeared (by guess) to be about forty feet wide in the principal part, branching off to one side in two narrower portions. The medium height seemed also about forty feet. The roof was hung with stalactites of different lengths, resembling, at the first glance, the gothic arches and their ornaments in an old church. Some time was passed in satisfying their curiosity and drinking kava; and an old mataboole, after having said that the cavern was discovered by a young chief in the act of diving after a turtle, related an account of the use which this chief had made of his discovery, of which the following narrative is the substance.

In former days there lived a Tooi (governor) of Vavao, who exercised great tyranny over his people. At length he went so far that one of the chiefs planned an insurrection, determined on relieving his countrymen from the tyrant or to forfeit his life in the attempt. But he was treacherously deceived by one of his own party, the tyrant became acquainted with his plan, and he was made a prisoner. Very soon he was condemned to be taken out to sea and drowned, and all his family and relatives were ordered to be massacred, so that his whole race might be exterminated.

One of his daughters, whom we will call Azaya, no less young and interesting than she was handsome, had been promised as the future wife of a chief of considerable rank; but she, too, was to have shared the fate of the rest had not another young chief a short time previously discovered the cavern of Hoonga, and determined on saving her life by means of it. He had kept his discovery a profound secret, reserving it as a place of retreat for himself, in case he should be unsuccessful in a plan of revolt which he also had contemplated. He had long been enamoured of the charming Azaya, but had never dared to make her acquainted with his love for her, knowing that she was betrothed to a chief of higher rank and greater power than himself. But now that the dreadful moment was fast approaching when she was to be cruelly sacrificed to the rancour of a man to whom he was a deadly enemy, no time was to be lost. He flew to her abode, made known to her in a few short words the decree of the tyrant, declared himself her deliverer if she would trust to him, and, with eyes speaking the tenderest affection, remained breathless for her answer. Soon her consenting hand was clasped in his: the shades of evening favoured their escape, and the grove afforded her concealment whilst he prepared a small canoe at a lonely part of the beach. In this they speedily embarked, and as he paddled her across the smooth wave, he related his discovery of the cavern, which he intended to be her asylum till an opportunity offered for their escape to the Fiji Islands. She who had entrusted her personal safety entirely to his care, hesitated not to consent to whatever plan he would propose for their future safety,—gratitude for her delivery was her ruling power, confidence and love soon took entire possession of her heart.

They soon arrived at the rock, and the young chief, having given his charge her lesson, leaped into the sea, followed immediately by Azaya. They rose into the cavern, relieved from their fears, and rested from their fatigue; taking some refreshment, which he had previously placed there, not anticipating that it would be shared by her whom he loved.

Early in the morning the young chief returned to Vavao, to avoid suspicion; but did not fail in the course of the day to repair again to the cavern which held all that was dear to him. He brought her mats to lie on, the finest gnatoo for a change of dress, the best of food for her support, sandal-wood, oil, cocoanuts, and everything he could think of to render her as happy as she could be in her lonely retreat. He passed as much time with her as was prudent, and at the most appropriate opportunities, lest the prying eye of curiosity should discover the whole transaction.

Azaya was now passing a few days of seclusion and security. Her extraordinary retreat was unknown to any but her deliverer, for whom she could not but feel the warmest affection, for she owed her life to his prompt and generous exertions at the risk of his own; and on his part he had the happiness of finding that she had long regarded him with favour, but a sense of duty had induced her not to encourage her affection for him, till the late sad misfortune of her family, and the circumstances attending her escape, had revived all her affections, to bestow them wholly upon him to whom they were justly due. How happy were they in this solitary retreat! Tyrannic power no longer reached them! Shut out, as they were, from the world and all its cares,—secure from all the eventful changes attending station, which in those uncivilized isles were marked by cruelty and ambition,—themselves were the only powers they served.

But although this asylum was their great security, and happy were they even there, they could not always enjoy each other's society. It was equally necessary to their safety that the young chief should be often absent from the object of his care, and frequently for some space of time lest he should be watched. He therefore anxiously looked forward for an opportunity to convey her to happier scenes, where his ardent imagination pictured to him the means of procuring for her every enjoyment and comfort to which her amiable qualifications so well entitled her.

Nor was it long before he was enabled to devise the means of restoring her with safety to the light of day. He made known to his inferior chiefs and matabooles that it was his intention to visit the Fiji Islands, and that he desired they should accompany him, with their wives and female attendants; but told them on no account to mention to the latter the place of their destination, lest their intention should become known and the governing chief should prevent their departure. A large canoe was soon prepared. The appointed time arrived for their voyage, and as they were on the point of departure they asked him if he would not take with him a Tonga wife. To

which our young chief replied—No, but he should probably find one by the way! This passed as in ridicule, but in obedience to his commands they said no more, and, all being embarked, they departed.

As they approached the shores of Hoonga the young chief directed the canoe to be steered for a point of the island that he well knew; and having approached the rocky shore, he stood up in the canoe and desired his chiefs to wait there while he went into the sea to fetch his wife! And without stopping or giving time to be asked any questions he sprang into the sea on that side of the canoe farthest from the rock, dived beneath it, and swam under water into the sanctuary which had so well concealed his greatest and dearest treasure!

Every one in the canoe was greatly surprised at his strange conduct, but they had to obey his orders, and with feelings of amazement and curiosity awaited the result. After a short lapse of time, not seeing him come up again from the water, they were naturally alarmed for his safety, imagining that he had become the prey of some shark. Whilst they were all in the greatest concern, debating what was best to be done—whether they should dive down after him or wait according to his orders, for perhaps he had only swam round and had come up in some niche of the rock, intending to surprise them—their wonder was increased beyond expression when they saw him rise to the surface of the water, followed by a beautiful girl, and help her into the canoe.

At first they thought her superhuman, and their astonishment was no less when they recognised her as a person whom they had considered as killed in the general massacre of her family. Nor could they yet divest themselves of the idea that she was something more than one of their own islanders. Great was their astonishment when the young chief related to them the discovery of the cavern and the whole circumstance of her escape. His brother chiefs on board congratulated him on his happiness in the possession of his lovely and interesting bride.

They arrived safe at one of the Fiji Islands, and resided there with a certain chief for two years; at the end of which time, hearing of the death of the tyrant of Vavao, the young chief returned with his bride to that island, from which he had fled, and enjoyed a life of peace and happiness.

[Such is the story of the Ocean Bride of Vavao. In one of our former volumes are some particulars, supplied by our own naval officers, of the curious cavern which is celebrated as the origin of it.]

VOYAGE OF THE SPANISH CORVETTE "NARVAEZ" FROM MANILA TO THE MARIANAS ISLANDS.

As soon as the ship was ready for sea we sailed from Manila, in the evening of November 12th, to execute the commission with which your Excellency had entrusted me.

Finding the Island of Cuyo in my route, and knowing that there was plenty of stock to be had there at a moderate price, I determined to touch there for some, that the crew might have fresh provisions as long as possible for the sake of health. We therefore anchored at Cuyo on the 14th, in the morning, and embarked fourteen head of cattle, which cost the trifling sum of eighty-six dollars, and enabled me to give a month's fresh provision to the crew.

On the morning of the 16th we sailed for Zamboanga direct (crossing the Mindoro Sea), and arrived there at midnight of the 17th. Here we remained as long only as was absolutely necessary, and left for Isabella on the morning of the 19th, arriving there on the same day. We had cases of cholera three or four days before, which was making its way among the crew.

We now filled up with coal, taking forty-three tons, some of which I stowed in sacks on deck. This done, we sailed on the 25th for the Marianas Islands, helping the sails with our steam all we could.

On reaching the meridian of the Sarangani Islands* we had a heavy swell from the N.E., but without any wind whatever. This convinced me that the N.E. Trade was well established from the latitude of Cape St. Augustine to the northward; and therefore I decided to adopt a route near the equator between the limits of the Trades in the zone of the equatorial counter current to the eastward. We, therefore, made sail to the S.E., passing near Isle Ariaga and Salibabo, and entered the Pacific on the 27th at noon, to the South of Kabruan, the southernmost of the Salibabo Islands.

We had economised our coal on deck as much as possible, making it last to the 28th, when only six tons were left; and these were preserved below for any case of necessity or bad weather that we might find on the coast of New Guinea. The fires were put out, and we continued our voyage under sail, having run 538 miles from Isabella with 37 tons of coal, or 14·5 miles for each ton consumed, which is a good result, and nearly double what this vessel had achieved before, showing the advantage of making short passages in this class of vessel.

Availing ourselves of the light winds near the equator, which were generally from N.W. or N.E., I ran on the parallel of 3½° until the 5th of December; in which time I had passed the meridian of the Matalotas Islands, and intended to gain our latitude as well as getting to windward. From hence to the latitude of the Carolinas, which archipelago I passed between the islands of Sorol and Ullie, I found variable winds, as your Excellency mentioned in your instructions; and with these variable winds, although not fresh, I continued to 9°, where the N.E. Trade was well set in. Then on the starboard tack I reached 12½°, and on the morning of the 13th of December found myself fifty leagues from Guajan (commonly called Guam). We then got up steam, made the land at midnight of the following day, and at daylight of the 15th anchored off Agana to get a pilot for the port. At half past nine in the morning we anchored at St. Louis de Apra,

* About 128° W., South of Mindanao.

after twenty-three days fourteen hours passage from Manila, and thirty-two days and a half from that capital.

The arrival of the ship at the Marianas was a matter of great rejoicing. A ship of war, wherever she may go, is a part of the state to which she belongs, and her flag is one of the royal signals of the protection of the mother country. This vessel under my command was the first which had visited these islands for very many years, so many, indeed, that no one of the present generation remembers having seen one here before.

The handful of Spaniards here, almost lost in the midst of a vast ocean, with scarcely any communication with the rest of the world, and at so great a distance from their country, were delighted with the arrival of our ship, and the welcome which they gave her could not have been more cordial and sincere. On our part we met them with every mark of friendship, and I have the satisfaction of believing that the recollection of our ship will be grateful to every one in the island. The orders which I received from your Excellency are fully completed there, and our national flag is well established in the Mariana Islands.

From the moment of our arrival I placed myself in immediate communication with the governor, in order to make the most of the time that I might be at the island. He is wretchedly poor, having no other boat or any means of communication than the native canoes, which are made out of the single trunk of a tree, excavated. In these frail things they go out on the sea when it is possible, unless they have the good fortune of some arrival from the Carolinas; which are canoes also, but far better made, and which our islanders consider to be fine vessels.

No one visits the Marianas, excepting perhaps some English and American whaling ships, which generally touch at Apra or Umatag for water and fresh provisions; but in these matters they have far more attractions in the islands of Japan, New Zealand, and the Sandwich Islands, so that now scarcely a single vessel comes here. The northern islands of the Marianas are scarcely yet explored, and are so entirely unknown that I bring away with me not a little information for the improvement of the charts.

The governor was very anxious to visit all the islands, for, notwithstanding he has been nine years among them, and has made three attempts to do so, he has not been able to get beyond Agrigan, on account of the diminutive size of his craft. Besides this very natural desire, an incident occurred which much inconvenienced him and a part of the population. The only vessel in the possession of the whole group is a wretched launch of fifteen to twenty tons, which sailed one day from Agana for Agrigan, with fourteen or fifteen persons in her. This is now six months ago, and as she has not returned it is feared that something has happened to her, for nothing has been heard of her.

The governor's views being entirely in accordance with my own and the object of my visit, he readily agreed that we should pay a visit to the whole of the group, and pick up any of the shipwrecked crew we might find. But as he could not be ready before the 2nd of

January, it was agreed that I should proceed at once to Umatag, to comply with your Excellency's orders.

I left Apra, therefore, for Umatag on the 29th of December, and anchored in its roads on the morning of the same day. With the loss of the American colonists, the proximity of the port of San Luis de Apra, an earthquake in 1848, and an epidemic in 1856, Umatag has suffered so much as to be reduced to a wretched hamlet of fifteen huts, formed of wood and cocoanut leaves, in which 110 persons exist. I also visited Merizo and Agat, places of more importance in its neighbourhood, and left Umatag on the morning of the 31st with the view of having a cruize along the shore of the island.

On the 2nd of January, in the morning, we came to an anchor off Agana. At noon the governor, attended by the vicar priest of the islands and some other persons, embarked, and I proceeded under steam to the North part of the archipelago.

As time at my disposal was becoming scarce, and my stock of coal not overabundant, it was agreed to proceed as far as the Farallon de Pajaros, and then run along the islands under sail from North to South. We proceeded therefore for Rota to our starboard, and were off it at nine in the evening. At daylight passed the little desert isle of Agrigan, and anchored on the 3rd at 9h. 30m. a.m. off Tinian Isle in the road of Sunjaron.

In this island there is a salt establishment belonging to the governor. Seaving Sunjaron at 2h. p.m., we arrived about five at the settlement of Garapan in the island of Saypan. This place is a colony of Indians from the Caroline Islands, formed about twenty years ago by people from Agana requiring ground on which to reside, their island having been overwhelmed in a hurricane.

It contains 435 people, all of them Carolinians excepting nine, and next to Agana is the best settlement of the Marianas. These Carolinians are a fine race of people, being active and well inclined for labour: they have learned how to build their houses, for they formerly lived in caves, and at present Garapan has an aspect of symmetry, cleanliness, and order not to be found in other parts of this archipelago. In fact, they are superior people, excellent sailors, keeping up a communication with their native islands by means of boats, which they manage most dexterously, especially in keeping them on an even keel when under an accumulating pressure of their sails. At night they even shape their course by the stars, as well as by the direction of the wind, like the Greeks in the time of Homer. They are, moreover, good husbandmen, have got the island of Saypan for the most part under cultivation, and there is no doubt that as the population of the Caroline Islands progresses, the Marianas group will profit thereby very largely. These people are yet in their primitive garb, that is to say, they go quite naked, but ornamented with necklaces largely provided with pendant stones, the produce of the beach. However, on the evening of our arrival, perhaps out of respect to the governor, some of the principal leading persons among them were attired in a manner which was probably dictated by their own ideas of decency.

I remained at Garapan only on the night of the third, but the priest and his party remained for the purpose of baptizing and uniting certain parties in marriage, for in Garapan there is no resident curate, from the want of such a person not having been known.

On the morning of the fourth I continued my voyage to the northward, the islands there being all inhabited. In the course of the day we passed the Farallon or peaked islet of Medinilla, also Anatajan and Sariguan Islands, West of us. On the 5th we also saw the islands of Guguan, Alamagan, and Pagan, so called by the natives and also by the Spanish chart of 1812, notwithstanding other charts call them Farallon de Torres, isle of Gugan, and Alamagan, by which these two last have exchanged names, and I perceived that a fourth island called Pagan by the officers of M. Freycinet's expedition and situated by the French North of the group, in lat. 18° 15′ N., has no existence, which confusion of names and the addition of this island has occasioned an uncertainty as to the positions of the three which really do exist, causing them even to be laid down incorrectly. In the extracts from the narrative of the voyage are some further observations respecting them, and I forward to your Excellency ample details relating to them, from which no doubt will remain as to their identification.

As the pilot boat, to which I have alluded, and where she had gone to were unknown (for she was to go to Agrigan to make a small salt establishment), it appeared to me proper to make some inquiry for her at that island, and this I was more induced to do from seeing a light there as we approached the shore. I stopped therefore at seven in the evening as near to the island as I could, and sent a boat on shore, in which the Governor went accompanied by an officer of the ship, while I remained on board. The boat returned about ten with good accounts.

In Agrigan there was found a portion of the crew of the launch, consisting of nine persons, who had been left there to commence the salt establishment. The boat had sailed for Isle Pagan, where she was wrecked on the 9th of August. One of the wrecked crew had constructed a canoe from the trunk of a tree, and had gone in it to Agrigan to give an account of the wreck, crossing a distance of forty-two miles with oars, over a sea which, although it is called the Pacific, was anything but that. He said that two men were drowned, but that three others were still at Pacan. Those at Agrigan had meanwhile built houses, and as the island abounded with cattle and domestic animals, they were by no means badly off. They were promised to be taken back on the return of the ship, for they required some time to prepare their things, and I therefore sailed the same night in prosecution of my voyage.

On the following morning (the 6th) we saw Isle Ascension, to the East of which I passed at a very short distance, having first ascertained that there are no such islets as those called the Mangs, Mangas, or Monjas, represented on some charts fifteen miles to the S.S.W. of Ascension. These must be the Urracas Islets, which are to the N.N.W. of them, about the same distance, being a mistake in the

diary which M. de la Peyrouse sent to France from Kamschatka. In the course of the evening we observed the Urracas also not far from us, and which are evidently the remains of a large extinct volcano. The rocks which are placed round them in some charts have no existence. On the same day in the evening we passed round the island called the Farallon de Pajaros, which is large as Agrigan, Sarigan, Guguan, and others of the Mariana Group, and having besides an active volcano rather less than that of Ascension. Nor does this Farallon throw out any rock off its shores as represented in all the charts. And this Pajaros, like Urracas, far from being dangerous to the navigator, is of great service to him as an excellent mark and easily recognised from afar.

Pajaros is the northernmost island of the Mariana Group, and from thence I had necessarily to return, for I had no time for visiting the Bonin Islands, as I so much wished to do, for that group from its position is likely to have considerable influence over the Spanish archipelago. We therefore laid our ship's head to the southward, and the wind being fair we banked up our fires and made sail.

On the following morning, the 8th, we passed Urracas to the West and sufficiently close to look at the interior of the island: in the evening we passed West of Ascension, a short distance, and in the course of the night we should have been wrecked on the Mangs if they had been in existence, for I passed over their position and the reefs laid down, and was satisfied they were no where except on the charts; and on the morning of the 9th we anchored off Agrigan. I took on board the ten shipwrecked seamen who were on the island, as well also as much of their establishment as was convenient, and on the morning of the 10th we sailed for Pagan to pick up the remainder of the crew that were wrecked. Arriving off Pagan at sunset, we discovered by a signal where they were, and on sending a boat on shore she returned with five men, nearly naked, one of whom was a European.

However, they were the remainder of the launch's crew, and happily the reported death of two of them was false. They had been on the island since August, an island which is not more than eight miles long, and has three active volcanoes on it. On seeing the boat arriving, they threw themselves into the water and swam towards her, fearing that she would go away without our seeing them, and they got to her with everything they had,—which was about as much as they brought into the world,—full of the miseries they had suffered, and their alarm on seeing the vessel edging away after standing in shore, which I was obliged to do to find anchoring ground.

I therefore left this part, departing from Pagan at eight in the morning of the 11th. On this and the following day I passed along the West side of Almagan and Guguan (of which in the latest charts the first is called Guguen and the second Farallon de Torres), passing as near to them as I could. The Spanish chart of 1812, constructed by Don Jose Espinosa, shows two or three rocks between Guguan and Sarigan, the correct position of which is difficult to know from its small scale. These rocks were omitted in the chart of M. Duperry,

of the *Urania*, in M. Freycinet's voyage of 1819, from which all the later charts are formed. In my opinion, the French officers believed that the isle of Guguan was a bed of rocks laid down in the Spanish chart, because they gave this island the name of Farallon de Torres, after the Governor of the Marianas at that period. The French constructed the plan of the islands North of Tinian under sail, on leaving the group to pursue their voyage after being detained eight months at Guguan, never moving from it during all that time from want of provisions. No doubt they thought that Guguan was meant for those rocks, concluding naturally that Almagan was Guguan and that Pagan was Almagan.

Thus they appeared on their charts and were described with those names. But to the North of Pagan an island was wanted, which was the Pagan of their chart. In a calm day they imagined that they saw one through fog and laid it down on the chart, giving it the name of Pagan, and, besides this, marking rocks about a mile to the South of it. In fact, M. Freycinet says he saw Pagan through the mist, as appears in the narrative of the voyage of the *Uranie*, and *Physicienne*, as well as in Findlay's *Pacific*.

As this French work is the only one there is of the Marianas Group, the said rocks of the Spanish chart between Guguan and Sarigan remain omitted until lately. The chart of the British Admiralty (Pacific, 5th sheet) shows a reef North of Sarigan, called the Zealandia, lost in 1858, and lately the French translation of *Horsburgh's Directory* (edition of 1860) says that vessel saw two rocks with breakers, giving their position by bearing and distance from Sarigan. The existence of these breakers is not to be doubted. The wrecked seamen which I had on board were all but lost on them in the month of July last, and tell me there are three rocks about the size of a boat occupying a space about the length of a ship, awash with the surface. They are known to the natives by the name of the Torras Rocks, because this Governor of the Marianas has the account of their position and gave it to the whalers who came to Apra.

As Torres was the Governor of the islands when M. Freycinet was here, it is most probable that he also gave it to the French, and it is more than probable that they are the same rocks as are shown in the Spanish chart of 1812, with a slight difference of position.

I intended to look for them on the 12th, the day when I passed between Guguan and Sarigan under sail. In the morning I was on a wind about ten or twelve miles from the place where, according to the men on board, they were to be found, and near that laid down by the *Zealandia*. The wind falling light, the fires were lighted about two, but they had been busy about the steam machinery, and a slight accident delayed it until five, so that we were looking for the rocks till it became dark and we were obliged to discontinue our search, and not only that, but the time being at hand for my return to the Philippine Islands, I could not afford to lose that night nor the day following.

At seven the breeze enabled me to shape my course, passing West of Sarigan and East of Anatagan, and by the evening of the 13th I

dropped anchor off Garapan, in the island of Saypan. On the 14th I found a large spacious harbour, similar to that of Apran, formed between the reefs to the North of Saypan, called by the natives Port Tanapay, and determined the astronomical position of Garapan by observations on shore, and having embarked the vicar priest of the islands, I took my leave of the good Carolinian people, (an event celebrated by a ball given by the Governor after their own fashion,) and at daylight of the 15th took my departure. Passing West of Tinian and Agrigan on the morning following we anchored off Sosenlago in Isle Rota. Leaving this the same evening, and on the morning of the 17th we again anchored off Apra on our return.

The governor landed the same day, with the rest of our passengers; and having fixed my departure for Manila at the expiration of three days, so as to enable me to complete my despatches, on the morning of the 18th we moved to Umatag, to fill up our water, this being much superior to that of Apra.

At Umatag we stopped till the 19th, and returned to San Luis de Apra on the 20th, to obtain the mail for the Phillippines, as well as to assist at a celebration of our departure on the part of the governor. And I may report to your Excellency that during our visit to the Marianas we have not only received the most cordial attention from the heads of the government of the islands, but also have met with no less attention from the general society at Agana; and it is satisfactory to feel assured that the remembrance of our ship will be equally grateful among the Mariana Islands.

During the rapid visit which we have made to these islands I have collected all the accounts relating to them that I considered were of interest; which I shall have the honour of transmitting to your Excellency as soon as I can get my notes in order. At the same time I have availed myself of every opportunity in my power to collect hydrographical matter for the improvement of the chart of these islands, an improvement of which, especially of the islands North of Saypan inclusive, is so much required. This also I shall remit to your Excellency as soon as arranged, in the hope of affording proof of my desire to be of use to the service to which I have the honour to belong.

Finally, I left Apra on the morning of the 21st, at ten, to return to Manila. We had the N.E. Trade, and used our sails without the occurrence of anything of importance. On the morning of the 28th, at six, we made the land of those islands, and at four p.m. were in the Strait of Bernardino. Here we lighted our fires, and having seven days' coal on board, embarked no more. We passed Sorsogon, and at four p.m. of this day we anchored off Manila.

The vessel has behaved well in all weathers—light winds or gales, by the wind, or sailing free—and it is my opinion that in this class of vessel (corvette), with a judicious use of steam and sail, very extensive voyages may be made in comparatively little time.

The health of the crew is excellent, and the provisions with which we sailed very good.

(To be continued.)

Dartmouth and the Channel Fleets.

Among the novelties promised to us in the course of the present summer there seems likely to be one as yet unprecedented in all history. The meeting of rival fleets, consisting of ships of war built of iron, each intent on rivalling the other not in deeds of arms, as of unhappy memory in years long gone by, but in those generous feelings and exchanges of friendship which so happily now prevail and tend to cement that cordiality between ourselves and our French neighbours that for many years has been established. The French and English iron-clad squadrons are expected to meet in the Channel, and assemble at Plymouth.

There are many of our naval officers of the old school who, well remembering the history of former years, will marvel at the sight of amicable competition in sailing, manœuvring, &c., that will be presented. We shall have comparisons, and if a superiority be seen in the ships of our neighbours, it will but produce a desire to emulate them. Our ships may, too, vie with them. There is the *Magenta* and the *Flandre*, now at Cherbourg; the *Heroine*, expected from L'Orient, and the *Valereuse* and the *Magicienne* from Brest. The *Gauloise*, recently launched at the latter port, will not go to Cherbourg until the autumn. This squadron, which is to go to Plymouth and there meet the English iron-clad squadron, will, it is stated, be commanded by Rear-Admiral Dupouy. Among the vessels in course of construction at Cherbourg are four iron-clads. The construction of the iron-clad turreted ram *Marengo* is being actively pushed forward at Toulon. The ram *Taureau* will carry only one gun in her iron tower. This monster cannon, rifled and hooped, will weigh 22 tons, and discharge projectiles of 250 kilogrammes (about 550 lbs.). Her engines are 500-horse power, and her assumed speed twelve miles an hour. She is furnished also with twin screws, which will enable her to turn in a very small circle.

There will be enough to occupy the curiosity of our own officers in all the various points of manœuvring, the modes of fitting, and the particulars of the different new inventions and applications of materials in the novel introduction of iron so largely as it is now adopted not only in the construction of our ships of war but even in the rigging and masting! Iron, nothing but iron, is now the vogue.

"Hearts of oak are our ships"

will no longer avail. They are now mere matters of history, and for oak we must even be constrained to substitute "steel," which is even more used than iron, such is the change wrought by years, and now fairly established for the future.

The *Taureau* has set us an example with her twin screws which the sooner we adopt the better. And the following additional particulars respecting this vessel are well worthy of attention. The new iron-clad ram *Taureau*, built at Toulon, presents a very formidable,

though by no means graceful, aspect. Being intended for the defence of ports and roadsteads, she has a very small draught of water, and can therefore run into shallows where large vessels cannot approach her. Her prow is armed with a massive bronze cone, which, when the ship is driven at the rate of 12 knots an hour by an engine of 500-horse power, will suffice to destroy the stoutest ship. The *Taureau* has two screws, which enable her to turn in a very short radius, even when going 12 knots an hour, whereas a frigate going at that speed could not turn in a circle of less than 600 yards of diameter. This ram is to carry a single gun of 20 tons weight; she is iron-clad from end to end to the depth of three feet below the water line. Her deck is covered throughout by a kind of shot proof cylindrical dome, which effectually protects the crew and engine from an enemy's fire, and is of too steep a pitch for any one to walk on it.

In the course of the visits of these ships to our ports, they may now fearlessly anchor in Darmouth Bay, as we find it reported that the Pin Rock has been removed, and this might be desirable on account of visiting our training ship the *Britannia*, the present nursery of our naval officers. Besides, the old town of Dartmouth itself is one of the most interesting places on our southern coast, and has been truly said to be cosily nestled in a deep valley on the western side of Dartmouth Harbour, having Kingswear opposite to it, a lake-like bay before it, and high wooded hills picturesquely surrounding it. Added to its beauty and its commercial importance, it has the advantage of historic associations that would give interest to a much less attractive town. Twice invaded and twice almost destroyed by the French—whom even the women and peasants aided in gallantly repelling—the port contributed no less than thirty-one ships and seventy-five mariners to the fleet of Edward III. before Calais. The town, too, has within it more old houses and antique remains than almost any town of its size in the kingdom. Here indeed would be room for reminiscences interesting to the two squadrons, and the British and French Admirals might walk through the old streets and smile no less at the curious antique specimens of architecture they would find than at the freaks of fortune in the changes of Time.

The trade of Dartmouth is as yet confined to supplying the town and neighbourhood with coal and grain. Cargoes are imported, and there is a remnant of the Newfoundland fish trade in connection with the port, but this is now entirely in the hands of Messrs. Hunt and Hanley, who have four ships annually engaged in taking supplies outward and returning with Newfoundland fish. An important and a very considerable impulse has last summer been given to the trade of the place by opening of the Dartmouth and Torbay Railway, as well as by the stationing there of H.M.S. *Britannia*. The railway has enabled the town to effect convenient and rapid communication with the main railway lines in the country, and, as the *Britannia* is a training ship for between 200 and 300 navel cadets, a large number of the friends of the youths and of official personages are brought into the town. The railway does not at present run into Dartmouth, but

is an extension of the Torquay line, having a terminus at Kingswear, from which transmission is effected within five minutes by means of a comfortable, ferry-steamer that plies from Kingswear to the floating pier at Dartmouth. The railway skirts the harbour for a distance of about two miles, and the depth of the water alongside of it varies from fifty feet to twenty feet at the lowest spring tides. The trains are to run on to a quay at the terminal station, with thirty feet of water in front at low water, so that the delay and expense of transferring mails and passengers from the train to the steamer, and *vice versa*, may be reduced to a minimum. Both the railway company and the harbour commissioners are doing their utmost to make the benefit thus recently gained of the greatest advantage. Works are in progress for enabling a vessel drawing twenty-five feet of water to lie at the station wharf afloat at the lowest tide, and arrangements are made by which the water at the wharf can be rendered thirty feet deep when necessary. The Dartmouth Steam Packet Company will, it is understood, put on a vessel this summer to run to St. Malo, and it is anticipated that through tickets will be issued by the South Devon Company to passengers intending to proceed thither. These facts lead to the expectation in Dartmouth that the town will receive a large additional influx of travellers, because the vessel to St. Malo will open up a route by which Dartmouth will be put in direct communication with Paris and Jersey, and will become the nearest port from which persons can steam to the Channel Islands.

The works in course of construction by the Harbour Commissioners at Kingswear, will not be completed for four or five months, and until they are finished, the railway will not be opened for goods traffic, but a siding is now being made by the company close to Hoo Down to facilitate the import of coal and the export of ore and coal. This siding will be available for use in the course of a few weeks. In order to meet the export trade to be brought by the railway, the Harbour Commissioners have constructed a lighthouse and a beacon. A fourth order dioptic light, visible twelve miles south-west of the Start, is supplied, and this light, in conjunction with another placed in the town makes the harbour accessible to the largest class of vessels at all times of the day or night. The harbour has been fitly designated a "natural dock." It is perfectly land-locked during the severest gales, there is no risk of a vessel being driven from her moorings, and vessels can coal either from the wharf or a lighter without risk of injury, as there is never wash sufficient to prevent coal lighters lying alongside. The water surface is considerable; the soundings vary from sixty to twenty-five feet over a space of three miles in length, and from fifty to three hundred yards in breadth—giving ample room for a numerous fleet of ships in the largest class. The Dartmouth people would glory in seeing the channel fleets of France and England in their harbour or even in their roadstead.

Of the improvements made in the town of Dartmouth a local paper observes:—

The improvements effected in Dartmouth of late years have been

very considerable, and they are now about to be materially increased by the Local Board of Health. Within the past four years the Board has established water-works, and the town is now supplied with excellent water from the reservoir at Townstall, which is no less than 330 feet above the sea level, and from Guttery Meadow Reservoir, which is situated at a height of 230 feet. The water has been already laid on to 350 houses, and the lower reservoir will supply the highest house in the borough. This improvement will no doubt do away with the public conduits, some of which are eyesores, as it is believed that the body of water available for use at the reservoirs will be found to be sufficient to yield a constant supply to the whole of the premises that are likely to require it for some time to come. In order to give this boon to the town, the Board of Health borrowed the sum of £3,000, and it is gratifying to know that the public spirit of the board has been rewarded, not only by the payment of interest on the investment, but that the water rates leave a clear revenue.

The borough is well lighted by gas supplied by the Gas, Coke, and Coal Company (Limited). There are about sixty public lights, and most of the houses have gas in them. This undertaking has also proved successful, for the dividend declared by the company has reached six per cent.

The new public improvements that are being carried out by the local board are most necessary and important, inasmuch as they will involve the pulling down of a great deal of dilapidated house property that has been yielding but little return, and some of which was surrounded by little better than dung pits. It is intended to make a new thoroughfare through the centre of the town. From the new quay to the head of Bear's Cove Hill a new street, thirty feet wide, is to be formed; the old guildhall is to be removed, and a new one will have to be built, which, it may be hoped, the corporation will direct to be erected after such order as to make it one of the ornaments of their beautifully situated town. The corporation are also engaged in improving other streets. These objects are receiving immediate attention. It is in contemplation to make a new thoroughfare from the New Quay to Sand Quay across a foul pool, the land under which will, it is believed, be reclaimed. A very valuable improvement might be made by filling up the pool, and taking in also the mud in front of the New Quay, so as to bring the New Quay wall in a line with the corner of the New Ground and the end of the railway company's pier. A portion of this mud belongs to the railway company, and they are quite ready to fill up their portion, on the local board undertaking to do their part. If this improvement were effected, a large additional space would be given, both for recreation and for building additional houses in the business part of the town, where they are much needed.

The corporation propose thoroughly to drain the town according to plans prepared by Mr. William Bell, C.E., of London, and under the supervision of Mr. Richard Tucker, a thoroughly efficient surveyor, who is superintending the whole of the extensive alterations that are

being made. In order to carry out the alterations and the widening of the streets, the local board have obtained powers to borrow £7,000, but no doubt, as in most cases, the cost will succeed the estimates, and more money than the sum already borrowed will have to be laid out. It is computed that the drainage system will involve an expenditure of about £1,000. The whole of the improvements were urgently required, but it is worthy of congratulation that the authorities keep pace with the demands which the growth of the town and its increased prosperity have induced. The stationing at the port of the *Britania*, navel-cadet training ship, and her tender, has alone caused an expenditure in the town of not less than £40,000 per annum. Recently Mr. Hugh Mair, a London merchant, who has come to reside in the neighbourhood, has bought a large extent of the property of the town, and it is understood that he, too, intends to make considerable improvements. Lately, also, a battery has been constructed for the Ordnance Department by Mr. William Harvey, builder, of Plymouth, on the site of a similar structure erected as far back as the year 1378. The battery, which is at St. George's Green, mounts five guns, three 68-pounders, and two ten-inch shell guns. It is erected near the Castle—a pleasant spot, with a fine view seaward, where visitors assemble in summer time to enjoy the light winds, the grass sward, and the fun that is to be found at the picnics there.

Very general complaint is made of the deficiency of house accommodation, and it may be suggested to the inhabitants, that it is obviously prejudicial to their thriving town that the statement should be heard so often—"there are no houses to let." If the townspeople wish to retain the vessels stationed there, they should set to work to afford the necessary accommodation for the officers and men, the relatives of those on board who desire to reside at the port, and others of the public whose services such ships bring into requisition.

Royal National Lifeboat Institution.

A meeting of this institution was held on the 1st June, at its house, John Street, Adelphi, Thomas Chapman, Esq., F.R.S., V.P., in the chair.

Mr. Lewis, the secretary, having read the minutes of the previous meeting, a reward of £13 was voted to the crew of the institution's lifeboat at Whitby, for putting off through a heavy sea and rescuing nineteen persons from the barque *Maria Somes*, of London, which was totally wrecked on the rocks off Whitby, on the night of the 9th May.

A reward of £4 was also voted to the crew of the institution's lifeboat stationed at Moelfre, Anglesey, for going out and saving a man from a ship's boat, which had been carried far out to sea during a strong wind, at Redwharf Bay, on the 16th May. The boat had

drifted a distance of five miles from the shore when she was fortunately overtaken by the lifeboat.

Rewards amounting to £12 10s. were also granted to the crews of the lifeboats of the institution at Cahore and Scarborough, for putting off in reply to signals of distress from vessels which did not ultimately need the services of the lifeboats.

A reward was also granted to four men for putting off in a yawl and saving two other men, who had been capsized from their boat in a heavy sea off Guidore, County Donegal, on the 2nd May.

A reward of £1 was likewise voted to two men for going off in a small boat and saving two out of four of the crew of another boat, which was capsized in a heavy sea and broken water, on the Herd Sand, on the Northumberland coast, on the 12th March last; the other two young men unhappily perishing before help could reach them.

A letter was read from a benevolent lady, expressing her desire to give the institution the cost of a lifeboat, to be called the *Admiral Fitzroy*. It was stated that the late William Hollins, Esq., of Over Wallop, near Southampton, had left the institution a legacy of £500 consols.

Payments amounting to £1,400 were ordered to be made on various lifeboat establishments.

A new lifeboat and transporting-carriage had been sent during the past month to Holy Island, Northumberland. The boat was called the *Grace Darling*, after the heroine of that name.

It was reported that the inspector and assistant-inspector were pursuing their annual visits to the lifeboats of the society on the Irish and Scotch coasts. A report was read from the institution's inspector of lifeboats on some comparative trials which had recently been made at Cherbourg with three lifeboats. One of the boats was built in London, under the superintendence of the institution, for the Paris Shipwreck Society; the two others were the inventions of French persons, and were built at Havre. The English lifeboat, which is the result of great experience, had the advantage.

It was reported that the subscribers to the *Dundee People's Journal* had—through the proprietor of the journal, W. D. Latto, Esq.—contributed £800 to pay the cost of two new lifeboats and transporting-carriages which the institution is about to station at Peterhead and Arbroath. Many of the subscribers to the fund are fishermen residing on the east coast of Scotland.

The Rev. E. S. Corrie has also forwarded to the institution £2 15s., being the sum collected for it by an invalid boy from his friends visiting him. He is confined entirely to his couch, but he takes great interest in the welfare of the society.

The proceedings then terminated.

Her Majesty the Queen of Spain has presented to Thomas Bate, coxswain of the Bude Haven lifeboat of the Royal National Lifeboat Institution, the gold medal of honour for his brave services in aiding

to save some of the crew of the Spanish brig *Juanito*, which, during a fearful gale of wind, was wrecked off Bude Haven in January last. A high reef of rocks stretched from near the foot of the cliff in the direction where the vessel lay. One of the brig's crew had at the moment of her striking aground been washed overboard, and another was at the same time knocked from the wheel. During all this time the breakers (so terrible on this coast) were making a clean sweep over the vessel's stern. She had heeled over considerably on her port side, and the crew were clinging to the starboard bow. One or two of them several times got over the bulwarks, and appeared resolved to attempt to swim to the shore. Had they put such a resolve in practice they would, in their exhausted state, and from the fury of the waves, doubtless have perished.

The approach of the people on the reef appeared to give the crew confidence and hope of relief. The first in this daring exploit was Captain W. Maynard. A line was thrown from the vessel, which, after some delay, was seized by those on the reef, and by this means a hawser was sent along to the rock. This was hauled tight, one end fastened to the bowsprit of the vessel, and the other to the projecting part of the rock. Over this hawser three men in succession passed from the reef to the vessel. This was an act of cool and daring courage, for had the rope either given way or slipped the men would have been precipitated into the raging sea, which still swept with much fury between the reef and the vessel.

The first man who thus went on board was Thomas Bate; the others were Henry Johnson, of Bude, sailor, and Henry Stapleton, of Bude, ship carpenter. By them the hawser was more securely fastened, and by this means three of the crew were safely landed on the reef, and others were preparing to follow; but at this time the rocket apparatus arrived, in charge of Mr. W. Simpson, chief officer of the coast-guard, by which means the remainder of the crew were safely brought ashore. The National Lifeboat Institution voted a reward to the gallant men.

Official Notice.—The Blue Ensign—Naval Reserve Flag.

The following is a copy of the Admiralty Circular issued for the guidance of naval officers, and is here given for the information of the officers R.N.R., and Registrar of Naval Reserve, &c.:—

Admiralty, Feb. 23, 1865.

The Blue Ensign.—(*Naval Reserve Flag.*)—British Merchant ships commanded by officers of the Royal Naval Reserve, and fulfilling the following conditions, will be allowed to wear the blue ensign of Her Majesty's fleet:—

Conditions.—1. The ship, if a sailing vessel, must not be of less burthen than 800 register tons; and if a steamer, she must not be of less burthen than 1,000 tons gross register tonnage.

2. The officer commanding and chief officer of the ship must be officers of the Naval Reserve.

3. These officers must be *bonâ fide* officers of the ship appointed for the voyage, and entered in the agreement accordingly.

4. One-third part of the seamen of the crew must be men belonging to the Royal Naval Reserve.

5. Before hoisting the blue ensign the ship must be provided with an Admiralty warrant.

Note 1. Ships failing to fulfil the above conditions, unless such failure is caused by death or other circumstances over which the owner has no control, will no longer be entitled to wear the blue ensign.

Note 2.—(*a.*) The ship, if fitted by the shipowners with magazines for the ammunition, will be supplied on demand with an armament (as per scale).

(*b.*) The owners must undertake that the guns, stores, and ammunition be taken care of by the officer R.N.R. commanding, and that the guns and stores be returned as far as possible in good order, in such manner and at such times and places as the Admiralty may direct.

(*c.*) Carrying guns is left *optional* with the shipowner, but a privilege in respect of drill will be given to officers and men who have sailed from a port in the United Kingdom during the year, and have been drilled on board ships carrying guns and the blue ensign. Such officers and men will only be subjected to a *test* drill of *two days* on board one of Her Majesty's drill ships, which, if they pass satisfactorily, will entitle them to release from further attendance at drill that year.

(*d.*) Officers commanding H.M. ships meeting with ships carrying the blue ensign will be authorized to go on board such ships, at any convenient opportunity, and see that these conditions are strictly carried out, provided that they are superior in rank to the officer R.N.R.

Note 3. Applications for permission to wear the blue ensign will be forwarded to the Admiralty from the Lords of the Committee of Privy Council for Trade, who will issue regulations as to the mode of proceeding.

By command of their Lordships,
C. PAGET.

Admiralty Warrant.—1. Officers of the Naval Reserve commanding ships of the tonnage named in Admiralty Circular, par. 1, who are desirous that the ships commanded by them should wear the blue ensign, should apply on Form RV 40 for an Admiralty warrant. Forms of application may be obtained at any Mercantile Marine Office.

2. If it appears that the officer commanding and the chief officer are officers of the Reserve, *and, if on the active list, are not in arrears for drill*, the warrant will be forwarded by the Board of Trade through the Registrar-General of Seamen, with Form RV 41, to the Registrar of Naval Reserve, who will, when the conditions named above have been complied with, deliver the warrant to the officer

commanding the ship, on the completion of the engagement of the crew.

3. Registrars of Naval Reserve are to write on the agreements of ships authorized to wear the blue ensign, under the name of the ship, the words "Authorized to wear the blue ensign," and are to sign their names thereto.

4. The conditions under which the blue ensign is NOT to be worn during the voyage are as follow:—

(*a.*) If from any circumstances both of the officers of the Naval Reserve named in the warrant are removed from the ship, or if either of the officers named in the warrant is not in command of the ship, then the blue ensign is *not* to be worn.

(*b.*) If the number of Naval Reserve men on board is less than the number regulated, then the blue ensign is *not* to be worn, except under special circumstances to be decided upon by the Lords Commissioners of the Admiralty, unless it can be shown by the endorsements on the agreement, or by entries in the official log, that the reduction in the number is caused by death, sickness, desertion, or joining a British man-of-war, or some unavoidable casualty.

Detailed Regulations.—5. If it is found by officers in command of Her Majesty's ships, or by Consuls, &c., that a ship is flying the blue ensign *without* an Admiralty warrant, the blue ensign will be seized, and the case reported to the Admiralty or Registrar-General of Seamen, as the case may be.*

6. The names of ships entitled to wear the blue ensign,† with the number of guns (if any) carried by them, will be published in an official list, and sent to the Admiralty, the India Board, the Transport Board, to all Governors of Colonies, Consuls, Commanders-in-Chief of the Navy and Army, and to Captains of Her Majesty's ships.

7. For further particulars apply to a Registrar of Naval Reserve or to a drill officer.

* Section 105 of the Merchant Shipping Act provides that, "If any colours usually worn by Her Majesty's ships, or any colours resembling those of Her Majesty, or any distinctive national colours, except the red ensign usually worn by Merchant ships, or except the Union Jack with a white border, or if the pendant usually carried by Her Majesty's ships, or any pendant in anywise resembling such pendant, are or is hoisted on board any ship or boat belonging to any subject of Her Majesty, *without warrant for so doing from Her Majesty or from the Admiralty*, the Master of such ship or boat, or the owner thereof, if on board the same, and every other person hoisting or joining, or assisting in hoisting the same, shall for every such offence incur a penalty not exceeding five hundred pounds, and it shall be lawful for any officer on full pay in the Military or Naval Service of Her Majesty, or any *British* officer of the Customs, or any *British* Consular officer, to board any such ship or boat, and to take away any such Jack, colours, or pendant; and such Jack, colours, or pendant shall be forfeited to Her Majesty."

† The first vessel of the mercantile marine which has obtained the Admiralty warrant to enable her to fly the blue ensign is the *Golden Fleece*, of London, 2,768 tons, and 500 horse power, commanded by Lieutenant R. W. Ker, of the Royal Naval Reserve, and owned by the East India and London Shipping Company (Limited). She has just sailed for India.

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

Particulars of Lights Recently Established.

(Continued from page 318.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
26. Rock off Gable End Foreland	New Zealand	.....	..	..	..	(*a.*)
27. Alguada Reef	British Burmah	15° 42′ N., 94° 14′ E.	R.	147	18	Est. —. South of Bassein River. Revolves once a minute.
28. Cape Race	Newfoundland	.....	R.	..	..	To be altered from F. in August. Revolves every half minute.
Cape Pine	Ditto	.....	F.	..	..	To be altered from R. in August.
29. Dungeness	.....	.....	..	..	..	To be painted red and white horizontally.
Shingles Buoy	.....	.....	..	..	..	Is a large red can buoy.
Skerries Light	.....	.....	..	..	..	Est. 1st August. To be masked towards East Platters. (*b.*)
30. Delgada Point	Alegrauza Is. Canaries	29° 23·8′ N., 13°29·8′W.	R.	57	13	Est. 30th July. Every half minute.
Martino Point	Lobos Island	28° 45·4′ N., 13°49·1′W.	F.	95	9	Est. 30th July. Red light.
Isleta Peninsula	Grand Canary	28° 11′ N., 15°25·4′W.	F.	817	18	Est. 30th July. Varied by red flash every two minutes.
31. Andrea Point	Near Gallipoli	40° 2·5′ N., 17° 56·1′ E.	R.	147	20	Est. 1st June. Every minute.
Almeria	Spain, South coast	36° 50·7′ N., 2° 33·3′ E.	F.	26	9	Est. —.
32. Mercer Head	Brunet Island, Newfoundland	47° 15·5′ N., 55°51·8′W.	Ffl.	408	25	Est. 27th June. Flashes every 30 seconds.

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a.) 26.—Captain Anderson, of the steamer *Star of the South*, which arrived here on Monday night from Napier, reports that he struck on a rock not marked on the chart, off Gable End Foreland, which, at the time of the occurrence, bore N.N.W., distant 3¼ miles; and Wangarei (Whangara) Islet W.S.W., about 3 miles.—*Southern Cross*, March 1st.

(b.) 29.—The Skerries Light will be masked when bearing between N.N.W. and N.W.½N.

The shade which now causes the light to show red in the direction of the Coal Rock will be removed, leaving the light *white* in that direction. But an additional light coloured *red* will be exhibited from a window 50 feet below the lantern, showing over the Ethel as well as the Coal Rock, or when bearing between W. ¾ N. and W.b.S.¼ S.

Ports and Harbours on the N.E. Coast of Queensland.

(Continued from page 327.)

Hervey Bay.

Vessels from the northward passing the land of Sloping Hummock, at a distance of about five miles, should steer about S.W.b.S.; and

vessels rounding Breaksea Spit at about the same distance, should steer about S.¾W. for the Fairway Buoy off the North entrance to the channel leading through the banks into Great Sandy Island Strait. As soon as Woody Island can be distinguished, the two hummocks should be brought so as just to touch one another, taking care to keep the higher hummock the more eastward of the two. With these marks on, and Point Vernon (a level piece of ground, bare of trees, presenting a low rocky cliff to seaward) bearing S.b.W., a vessel will be near the Fairway Buoy, which is black, and is to be left on the port hand.

Thence steer S.E.b.E.½E., passing a red buoy off the eastern extreme of the Middle Bank on the starboard hand, and a black buoy off the elbow of the forked bank on the port hand, until Leading Hill (a small peak on the high land of Great Sandy Island, formed by a clump of trees) is opened out to the eastward of Little Woody Island. A vessel may then haul up and pass half a mile to the westward of Little Woody Island, and will pass clear of the spit running off Woody Island, off the North extreme of which is placed a red buoy. From Little Woody Island steer so as to pass within a quarter of a mile of the more eastern of the two low bushy islands that will be seen to the southward. From this small island steer south, and pass a red beacon on the starboard hand, at a cable's distance, and when Baupal Mountain is seen over a dip in the trees on the south head of the Mary River, steer with these marks on, until the north head bears W.S.W., when haul up for the entrance, and proceed up the river.

Vessels entering or leaving Hervey Bay will find good shelter from north-easterly winds in the bight to the southward of the north-west point of Great Sandy Island, and during south-easterly winds, from the north-west point to Arch Cliff. During strong north-westerly winds, Hervey Bay offers no shelter; and as the atmosphere is generally very hazy during those winds, and the leading marks on Woody Island are nearly nine miles from the outer edge of the banks, strangers are recommended to keep to sea until the weather clears and the wind moderates.

A spit runs to the northward of the north-west point of Great Sandy Island, to a distance of about two miles, the depth of water upon it gradually increasing from one to three fathoms as you leave the shore.

When inside the Banks of Hervey Bay, the best anchorage is off the White Cliffs. There is also a good anchorage for small craft between Woody Island and the spit which runs from its south-east extreme, northward.

Good water can be obtained from a running stream which flows over the beach just to the northward of the White Cliffs.

There is a pilot vessel stationed in Hervey Bay and the Mary River, and, when practicable, vessels will be boarded outside the Fairway Buoy.

Inner Route from Sandy Cape to Cape Gloucester.

The Inner Route is the passage between the Great Barrier reefs and the east coast of Australia from Sandy Cape to Cape York, a distance of about 1050 miles. There are two entrances into it from the south-eastward, one being the Curtis, and the other the Capricorn Channel.

Curtis Channel is entered between Breaksea Spit and Lady Elliot Isle, where it is twenty-eight miles broad; the centre of the entrance, in which is about 18 fathoms water, being from eight to ten miles within the 100-fathoms edge of the bank of soundings. The channel passes between the Bunker and Capricorn Groups and the main land from Bustard Bay to Cape Capricorn, then to the north-westward, along the coast by Capes Manifold and Townshend, and afterwards between 2nd and 3rd Northumberland Isles, and to the westward of the Percy Isles. The soundings are regular, and there do not appear to be any other dangers than those already described; but, being more circuitous than the Capricorn Channel, the latter should be selected by vessels proceeding direct to Torres Strait by the Inner route.

Capricorn Channel is the broadest, shortest, and most safe entrance into the Inner route from the southward. It passes between the Capricorn group and the main land about Port Bowen to the westward, and Swain Reefs to the eastward, and then to the eastward of the Percy Isles; its average breadth being about sixty miles.

Soundings.—The depth gradually decreases from 80 fathoms in mid-channel, between the Capricorn Group and south extreme of Swain Reefs, to 30 fathoms abreast of Port Bowen. The bed of the channel is a continuation of the bank of soundings extending from Breaksea Spit to the Bunker and Capricorn Groups; the 100-fathoms edge of which, in mid-channel, being nearly in line between the Bunker Group and the south extreme of Swain Reefs. The soundings are regular right across, from Swain Reefs to the Capricorn Group, and to the main land, varying from 60 to 25 fathoms.

The nature of the bottom sometimes differs, but in general it is either a very fine sand or a soft olive-coloured clay and mud, with occasional patches of black shelly, or coral sand.

Should the depth of water decrease to less than 40 or 35 fathoms in the vicinity of the Capricorn Group, it is necessary to keep a sharp look-out for the islands and reefs. Great caution is also requisite in approaching the south extreme of the Swain Reefs, as there are 50 and 60 fathoms water close to it.

Caution.—It may not here be amiss to remark that, although the lead should never be neglected in these seas, it must not be too implicitly trusted, as most of the reefs and coral patches (with which the northern part of the Inner route especially abounds) spring up so abruptly from the bottom that the lead frequently gives no warning of

their vicinity before a vessel approaches too near to avoid them. *A keen look-out from the mast-head, cool judgment, and ready action* may, therefore, be urged as a general rule to ensure successful navigation amongst the reefs. To these hints it will be only necessary to add that a vessel should never be steered in the glare of the sun, except over such ground as may be safely navigated in the darkest night, as the glare makes it impossible to see the different colours of the water indicating dangers to be avoided.

Tides.—The strength of the flood sets in about W.b.N., and the ebb out in the contrary direction, from 1½ to 2 knots; but from the prevalent south-easterly winds, it is to be presumed that a greater degree of north-westerly set will occasionally be experienced.

From Percy Isles to Cape Gloucester.—There are two channels from the Percy Isles to Cape Gloucester, one to the eastward, and the other to the westward of the Northumberland and Cumberland Islands; but the distance by the Eastern and Western channels being nearly the same either may be adopted. The Inner channel runs between the islands and the main land, which afford numerous and good guiding marks; whereas the Eastern or outer channel, though wide, passes at a greater distance from the islands on the western side, and is chiefly bounded to the eastward by dangerous and imperfectly known reefs, instead of islands and the main land.

The Eastern or Outer Channel is bounded to the eastward by Bell Cay, the inner limits of the barrier thence to the sand-banks westward of the islets K 4½, and K 4, a dry sand-bank seen by Captain Flinders, nearly N.b.E. twelve miles from L 2., and the irregular edge of the reefs to the north-eastward of the northernmost Cumberland Island.

It is bounded to the westward by the 1st Northumberland Isle, the Percy Isles, K 1., K., K 2., and L 2., and the chain of islets, rocks, and reefs fronting the northern cluster of the Cumberland Islands.

A dangerous shoal, not laid down in the charts, is said to exist three miles E.S.E. of the S.E. extreme of the N.E. Percy Island; but it lies out of the track of vessels *running* through the Outer or Eastern passage.

The greatest breadth of the Eastern channel is about thirty miles, between Bell Cay and 1st Northumberland Isle, and its least breadth is five miles, between the sand-bank to the westward of K 4½ and K. Isles. The soundings are regular, varying from 25 to 37 fathoms. The bottom is in some places mud, and in others sand.

The Western or Inner Channel, as far northward as Whitsunday Passage, is bounded on the eastern side by the Percy Isles, Bailey Islet, L 1., m., and Sir James Smith Group; and on the western side by H. Isles, the Beverly Group, the main land from Fresh-water Point to Point Slade, the shoals off Shoal Point, Cape Hilsborough, and the Repulse Isles.

The least breadth of this channel is about five miles, between the

Beverly Group and a line from No. 2 Percy Isle to Bailey Islet; and its greatest breadth is twenty-three miles, from Fresh-water Point to the same line. The soundings are generally regular, the least depth being 4 fathoms, and the greatest 19 fathoms; the bottom is in most parts sand and mud.

The only known dangers in this channel are the rocks to the southward, and north-westward of Prudhoe Island, and the 4 fathoms knoll between Shoal Point and L. Island.

Tides.—Between Capes Hilsborough and Conway the ebb stream sets to the N.E., and the flood to the S.W., but they are very irregular in the direction of the stream; the greatest strength is about 1½ knots.

Whitsunday Passage.—The northern termination of the Inner channel just described is bounded to the eastward by Shaw, Passage, Whitsunday, and Hook Islands, and the islets between Hook Isle and the northernmost of the Cumberland Islands; and is bounded to the westward by the shoal extending from Cape Conway to Round Head, Molle Isles, and the islets which lie scattered to the eastward of Cape Gloucester.

Spitfire Rock.—A dangerous rock, awash at high water, lying on the eastern side of the channel, at a distance of 1½ miles from Shaw Island, *Shaw Peak* bearing N. 74° E., *Cape Conway* S. 49° 30′ W., magnetic.

The least breadth of Whitsunday Passage is two miles, between Passage Isle and Pine Head, to the northward of which it increases to four and seven miles. The soundings, on approaching from the southward, increase suddenly at about three miles to the southward of Cape Conway from an 8 and 9 fathoms flat of fine sand and mud, to 20 and 25 fathoms, and even deep water, on a very coarse bottom.

Tides.—It is high water in Whitsunday Passage, full and change at 11h. The shores on either side of the passage being bold, may be approached without any other apprehension than may arise from the strength of the streams, which run three knots during springs, and the velocity is sometimes greater. They do not appear to set so strong on the eastern side, between Shaw and Passage Isles; and the contrary in the vicinity of Port Molle. The ebb and flood streams are apparently regular, setting six hours each way, the ebb to the northward, and the flood to the southward. At Port Molle the greatest rise of tide observed did not exceed ten feet, although Captain King noticed a rise of eighteen feet at the Repulse Isles, and twenty-four feet at L Isle. The rise and fall of the tides between Broad Sound and Port Denison appear to be considerably affected by gales of wind outside the barrier, the water apparently being banked up inside the reefs during strong south-easterly winds.

(To be continued.)

Merchant Ships' Charts.

A recent report of the arrival of the barque *Fugitive* in the daily papers informs the reader of her return to Plymouth from Sydney, and among other particulars that her commander, Captain Barwood, having good chronometers, under favourable circumstances, and with a clear sky, made the centre of the Island of Antipodes to be 178° 43′ E., which is forty-five miles west of the position given in his chart. It is much to be regretted, that Captain Barwood did not add to this piece of information the author's name of the chart by which he was navigating his vessel. It must have been one of those veritable blue-backed affairs, such as were published by Mount and Page, of Tower Hill celebrity above half a century ago. By referring to the Admiralty chart, the position which he gives for Antipodes Islands agrees tolerably well with that in which Captain Barwood finds it; showing his chronometers to be better than his chart, which position was stated in a recent volume of the *Nautical Magazine*. But if such seriously erroneous charts are to be perpetuated by remaining thus uncorrected, what is to become of our mercantile marine? No ship should be allowed to navigate with such disreputable documents in these days when the Government liberally places at the command of the public, on the most moderate terms, the same charts as those by which Her Majesty's ships are navigated.

In our volume for 1840 (p. 145) Lieutenant O. H. Wilson, R.N., not only gives the position 178° 42′ as determined on two occasions, but also a sketch of the islands, this position agreeing with that of Captain Barwood. And the sketch of Lieutenant Wilson agrees with the description given by Captain W. P. Stevenson, commanding the *Maidstone* in p. 333 of our volume for 1859 wherein also Captain Fox points out the erroneous position of the islands. At the same time Horsburgh differs as much as 50′, and Norie a whole degree, in their charts. And as the Admiralty chart agrees tolerably with Lieutenant Wilson, as well as those authorities mentioned in our volume for 1859, all of these being again confirmed by Captain Barwood, the seaman must be cautious how he trusts merchant ships' charts that should have been corrected five and twenty years ago!

Casualty Reports.

The Loss of the "Ocean Queen," of Newcastle.

The *Ocean Queen* was an iron screw steamer, built at Hull in the year 1854, and registered at Newcastle in 1863, of the gross tonnage of 195 tons, and 156 register. She was propelled by two engines of the combined power of fifty horses, and was owned by the Tyne

Steam Shipping Company (Limited), of Newcastle-upon-Tyne. She left the Tyne about eight o'clock on the evening of the 18th of April, 1865, for Antwerp with a general cargo. The weather was favourable, with a fresh breeze from the N.E.b.E. The course steered on her departure was S.S.E., which, had it been continued throughout, would, under ordinary circumstances, have taken the ship clear to Flamborough Head. At eleven o'clock, however, for some reason which does not appear, the ship was hauled in S.b.E.½E., or so much nearer the land. The weather at this time is represented to have been hazy and thick over the land, and although both Sunderland and Hartlepool lights had previously been seen, the vessel was still kept a course which must inevitably have resulted in danger, and which seems to us to have been quite unnecessary, as the vessel had so recently left her port, and was bound to Antwerp. Moreover, though the weather was thick and hazy, no attempt was made to use the lead. About 1 a.m. on the 19th the glimmer of Whitby High Light was seen; the ship was then hauled off, but too late, for she almost immediately struck, and became a total wreck. All the lives were saved and landed by the Whitby lifeboat. It was decided that the *Ocean Queen* was lost by the default of the Master, Thomas Penman Cocks, and his certificate was suspended for the space of six calendar months.

The Stranding of the Steamship "Louisiana."

The *Louisiana* was an iron screw steamer, built at Jarrow in the year 1862, and was registered at Liverpool in 1864 of the gross tonnage of 2,166 tons. She was owned by the National Steam Shipping Company (Limited), and was commanded by Mr. Abraham Asplet, who holds a certificate of competency as Master dated in 1855. The *Louisiana* sailed from Liverpool on the 9th of April, with a general cargo, touching at Queenstown to embark passengers, &c. She arrived at Queenstown on the 12th, and sailed from thence the same afternoon at four o'clock, bound for New York, with a crew of eighty-one hands, and 500 passengers, chiefly emigrants. At 4.30 p.m. the pilot left the ship just outside of Roche's Point, and at 6.35 p.m. the vessel was stranded inside the Bream Rock, to the northward and eastward of the Old Head of Kinsale.

From the evidence it would appear that the weather was tolerably clear for a short time after the pilot left, but gradually increased in thickness till 6 p.m., when the fog became very dense. The engines were then eased to "dead slow," and the course, which had been previously S.W.b.S., was altered to west, directly towards the land. At half-past six a fishing-boat was discovered close under the bows, and the helm was ported to avoid running over her. The man in the boat hailed the ship, but in the confusion the intimation given, whatever it might have been, was not heard. Having cleared the boat, the helm was starboarded to regain her course, and in a very few minutes afterwards the *Louisiana* struck upon the Old Head of Kinsale.

The ship was subsequently backed off, and returned to Queenstown

the following morning after the fog had cleared off. As she had sustained material damage, the passengers and cargo were transferred to another steamer, and the *Louisiana* proceeded to Liverpool to be repaired. In commenting upon this casualty, which took place within the short period of two hours after leaving port, one is struck with the want of common prudence in the Master persisting in hauling the ship to the westward, towards danger, when the fog came on. He had the whole Irish Channel open to him, and having left port so recently there was no reason whatever for approaching the land. He appears to have been aware that the flood tide was against him, but for that he made no allowance in the courses he shaped after the pilot left. Thus the ship, with her head to the westward, was rapidly horsed towards the land, and although the fog was very dense, and the position of the ship was uncertain, the ordinary precaution of using the lead was entirely neglected. The vessel struck at about three quarter flood. Under these circumstances I must hold the Master responsible for the stranding of his ship; and, taking into consideration the number of lives which by his rashness were jeopardised, Mr. Asplet's certificate is suspended for six calendar months.

A Christmas Feast in Africa.

Mr. Reade, in his work on "Savage Africa," gives the following account of a remarkable repast he once partook of in that country:

That Christmas morning I enjoyed a stupendous repast. The mouths of members of the Acclimatization Society will water as they read. It was a collection of gastronomical rarities,—a tissue of eccentricities *de cuisine*.

We commenced with snails, brought from France in barrels filled with flour, which had preserved them admirably. They were prepared *au gratin*, and we forked them out of their retreats with instruments unpleasantly resembling toothpicks. We had also oysters torn from trees. Our fish consisted of African soles, carp, and mullet. Detestable in themselves, they illustrated the skill of the *cuisinier*.

Then followed the gazelle cutlets *à la papillote*. Two small monkeys, served cross-legged, and with liver sauce, on toast. Stewed iguana, which was much admired. A dish of roasted crocodile's eggs. Some slices of smoked elephant (from the interior), which none of us could touch. A few agreeable plates of fried locusts, land crabs (previously fattened), and other crustaceæ. The breasts of a mermaid or manatee; the grand *bonnebouche* of the repast. Some boiled alligator, which had a taste between pork and cod, with the addition of a musky flavour. And some hippopotamus steaks *aux pommes de terre*.

We might have obtained a better dessert at Covent Garden, where one can see the bright side of the tropics without the trouble or ex-

pense of travelling. But we had pine-apples, oranges, roasted plantains, silver bananas, papaws (which, when made into a tart with cloves, might be taken for apples), and a variety of fruits which had long native names, curious shapes, and all of them very nasty tastes.

But I must not omit the famous palm-cabbage. It is erroneously supposed that it is peculiar to one tree, which is called the cabbage-palm. It is, however, the bud of the tree, so to speak, and is found in all the palms, though in some it is red, in others white. It is a great luxury; indeed, to eat one is like eating a whole tree, for the palm always dies when the cabbage is cut out. Throughout this country, therefore, it is forbidden food; but Europeans may sometimes infringe the law by paying a large sum. When raw it tastes like celery, but when stewed *au sauce blanc*, as upon this occasion, it is not to be compared with any vegetable of mortal growth. It must have been the ambrosia of the gods.

THE SEXTANT.

We have just received the following suggestion of a simple method of adjusting the line of collimation of the telescope, which is new to us, but self-evident:—

Liverpool, 22, *Duke Street*, *June* 21*st*, 1865.

Sir,—Having been informed that you are the Editor of the *Nautical Magazine*, and knowing the interest that you have already taken in the sextant by the introduction of your artificial horizon, I venture to request the insertion in the magazine of the following easy method of adjusting the line of collimation. I need not mention to you the difficulty of performing this by the sun and moon. The plan I adopt is to use the reflected image of the sun in the artificial horizon as the second object, and bring them in contact on the wires in the usual manner. A trial of this would, I am sure, give every satisfaction as to its correctness.

I am, &c.,

EDMUND JOHNSON.

Captain A. B. Becher, R.N.

P.S.—I have been in the habit of using the sextant for the last thirty years, and am much surprised that this never struck me before.

NAVAL MOVEMENTS.

The *Antelope*, 3, iron paddle-wheel vessel, Acting-Master Commanding Alfred Thomas arrived at Plymouth from the West coast of Africa. Lieutenant Allingham, her commander, died on the 11th May, after two days' illness, and was buried at sea. The day before his death, when delirious, he threw himself overboard out of one of the ports, but was fortunately observed,

and promptly picked up through the exertions of Mr. Thomas. On the death of the commander, Acting-Second-Master Thomas assumed the command as acting-master. Lieutenant Allingham had for the nine years preceding his death been actively employed on the West coast, with the exception of one month spent in England. The *Antelope* during her commission has captured three slavers off the Kabenda coast,—a brigantine of 100 tons, with 558 slaves, on June 3rd, 1862; cutter, of 70 tons, with 203 slaves, on August 6th, 1862; and the brigantine, *Lola Montes*, fitted as a slaver, but empty, on November 25th, 1862.

The *Charon*, screw gunboat is commissioned at Devonport by Lieutenant R. H. Swinton (1856), with a complement of thirty officers and men. She has since been put into dock to have her copper cleaned and defects made good.

The *Charybdis*, 21, screw corvette, 1,506 tons and 400-horse power, Captain Edward W. Turnour, arrived at Spithead 29th May, from the Pacific. The *Charybdis* left Vancouver on the 14th of December, Valparaiso, on the 2nd of March, and Rio de Janeiro on the 11th of April, and has brought to England two warrant officers, one naval engineer, eighty naval supernumeraries, and five prisoners from her Majesty's fleets on the Pacific and Brazil stations. The *Charybdis* made the passage round Cape Horn, the weather being unfavourable for going through the straits of Magellan. On the 21st of May she passed the Azores, strong westerly winds prevailing at the time. On the 26th, when North of Cape Finisterre, she encountered a hurricane from South to W.S.W., which lasted ten hours—seven of which the ship lay nearly on her beam ends. The ship has been in commission since November, 1860, and will require heavy repairs before she can be again pronounced fit for foreign service. She will be immediately dismantled and paid out of commission, probably at an eastern port.

The *Constance*, 39, screw, is ordered to be commissioned at Plymouth, with a complement of 515 officers and men.

The *Geyser*, paddle, Commander Thrupp, was paid off at Portsmouth 1st June, after being five years in commission, principally employed on home and special service.

The *Griffon*, 5, screw, Commander John L. Perry, arrived at Plymouth from the West coast of Africa on 16th June. She left Loando March 26th, Ascension April 29th, and Fayal June 3rd. She brings home Mr. T. Dart, British Consul at Fayal, and niece; Mr. H. C. Barnard, clerk, R.N.; Mr. T. Lee, gunner, promoted; four naval invalids and twenty-seven seamen whose period of service has expired. She goes to Sheerness to be paid off.

The *Himalaya* arrived at Portsmouth from Quebec, she brought the 1st battalion of the 17th Infantry and other troops.

The *Lightning*, paddle surveying steamer, made a trial of her machinery and speed on 22nd June, at the measured mile in Stoke Bay, on the completion of repairs to her hull and engines. Six runs were made over the mile, the mean result of which gave the ship a speed of 8·365 knots. The *Lightning* is under orders to proceed to Oban, on surveying duties on the West coast of Scotland, where she will take up the survey at the point left by Commander Otter in the *Porcupine*, about 200 miles off the land.

The paddlewheel steam sloop *Medea*, 6, Commander Preston, from the West Indies, arrived at Plymouth on the 12th June. The *Medea* left Bermuda May 18th, and brought invalid passengers—Dr. Hastings, Lieutenant Godfrey, 2nd Queen's; Captain Henry, R.M.; twenty-four invalids, and fifty-two marines. Dr. Wallace, of the *Medea*, died on the 15th at sea.

The *Miranda*, 15, screw corvette, Captain Robert Jenkins, C.B., arrived at Spithead on 20th May from Auckland, and on anchoring exchanged the customary salutes with the *Victory*. The *Miranda* sailed from Auckland on the 7th of February last, and experienced generally very fine weather during

the passage to Spithead, which has been made without calling at an intermediate port. On the 28th of February, in lat. 56° 19′ S., long. 1° 42′ E., a very large number of icebergs were in sight, some of them being of unusual size. The crew were at quarters during the forenoon, and some very excellent shot practice was made at several of the bergs. The *Miranda* has been in commission upwards of four years and a half. She subsequently left for Sheerness to be paid out of commission.

The screw corvette *Miranda*, 15, 250-horse power, Captain R. Jenkins, C.B., was paid off into the third division of the steam reserve in the basin at Sheerness on 27th May, under the superintendence of Captain W. K. Hall, C.B.

The *Orestes*, 21, screw corvette, Captain Gardner, arrived at Chatham 7th June, and saluted the flag of Vice-Admiral Sir C. Talbot, Commander-in-Chief at Sheerness; the ship has been in commission near four years, during which time she has been employed on the Cape of Good Hope station. The ship is to be paid off and placed in the third division of the Sheerness steam reserve.

The *Racoon*, screw, Captain Count Gleichen, arrived at Spithead 28th May, from the Mediterranean. She brought a few naval invalids from the ships on that station, and forty-six military invalids and time-expired men from various regiments at Gibraltar, under the command of Lieutenant Jackson, 86th Regiment.

The *Serpent*, 4, screw, surveying vessel, Commander Bullock, having completed her defects at Devonport, left Plymouth 8th June for China and Japan.

On the 1st June the *Wivern*, iron-clad ram, sister ship to the *Scorpion*, built by Laird Brothers, of Birkenhead, and purchased from them by the government, made her preliminary trial trip at the mouth of the River Mersey. The *Wivern's* dimensions are:—Length, 225 feet; breadth, 42½ feet; depth, 20 feet; tonnage, 1,890 tons; nominal horse power, 350. Her armour consists of 4½ inches iron plate and 10 inches of teak. The thickness of the plating is reduced towards the ends, so as to ensure buoyancy. Her machinery, turrets, and magazines are thoroughly protected, and the decks are of iron cemented over. She has two turrets, each pierced for two 12-ton 300-pounder Armstrong guns, so that the weight of her broadside will be 1,200 lbs. The turrets, which are on Captain Cowper Coles's principle, are plated with 5½ inch armour plates, doubled at the port-holes. The *Wivern* is fitted with tripod masts, on Captain Cowper Coles's system, and is the first vessel in which these masts have been fitted. The advantage afforded by this invention is the substitution of a single iron supporting tube from each side of the vessel, in place of the numerous stays and shrouds, and thus interfering much less with the training of the guns, more especially in vessels fitted on the turret principle. The speed attained by the *Wivern*, as the mean of two runs, was a little over 10½ knots, the engines making 68 to 70 revolutions.

The *Wivern*, 4, iron turret (2) ship, 1,857 tons and 350 nominal horse power of engines, one of the celebrated rams built by the Messrs. Laird, of Birkenhead, and subsequently purchased by the Admiralty, which arrived at Spithead from the Mersey in charge of Captain Paynter and a party of officers and seamen from H.M.S. *Donegal*, is reported by Captain Paynter to have behaved exceedingly well during the passage round, and to have made an average speed of 10 knots. She steamed into harbour from Spithead, and will at once be taken in hand by the authorities of the port to prepare for trial and commission. The *Wivern* is barque rigged, with the fore and main masts on Captain Coles's tripod principle, this being the first introduction of the tripod mast into her Majesty's navy. The vessel will spread a large area of canvas.

A number of Captain Rodger's patent indented, small palmed anchors having been ordered by the Admiralty to be supplied to the Channel fleet, the

test was commenced under the hydraulic machinery at Woolwich on the 7th. One of the anchors, weighing 59 cwt. 3 qrs., was proved with a strain of 72 3-16 tons, which is equal to 24 1-16 tons, or 50 per cent. above the usual Admiralty test of 48¼ tons. The permanent set of the first arm was one eighth of an inch, and that of the second one sixteenth only.

It is stated that an experimental squadron, comprising the wooden frigates *Octavia*, *Constance*, and *Arethusa*, will assemble at Portsmouth under the command of Captain Cochrane, C.B., as Commodore. These ships are specially adapted for experimental purposes, being of the same size and of like engine power, all having surface condensors, and the engines are by different makers. The experiments will be made to discover which engine combines the greatest amount of efficiency with the least consumption of fuel.

NAVAL CADETS.—The following gentlemen having completed their course of instruction on board the *Britannia*, Captain R. A. Powell, C.B., were on the 21st June found qualified for appointment to sea-going ships.

First class certificates, with rating as midshipmen and twelve months' sea time allowed:—W. P. Chapman, Admiralty prize for study, and prize for use of nautical instruments; A. R. Gordon, prize for progress in study, prize for progress in seamenship, and prize for good conduct: H. H. Jannely, prize for progress in study; H. Leah, Admiralty prize for seamanship and prize for good conduct; W. F. Stirling, E. E. Maxwell, prize for progress in French and prize for good conduct; L. C. Strachey, prize for good conduct.

Second-class certificates, with six months' sea time allowed:—W. C. V. Baker, prize for progress in navigation and good conduct; A. F. Targett, A. J. Carcaud, Admiralty prize for French; T. F. Thomas, prize for good conduct; B. E. Maitland, D. H. Crofton, E. F. Creagh, J. R. D. Tollemache, prize for good conduct; F. E. Walker, W. Harvey, F. H. Davies, H. C. Roche, D. Court, H. C. Vivian, E. J. P. Gullwey, G. H. Yonge, W. H. Somerset, prize for progress in drawing and prize for good conduct; A. J. Menzies, J. B. Pellowes, W. Betts, P. J. Atkinson, G. A. C. Webb, J. Jeans, C. E. Willoughby.

Third-class certificates:—H. D. Law, J. F. Hays, R. R. Neeld, prize for good conduct; G. J. Capes, E. J. Seymour, R. D. Bushby, J. P. O'Neill, H. E. K. Stancy, C. C. Gordon.

IRON SHIPS.—The French Royal Mail Company—Service Maritimes des Messageries Imperial—after a long trial of various "antifouling" compositions for keeping the bottoms of their iron fleet efficient and clean in India, &c., have just sent a large order to Messrs. Peacock and Buchan, of Southampton, to be forwarded to Alexandria for their depôt at Suez.

The success of this composition over all competing preparations has been exemplified most practically and satisfactorily in H.M. navy on H.M. troopship *Himalaya*, and other ships where it has been tried; and as a proof of its commercial success, which, after all, is perhaps the best test, we are informed that these gentlemen have orders on hand for supplying the depôts in India and China of the largest iron steam ship company in the world; and also large orders on merchants' account for Hong Kong, Shanghae, Sydney, New Zealand, the Mediterranean, &c.

We can but congratulate Messrs. Peacock and Buchan on their well merited success, the result of more than twenty years' practical study and perseverance, of which we have already given many instances in the pages of this work.

New Books.

YACHTING ROUND THE WEST OF ENGLAND,—*By the Rev. A. G. L'Estrange, B.A.* Hurst and Blacket, London, 1865.

From Lundy Island to the Eddystone includes, perhaps, one of the most interesting and even picturesque portions of our coast,—just such a piece of coast as would attract the lovers of yacht sailing. Among these the author exchanges his Oxford garb for the sailor's jacket, and braves the perils of the sea, bent on enjoying this most beautiful scenery of the British Islands. But he had more than that in view. Such an opportunity was not to be lost for collecting all the Devon and Cornish legends of old, and wondrous tales of battles and warriors grim, not to mention those more winning mysterious stories of "holy wells," and other places where

> "O'er the dewy green, by the glowworm's light,
> Dance the elves of night, the merry elves of night."

and it must be acknowledged that Mr. L'Estrange has massed together a choice collection of historic information, sufficient to amuse the most fastidious of those who are bent on such a voyage. Indeed, he dips into *præ*-historic lore, and gives us the derivation of our beloved "Albion," and tells us why our island was called "Britain," and we thence became "Britishers!" May be we shall follow him on some future occasion, when we can command space. Meanwhile we commend his little volume to our yachting friends, assuring them that it will be found both a useful and entertaining acquisition to the cabin library.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, *in June*, 1865.—*Sold by the Agent, J. D. Potter*, 31, *Poultry, and* 11, *King Street, Tower Hill, London.*

1,426.—Scotland, West coast, North part of Linnhe Loch, Aber Leven, and Eil Lochs, with views, Captain E. J. Bedford, R.N., 1863, (4s.)

628.—West Indies, Caribbee Islands, Dominica Island, Charlotte Town or Rousseau Bay, G. Dathan, Master, 1865, (6d.)

1,917.—Vancouver Island, with views, Captain G. H. Richards, R.N., 1864, (3s. 6d.)

583.—Vancouver Island, Quatsino to Esperanza, with views, Captain G. H. Richards, R.N., 1863, (2s.)

569.—Vancouver Island, Esperanza to Clayoquot, with views, Captain G. H. Richards, R.N., 1862, (2s. 6d.)

589.—Vancouver Island, Esperanza and Nuchatlitz Inlets, with views, Captain G. H. Richards, R.N., 1862, (2s.)

1,916.—Vancouver Island, Nootka Sound, Captain G. H. Richards, R.N., 1862, (2s. 6d.)

EDWARD DUNSTERVILLE, *Commander R.N.*

Admiralty, Hydrographic Office, 20th June, 1865.

TO CORRESPONDENTS.

Our esteemed friend Captain Toynbee has sent us his pamphlet on "Sailors' Wants and how to meet them," for which we have been unable to make room in our present number. We will endeavour to second his exertions in our next, and emulate the example of an officer who never takes up his pen but with some good motive in behalf of our seamen.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

AUGUST, 1865.

The Return Winter Passage of the Cape.

Sir,—The suggestion of M. Bridet, quoted in the letter of Captain Villemain, at page 337 of your July number, is one that, as you remark, deserves great attention.*

I imagine the logs of vessels outward bound to India or Australia would be the best guides to decide the proportion of fair wind or fair weather that ships homeward bound in winter, and following M. Bridet, may reasonably expect. Though it must be remembered a ship bowling along East thirteen knots, and just able to carry a main topgallant sail over single reef, would describe the same weather in very different language from the friend she meets wearily trying to get to the westward.

Amid the anxieties of the navigator in those hollow seas that are raised on the bank and in its vicinity, he has a crumb of comfort in the reflection that he may benefit by a current which men elsewhere, beating against seas quite as wild, can never hope for.

It is true this current is often checked entirely; nay, borne back

* We are favoured by our correspondent with a prompt communication on this subject, that we are glad thus early to present to the readers of the *Nautical*. We yet hope to record further testimony on the subject, much as we respect that of "Beta," confirming as it does the high road which has been marked out and so long followed by early navigators; and, with the tracks that he has sent us (all of them inshore tracks), we shall await further opinions. We are quite inclined to agree with him that the Cape gales are not of the hurricane or rotatory character.—Ed.

for days by a hard westerly blow: but it never fails to return in the natural order of things—often with increased force.

Can we afford to quit a certainty for the prospect of a probability?

The greatest amount of weather drift within my personal knowledge occurred it is true very early in the season (of 1834). The *Orient*, homeward bound, fairly in with the land, never heading higher than N.N.W. on port tack, under close reefs, and with only twelve miles to show on her log slate, made a W. 18° S. course ninety miles in the twenty-four hours ending at noon of May 4th.

In 1845 I was passenger in a ship that was assisted by the current during the forty-eight hours of July 2nd and July 3rd to the extent of thirty-nine miles and sixty-two miles. Less unequivocally, however, because there had been northerly and N.E. breezes part of the time, and it might be argued she was underlogged.

On the other hand, in the *Indiana*, a superb screw steamer, we had smooth water and light N.N.E. to N.W. and S.W. winds all the 7th of August, 1858. Made the land about Cape Infanta on the morning of the 8th, and found by our position at noon that the current of the last twenty-four hours had been E.½N. thirty-three miles. Wind still moderate—N.N.E. to N.N.W. (comp.); sea smooth; barometer rather low (29·69). We passed Cape Agulhas lighthouse about 4h. p.m. The barometer was rising at sunset, when the squalls commenced; and from midnight of the 8th till 6h. p.m. of August 9th the wind was marked N.N.E., force 9 (comp. corr. 40° W.) We were then hove to under close reefed main topsail and spencer, on starboard tack of course; a rough sea from S.W.; vessel behaving beautifully, as she always did. The barometer oscillated slightly in the gusts and lulls, but its tendency was upward.

About 11h. p.m. of the 9th it was densely heavy to S.W., and then came the usual flashes, and the shift from thence. When we anchored next day in Table Bay, about 4h. p.m., we found the norwester had made itself felt there. H.M.S. *Megæra*, with whom we had been in company a day or two previously, anchored in Struys Bay while we had been hove to.

The experience of most with whom I have spoken confirms my impression that the sea is smoother, comparatively, on the bank, and heaviest just off it; and that the westerly current sweeps strongest in a *northern* or a *southern* track, according as the wind has prevailed from the S.W. or the N.W.

Without disparaging the skill and judgment of the great majority of our merchant captains (and those of other nations also), I sometimes fear more than one fine ship has come to grief by what I may term the attempt to "make a beat" round the Cape in winter. I speak, however, with great diffidence on this point, because a commander must be supposed to know his circumstances best, and has not, like his critic, the benefit of the result to guide him.

The old navigators, who had a superabundance of men (when not laid up with scurvy), and an amazing amount of patience (and top-hamper too), were content in these latitudes to carry nothing above

the topmast head but a vane staff. Yet they got round the Cape somehow,—always provided they did not jam the helm a little too hard down, and so lose the rudder, when hove to under their reefed mainsails!—Heaven save the mark!

In these modern times, with clean sided, tidily rigged, and far more weatherly vessels, we have often sadly inferior crews. A commander feels painfully unwilling to see his topgallant yards, not to speak of the masts, anywhere but in their places. Nor is it surprising: he need have twice as many men if those giant spars are to fly up and down every breeze. He cannot afford the loss of time; so they remain aloft, where they look so light, and strain so heavily.

This may be only a small occasional source of disaster, but a more serious one arises when sail is made too soon after the wind abates. The sea appears a long time subsiding, especially when opposed by a strong vein of current, and a ship may as well be driven stem on to a stone wall as against it. It is cruel to preach patience to an energetic officer who has been buffeting for days, and has lost ground besides; but patience is imperatively needed.*

Somewhat remotely bearing on M. Bridet's proposition to go South for easterly winds is the fact that near the land in winter East and N.E. winds, with smooth water and low barometer, are really not rare (to the *eastward* of the meridian of 21° or 22°). The misfortune is they are not lasting.

If we suppose them to be due to the advance of a gyrating storm, travelling, say S.S.E or S.E., giving East, N.E., North, N.W., and West and S.W. winds in succession to ships, to the *southward* of which the centre passes (just the winds that ships mostly get), a navigator would expect E.S.E., S.E., and South winds in the S.W. quadrant. But (I write under correction) nobody seems to have the luck to be on the spot where he can depend on such a chance in his favour.

With all submission, the rotatory theory seems to me untenable. The front of the storm appears to veer too quickly from East to North in proportion to the time the endless N.W. and S.W. tail takes to pass over the ship; and even if we assume the figure of the disk to be enormously oblate, the difficulty as to the S.E. wind continues. Where is it?

I am under the impression that the N.E. and East winds are as much the normal condition of the eastern edge of the African continent as the N.W. and western winds are of the western edge, *i.e.*, the winds blow obliquely along the coast till they meet, and the vast westerly belt preponderates. If it be so, a ship bound to the westward hereabouts must eventually expect (at least she generally finds)

* Once, in a small ship, I calculated, quite roughly—rejecting all odd inches as superfluous,—that we had had 122 tons of water on our deck at one time (allowing thirty-six cubic feet to the ton weight). We became a marine bath in an instant,—another such sea and we should have been a submarine one.

in winter the wind she would fain avoid. The light winds of summer, nevertheless, seem to go round the compass completely.

But M. Bridet is entitled to the best thanks of the community for a suggestion which may be followed up (not, however, I think, by loaded ships) to the discovery of a line of *easterly* winds on the *southern* border of our perplexing westerly zone; and should a comparison of the logs of a fair average of outward bound Australian traders tend to show that gentleman's conclusion the right one, we shall owe him no trifling debt.

Meanwhile it seems to me that the old route has much, very much in its favour beyond its apparent directness; and that a merchant ship will do right to make use of it—and of its current—*at least as far as she can*; leaving the search in more southern (but not more summery) regions for a change of wind to be dealt with when progress is barred to the North and West. In our present state of knowledge I certainly should hesitate to break off from the "high road" in the meridian of 40° E.

I sincerely trust that not a few of your correspondents, possessing far greater experience than myself, will throw a light on this very important question. It is one that requires to be argued from several points of view.

By way of speaking to the eye I enclose rough abstracts of logs and the tracks of the three vessels named in the margin, and remain with all respect,

BETA.

To the Editor of the Nautical Magazine.

MEDITERRANEAN RECOLLECTIONS.—*By Admiral Lord Radstock and Captain Widdrington, R.N.*

A glimpse of former days now and then is pleasant, as breaking the monotony of naval routine, destitute as it now is of the excitements of those times; and it is more especially so when it brings the gratification of knowing that this work has done its part in extirpating an evil which then afflicted the naval service. Those who know the *Nautical* will remember its crusade against the enemies of lightning conductors, a portion now of the outfit of every ship of war. Nor have the Lyons gales been forgotten in our pages. But we have here the testimony of two experienced commanders relating to them from the hand of no less a personage than Admiral W. H. Smyth, the father of Mediterranean hydrography, and we are glad to welcome such records in our pages.

St. John's Lodge, near Aylesbury, July 6th, 1865.

Sir,—As Rear-Admiral Washington's intention of an Admiralty edition of my *Mediterranean Memoir* was intermitted by his regretted

death, I beg to hand you an interesting letter which I received from my friend Lord Radstock, and which was reserved for the appendix of such publication.

The Mediterranean Sea has—and from its natural features and engrossing story must ever retain—an unparalleled individuality; its physical relations are, therefore, of equal moment with its political and social recollections. His lordship's letter is, moreover, valuable in a general view; since every well-observed meteorological fact is important in the accumulation of data whence to deduce the laws of atmospheric phenomena.

These reasons induce me also to send you a letter addressed to me by Captain Widdrington, R.N.—the representative of the Chevy Chase hero—as it bears on the locality before us.

Yours, &c.,

W. H. SMYTH, *Admiral.*

To the Editor of the Nautical Magazine.

Portland Place, June 7th, 1854.

Dear Admiral Smyth,—Your book on the *Mediterranean* has afforded me much pleasure, but yet accompanied with regret also, at not having myself profited more, during my many years' service in those seas by making such observations at the time as you have turned to such good account. Your work has carried me back forty or fifty years with livelier impressions of those regions than the recollection of others which I have only visited within these four or five years. It is awaking from a vivid dream, almost verifying the transient half-formed wish floating in the brain of desiring to begin life again.

I have been led to note some points which you have not fully touched upon, and which might serve as mems. in any future revival of your work.

As a schoolboy's associations are with his cricket ground, so are mine to begin with my former play ground off Toulon or in the gulf of Lyons.

There is a remarkable peculiarity in the wind out of this gulf which renders it difficult to enter from the westward. In blowing fresh or in gales it comes down as from a funnel, expanding itself as a fan, extending to the southward. Under the lee of the coast of Spain it is not felt, nor to the eastward of Toulon and Hieres.

But coming from the West, as soon as you open Cape St. Sebastian its force is felt fully. Our fleets under Lords Nelson, Collingwood, and Exmouth either sheltering from its effects or to unload transports with greater facility, were generally unable to regain their station off Toulon for many days. Remarkably so in the following instance, when in the *Volontaire*, the *Perlin* in company, we were, on the 22nd of November, 1811, chased by a French squadron, (followed afterwards by their fleet,) who got outside of us in the night, many leagues off the land. I sent the *Perlin* (after our escape through them) with the intelligence to Lord Exmouth, then off St. Sebastian.

She joined him the next day. The enemy were blown off their port and could not get in again till the 25th. Lord Exmouth meanwhile doing his best to get to us. Yet he could not before the 7th of December, nor the *Leviathan*, sent to support us, till the 2nd, as with our fleet it was blowing a gale from N.E., while we had it from the N.W., which I fondly hoped would have favoured us with the opportunity of seeing the enemy cut off from their port by their having pursued us so far.

Bearing this in mind, it would have been very imprudent to have sent our cavalry overland to Marseilles on a late occasion, as it would have taken as long for our empty transports to get to Marseilles as to carry the whole force direct to Malta.

While on the gulf of Lyons, a word respecting the watering at the mouth of the Rhone. In the *Volontaire* we were the first ship which watered there, sending a cask to Lord Exmouth, who sent other ships so to do. It must be with caution, however, as the gales spring up so suddenly,—in which case the anchor should be hove up at once (not veering more than half a cable at first anchoring) and not attempting to veer more. The *Menelaus* imprudently veered to two cables and drove out, unable to heave up the anchor or cables was obliged to cut them away. The water is fresh alongside, but boats should be sent to the mouth and the water baled into the casks.

How little the dangers in the Mediterranean were known some few years past, or when ascertained their existence made known, may be judged by the fact that until the peace of Amiens, though those seas had been ploughed by our fleets and convoys for years previous, above all by the French and our expeditions to Egypt with hundreds of transports, the Esquerquies were only first surveyed by Captain Durban in the *Weasel* brig and the *Entreprénant* cutter in 1802. In the *Medusa*, 1803, we examined them, and Lord Nelson in his letters alludes to a chart of them I presented to him on taking the command at the breaking out of the war, 1804. Yet it was in October, 1806, (not 1804, as you say,) that the *Athénienne* was wrecked on them.* How many other ships may never have left a soul to tell their melancholy tale of similar fate we shall never know. What hair breadth escapes others have had are forgotten. We should never forget a providential escape of some of Lord Nelson's fleet when running through the Strait of Bonifaccio to the Magdalen Islands in a gale, missing an unknown reef, on which, when the fleet were working out some time after, the *Excellent* struck in a calm, luckily, or would have otherwise probably been lost.

Among your dangers I do not see that you have noticed the Pearl Rock† off the Spanish Point of the bay of Gibraltar, well known to our cost at the beginning of the last war in 1804, when we struck on

* This oversight is the more remarkable, inasmuch as I was thoroughly acquainted with the details of that distressing and most blameable disaster. Indeed, I wrote the account of it which appears in the *United Service Journal* for 1845, under the title of "The *Athénien* and the Skerki."—W. H. S.

† This rock has been long accurately placed on the charts.—W. H. S.

it and were forced to heave down at Gibraltar and see French vessels running through instead of being able to capture them. The gusts of easterly wind blowing ships on shore at Gibraltar, under the lee of the land from whence the gale outside prevails, is a remarkable feature to be guarded against.

Under the head of lightning accidents, I may notice that the *Cumberland* was anchored under the high table-land outside the Faro of Messina when first struck, and after going into Malta for another mast, on resuming the same anchorage was again struck. The formation of the land sloping towards the ship, as a wedge, occasioning the direction of the fluid.

These are all the scraps I can scrape together now, any others I might have tried to rack from my brains you have so well noticed that I could only corroborate your accurate observations.

Believe me, my dear Admiral,

Yours very faithfully,

RADSTOCK.

Athenæum, 19*th June*, 1854.

Sir,—In turning over the leaves of your *Mediterranean*, previous to a regular reading of it when I return to the country, I opened the interesting part relating to lightning accidents. One of these was so remarkable that as a *parafer* it may be worth relating to you. In 1811 the *Ajax*, *Resistance*, *Unité* were in company off Gorgona. I was then second lieutenant of the *Resistance*, and had the morning watch. It was dead calm and a beautiful morning. About six I saw a squall beginning to form to the S.E. and moving towards us. No notice was taken of it by the Commodore, whose officers were new in the Mediterranean, and after waiting as long as I thonght prudent, I commenced taking in sail on my own responsibility, which was immediately followed by the other ships. I took in everything, lowering the topsails ready for reefing, but I did not like to do this without acquainting Captain Rosenhagen, who was an excellent officer and seaman but a very nervous one. Contrary to what I had ever known, he said, "Never mind reefing." I returned on deck and in a few minutes the squall arrived. He then became alarmed and ordered the reefs to be taken in, which I did, not liking to send the men aloft.

Providentially we just got down and the men below, when, as I was standing by the binnacle watching for it, the lightning struck the mainmast. The topgallant mast was not injured, but the body of the flash struck the topmast above the lower cap, shivering or rather shaking it, and descending about one-third of the lower mast, breaking a hoop, and then expending itself inwardly in the mast, making a hole like a spent shot, and firing that part, but not seriously. It did not descend, and no bulkheads were rent. I suspect that must have been in the carpenter's expenditure, as usual in those times. In a few miuutes it cleared, though it continued to blow for several hours, and every ship was disabled; the whole taking place simultaneously, or as nearly as possible. Had we been struck when the

men were aloft, most certainly some of those in the front of the main topsail yard would have been killed.

The accident in the *Regulus* was by the lightning sweeping horizontally the men, who were taking their clothes out of the main rigging. I always heard ten or eleven had perished, but the official account is more probably right.

When in the fleet off the coast of Catalonia (I think in the winter of 1809–10) we had a squally rainy gale for about forty-eight hours. At the close of the time, in the evening, I happened to have the six to eight watch. A darkness came such as I have never seen before or since,—quite supernatural. This lasted about an hour, when a tremendous thunderstorm came on, lasting three or four hours, and completely breaking the gale, which was succeeded by a beautiful morning. The *Royal Sovereign* was struck, but not much.

During the many years I served in the Mediterranean, and have since travelled about the countries on it, I never saw lightning approach that common in the hurricane months in the West Indies. Many hours I have passed, after everything was secured as far as possible, standing by the binnacle and admiring the grandeur and sublimity of the sight: one continued peal—no interval between the roar of the thunder and the flash of the blue and forked lightning. The old captains would never use the conductors for fear of their getting out of place at sea; but I often wondered we did not place them when at anchor.

I lately met with your little work on Sardinia, and perused it with great pleasure It may interest you to know that in the horrid marsh at Cagliari the Penphyrio (also a purple water hen) is found; but the late Professor Bonelli told me he could rarely procure them on account of the heat of the weather at the time they are to be had (about Midsummer) and the deadly atmosphere where they live. Amongst the most beautiful of the European Falconidæ is the F. Bonelli, an eagle discovered in Sardinia, but known now to inhabit Asia and Africa, in distant localities.

The only partridge in Sardinia is the P. Petrosus, one of the three species of red legged found in Europe, and very distinct from each other. The P. Petrosus is not found on the continent of Europe, although said to be by Semmial, who is singularly ill-informed about the habitats of southern birds, though exact in their description.

The beautiful little Sylvia Corspillata (spectacled warbler) was discovered in Sardinia, and supposed to be confined to it; but I shot it near Seville, and my specimen is that figured by Gould. The black or African sparrow is also found in Sardinia,—black because much darker in the plumage. It is called Hispanica or Hispaniolensis by Semmial; but by error, as it does not exist in Spain.

I feel the greater interest about Sardinia, from having been there much during the war. Captain Rosenhagen procured the loan of the plans of harbours they had at Cagliari, and I copied them. Some of them were not bad, considering; though of course made useless by your work. My copies I sent to the Admiralty after the peace, and

Captain Hurd was so well pleased with them that he offered me employment, and I was named to go out with Lord Amherst to China, and told to be ready; but the government would not sanction the trifling expense, under old Vansittart, and my health was unequal to the work of surveying; otherwise I should have been in the line.

I have, &c.,

S. E. WIDDRINGTON.

COMPASSES AND ADJUSTING MAGNETS.

From the day that the Astronomer Royal first solved the difficult problem of rendering the compasses of iron ships manageable in a constant magnetic latitude, the subject has had no improvement. No dwarf has stood on the giant's shoulders to contribute his mite to it, although many have attempted it. If, however, there are certain subjects in all sciences which do not bear improvement, this, perhaps, is one.

Iron shipbuilding at its commencement, like many other wonderful innovations of modern times, was at first looked on with mistrust. It seemed to be a toy which for a season would engage the minds of scientific men, and probably lighten the pockets of the speculative, before it passed away for a future generation to revive as something new. The most sanguine supporters of the art could not at that time have looked forward to such a wonderful development of their favourite theory as the last few years have produced in this and other European countries. It is no brief period since our large fleet of magnificent merchant steamers have been built wholly of iron, and the new paddle boats of the great mail companies are now being formed of the same material. Even the beautifully formed yachts of this country are being invaded by it, and the once familiar Indiaman of British oak will soon be looked on as a novelty. Nature has indeed been liberal to us in solving a problem which had caused anxiety to more than one generation of statesmen, when dwelling on the means which we could command to uphold our maritime superiority, so rudely threatened by the vast consumption of oak in this kingdom and that of the teak forests of India.

The new material for the ship has no doubt been provided; but the compass, which is to guide her, has been forgotten. Perhaps the apathy regarding this indispensable monitor in iron ships may be attributed to two causes, viz., the influence of a few talented men, who, having mastered the subject to their own satisfaction, therefore think that nothing else remains to be done; and, again, to the ignorant multitude which infer that when once properly adjusted the compasses of an iron ship are as reliable as those in one of wood. Of the two parties, the first named are greatly to be blamed for treating so important a subject too lightly.

After many years of practical experience I have come to the conclusion that the compasses of an iron ship in thick weather, at the end of a long voyage, on nearing the land, in the absence of recent observations, are always a source of uneasiness. Furthermore, I am always more doubtful of the compensated than of the non-compensated. Mr. Towson, in his interesting work, differs from this, and says,—"It remains yet to be proved that in a single instance on board an iron ship any magnet has lost more of its magnetic force than the ship." He quotes the dipping needle of the Liverpool Compass Committee in support of this argument; but, apart from all other causes, there is a vast difference between an instrument on which neither skill nor money was spared and the magnets supplied by contract to the merchant service. I do not so much challenge the theory as it might be, but as it is. In another page, however, he warns seamen not to steer within a point in running for the land,—an impossibility in many parts of the globe, especially in the China Sea or any archipelago.

The following anecdote will show the strange views entertained with regard to compasses by men who ought to know better than to put such an important instrument on board by competitive contract! "Would you believe it?" remarked a gentleman who had superintended the building of a steamship which had cost sixty thousand pounds, "that I got the compasses put on board for eight pounds less than Mr. ——— asked!" mentioning the head of a well known firm. Either the compasses or the captain were out shortly afterwards, for the ship was hove to all night in a channel through which a good navigator, provided with proper instruments, would have taken any steamer with her compasses in hand. The balance of the eight pounds was sadly reduced when daylight dawned.

A short time since I did meet with a remarkable change of direction in an adjusted compass, and I am certain it arose from the loss of power in the adjusting magnet, and not from a change in the ship's magnetism. Had the latter been the case, the remaining compasses would have been affected in some degree; but, although one was only a few feet distant, no change was perceptible.

The following is the history of this change. Returning from an Atlantic voyage in the end of November, I found the weather more than ordinarily obscure, even for that dark season of the year. For six days I had not been able to take either azimuth or amplitude, and when passing the Tuskar, in a heavy S.W. gale, with the usual accompaniments of rain and fog, I felt rather anxious about the correctness of the compasses. Ascertaining, however, that the steering and standard were alike (that on the bridge differing a point), I steered by the former, and made the South Stack Light in a sudden clear about eight miles on the starboard bow. The run showed a small westerly deviation for both compasses.

My next homeward passage was in March, with easterly winds and unusually bright and clear weather. When steaming along the southern coast of Ireland, one fine evening at sunset, the ship's head was put on the N.E.b.E. point (the course from the Tuskar to the South

Stack), and an excellent amplitude taken. On working out the result I was surprised to find that in lieu of the trifling westerly deviation of the preceding voyage, it now amounted to fifteen degrees easterly. I thought it possible that I might have made an error somewhere, but at sunrise next morning a second observation confirmed the first. The compasses, which were all supposed to be correct, then stood as follows, viz.,—steering, N.E.½N.; standard, N.E.b.E.; bridge, E.N.E. The two former were alike only three months before. Had the weather been thick the position would have been embarassing. Three compasses on board and each differing seriously from the others! Who can be surprised at men being sometimes "hopelessly puzzled" by such a combination of doubts.

No reasoning could make me believe that it was the ship's magnetism which had been affected on this occasion. It is true that the compass was only twelve feet from the stern, and might probably be in some measure altered by the vertical iron frames there, but never to the alarming amount of seventeen degrees. In all iron ships the combination of iron masts and bulkheads will always in some degree be difficult to guard against, especially as the spot is not selected by experiment whereon the compass is to be placed, as the adjuster feels certain of being able to "lick it into shape." But he does not change hemispheres in the vessel. That is the captain's affair, not his!

Similar changes to mine may happen in any ship. The result is that numbers are annually wrecked, and others have fearfully narrow escapes. In my opinion it is this loss of power in the magnet which leads so many vessels on the iron-bound coast of France, and the more dreaded Arklow and Blackwater Banks, in the Irish Channel. But no such terrible warnings appear to be sufficiently powerful to provoke a searching inquiry into the cause. In the majority of cases neglect of the lead is the reason assigned. I am not one to undervalue the services of such a monitor, but in the present scientific age seamen have a right to expect that their instruments shall be such as not to require constant resort to what is in many parts of the world an indifferent guide. Even when aided by the splendid Admiralty charts of the Irish Sea, so neatly sounded off in squares, there is a difficulty in finding a ship's position if the compass has misled; not so much from the similarity of the soundings as from the utter impossibility, on a dark and stormy winter's night, of obtaining an accurate cast in a ship hove to under canvas. A well conditioned man-of-war, with her numerous and highly trained crew, finds it no easy task to do so; how much more difficult is it, then, for the indifferently manned merchant ship, whose crew in working up or down Channel are taxed to the utmost limit of their strength?

Again, there are thousands of merchant seamen who have but an indifferent knowledge of the lead. One good leadsman in a watch is considered a fair allowance in most steamers. When such "pass the line along," what reliance can be placed on the result, especially as great accuracy is indispensable to fix a ship's position at such times. Let those who think lightly of the difficulties I have enumerated test

them by actual experience. I have commanded two steamships with unadjusted standard compasses, and after their magnetic lines had been well shaken down by a little rough weather, they gave me no trouble. Indeed, it was highly interesting to remark, when steaming over the same track voyage after voyage, how closely the results approximated.

I have also remarked that the changes of deviation on shifting the geographical position were more uniform in the unadjusted compass than in those which were adjusted. Indeed, some of the latter at times were startling. In my opinion theory will confirm this, for it is natural to suppose that the action of magnetism will be guided by different laws in acting on simple and compound bodies. The adjusted compass is the latter, and its magnet, like the introduction of a third body in gravitation, alters the law.

In the standards referred to, the greatest deviation did not equal the change in the adjusted compass. The binnacles were placed on the spots which experiment had shown to be comparatively neutral points, with the cards elevated five feet above the decks. Both ships were stiff under canvas, and the trifling list they sometimes had never practically affected the deviation.

Nearly the whole of the binnacles of the merchant navy are too low. The cards are seldom more than thirty inches from the deck beams. Now this is much too close in an iron ship, considering what a net work of tyes and stringers there is below the deck. Commander Evans, the Superintendent of the Compass Department of the Navy, says distinctly it should not be less than five feet; but this advice, like the silent offer of the correct Admiralty charts, passes unheeded by the many, because interested men have an object in keeping the shipowner and shipmaster in ignorance on these important points, or, like Othello, their occupation is gone. But it is quite time that both were brought more rigidly under official scrutiny. A writer in the *Times* recently showed that a private publisher's chart of the North Atlantic for 1863 was twelve degrees in error. We punish shopkeepers for selling adulterated articles of food, as being prejudicial to health, but openly permit the *vending of false charts*, on which the lives of thousands are annually staked.

I presume that the Nautical Assessors of the Board of Trade are the people under whose cognizance this should fall. But these gentlemen appear to rest satisfied with punishing the unfortunate skippers who are brought before their tribunal, without making any suggestions as to the means of avoiding accidents. All laws should tend to this end, or they are not beneficial to the public weal.

As the Editor of the *Nautical Magazine* remarks, ships must still be navigated, as of old, by the aid of "the sun, moon, and stars." Unceasing attention to this simple yet sensible advice can alone make the navigator in an iron ship feel satisfied with the compasses. The means are within the grasp of the most uneducated, if they choose to give their attention to the subject. Let it be given, and, apart from the satisfaction it always renders to the observer, it will, should he get

into difficulty, be a consolation under his trouble, by assuring him that all the skill and prudence he possessed were unequal to ward off a disaster, which occurred from circumstances beyond his control or judgment.

There are now various methods published for shortening the calculations of azimuths and amplitudes. I admit their utility: still a good observation always repays the trouble of working it. The difficulty lies in the means of taking, not working it. I never rely on an azimuth when an amplitude is to be had. It is well known that the errors of observation in the former are often considerable, owing to the inclination of the card.

An inventor in any form deserves well of his kind, for he lessens in some degree the toils of his fellow man, or adds to his happiness and wealth. When such invention (a lifeboat, for instance) increases his safety it is of more than ordinary value, and should be appreciated accordingly; but even the most gifted among men are apt at times to fall into error when speaking of the child of their genius. This pardonable fault leads to disappointment and causes many an important invention to be discarded as useless, because its merits were not equal to the expectations formed by a perusal of the advertisement.

To read the many which are now blazoned forth on books, instruments, and diagrams, an amateur would imagine that none save a fool could possibly fall into error, with so many guides to assist him (forgetting that there are Holloway's in every profession); but, from causes which I have mentioned, the wisest and most careful will be at times misled. A man-of-war does not run so much risk as a merchant ship: in thick weather her head is coolly put off shore, and no questions are asked. The other can only in extreme cases afford to comply with this precaution. The ship is a link in a certain chain which cannot well be spared. Disaster sometimes follows, but those who are inclined to judge such actions hardly should remember that it is this feeling of anxious and determined energy which has made England the greatest maritime nation of the world. Were every risk carefully weighed, many of our peaceful triumphs on the ocean would cease. A Cunard steamer could not often run from New York to Cork in eight days, for example; she must be hove to in fogs, and slowed on dark nights.

In these days of competition and free trade, when all the people of the earth who possess a seaboard are launching forth to meet us on the great highway of commerce, we should rather try to foster and encourage the skill of our seamen by giving them the best instruments which this scientific age can produce, than to damp it by punishment for ordinary accidents.

The first and most important among these is the compass. A chronometer is as dust in the balance, in comparison,—because, in most cases, its results are only relied on when danger is not apprehended. Further, its errors are so easily checked by any one tolerably familiar with its use that we rarely hear of an accident from this cause.

MERCATOR.

New Zealand Fanaticism.

The rebellion of the natives of New Zealand assumed an appearance of importance to which it was by no means entitled. When we are assured that the native population consists of 38,000 in the district where that occurred, and that no more than 2,000 have appeared in arms, we are irresistibly led to such conclusion. And happily, this rebellion, which may be laid at the door of the government ministers (exclusive of the governor), is now so nearly quelled that we may look for a prosperous peace in that distant land. But the hydra-headed monster discord has other sources of evil at command. The native, warlike, but ignorant New Zealander, is no less the victim of misrule of the parliament in that country than he is the subject of imposition and irreligious fanaticism.

The war fiend is no sooner hushed, than up starts a fanatic, under the mad impression that he has been favoured with a revelation from some beings from heaven! War was bad enough, but who would have expected a religious war in that land, and yet what is more easily acted on by fanaticism than the ignorant mind of the untutored Indian, and who more capable of carrying on such a war to its utmost extremity than the New Zealander.

Still we do not join in the opinion that is abroad concerning it. We do not think, as has been said, that the present is the darkest and most threatening time which the island has yet seen, and such doctrine may be attributed to the fear of some, arising from the present intention of our government to leave the colony to take care of itself.

It has been said that "the danger arises in part from the very slow and inefficient progress of operations at Wanganui, which has assuredly had the effect of greatly encouraging the rebellious natives in every part of the country, and being attributed by them to the new religion of Pai Marire (meaning, strangely enough under the circumstances, good and and peaceful), has greatly tended to promote the views of the fanatic apostles of that horrible faith. This, however, although bad enough, is not, so far as I can see, the worst feature of our position. The state of the native mind from north to south of this island is such as cannot be described in any adequate terms. The oldest residents, even in those districts farthest removed from the districts in rebellion, declare with one consent that the native mind was never in their recollection in a state of excitement at all approaching that in which it now is. These persons are the most alarmed at our prospects, because they appreciate the very real danger of the delusion of these fanatics spreading far and wide, and engulphing the whole race. Already there are plenty of signs which render such a thing by no means improbable looking. In Waikato, even amongst natives who have lived as friendly, there have been not a few converts to this delusion."

Let us now look to the terms of this delusion. Mr. John White,

the resident magistrate at Wanganui, states in April, 1864, in his letter to the governor, Sir George Grey :—

"To understand the evil tendency of this new religion, I beg to submit some of its tenets as promulgated by Te Ua, the great high priest."

"And first, I would show how Te Ua obtained his office of high priest * * * the angel Gabriel * * * by the medium of Capt. Lloyd's spirit ordered the head to be exhumed, *cured in their own way*, and taken throughout the length and breadth of New Zealand ; that from henceforth this head should be the medium of man's communion with Jehovah.

"These injunctions were carefully obeyed, and immediately the head was taken up, it appointed Te Ua to be high priest, and Epanaia and Rangituaira to be his assistants, and communicated to them in the most solemn manner the tenets of this new religion."

We cannot help here perceiving the affinity this mode of finding an authority, taken from the ground to the method adopted by another religion, the votaries of which find the relic of a saint in much the same way, made with hands, while the former is a relict of a human body. But this serves the purpose of the native mind to act on their ignorant companions, while that adopted by the other religionists serves equally well to act on the less ignorant mind steeped in the deepest superstition. The poor natives being in both cases the dupes. But to proceed with our high priest and his dictates, which are these.

"His followers shall be called *Paeire*.

"The angel Gabriel with his legions will protect them from their enemies.

"The Virgin Mary will constantly be present with them.

"The religion of England as taught by the scriptures is false.

"The scriptures must all be burnt.

"All days are alike sacred, and no notice must be taken of the Christian Sabbath.

"Men and women must live together promiscuously, so that their children may become as the sand of the sea for multitudes.

"The priests have superhuman power, and can obtain obtain for their followers complete victories by uttering vigorously the word 'Hau.'

"The people who adopt this religion will shortly drive the whole European population out of New Zealand.

"Legions of angels await the bidding of the priests to aid the Maories in exterminating the Europeans.

"The priests have the power to teach the Maories the English language in one lesson, provided certain stipulations are carefully observed—namely, the people to assemble at a certain time, in a certain position, near a flagstaff of a certain height, bearing a flag of certain colours."

Such are the tenets, and again our recollections are turned towards the same religion as before, when we find that the poor natives are to believe the scriptures false, and that they should be burnt! and what

else can we think of but Mormonism, when we read the tenet about "children," and "the sand of the sea." Well may the converts utter vigorously the word "Hau," on swallowing such a mixture of barbarous superstition. But we are told by the same author that, however absurdly such ideas present themselves to the European mind, they nevertheless prevail and obtain among the "Kingites" (followers of William King) of the Patea portion of the Wanganui district, of all others the inveterate rebels.

Mr. White continues to instance the cruelties and absurdities practised by the followers of the new religion. He says:—"Whilst Rangituaira was at the Waitoto pa, a native attempted to steal Lloyds' head! for which he was so furiously beaten that his life was despaired of. Another native for the same offence was taken to a creek, and drawn to and fro under a canoe, and left to all appearance lifeless." This is like the renewal of the old barbarous punishment of keel hauling, practised in the olden times in the Royal Navy. Did Drake, or Cook, or some other European navigator, ever carry out this nautical punishment at or near New Zealand? If so, it would never be forgotten.

"An old Maori woman," we are told, "had purchased some articles of clothing in the town of Wanganui, which had been wrapped up in a newspaper. Rangituaira, (an attendant of the priest), obtained this paper, and to display his miraculous gift, pretended to read it aloud in a jargon of his own, which the crowd was assured was the English language. When he had finished reading, he obligingly interpreted to them that this was an English newspaper, giving an account of the Waitara war, in which the number of soldiers killed was 3,800, and the number of friendly Maoris 400; of these last, 40 were William King's people, and that our queen wished it to be perfectly understood that when the present war was over, all the friendly natives should be used as beasts of burthen, or to sweep the streets, or to cleanse the most filthy localities in European towns!"

Here, then, is the doctrine, both spiritual and temporal we may call it, as it relates to things both of this world and the next, of the "Pai Maori!" What a jargon of imposition does it not present from beginning to end, in which are strangely mixed up the crude inventions of the European and native mind. It is melancholy to see such rank seed sown broadcast, and there are many minds in New Zealand where it takes root, and the priest has abundance of followers. But numerous as they are, we have not as yet heard much of his doings, considering that it is above a year since his travels with the head of Captain Lloyd began.

These persons, it is reported, wander about barking like dogs, when they are making a demonstration, accompanying this noise with howling and flourishing their tomahawks, supposing themselves to be influenced by the angel Gabriel! But this species of amusement is redoubled after sunset, for as soon as it is dark they recommence barking, and making the most dreadful noises, apparently exciting each other, and at the same time marching round a flagstaff of the pre-

scribed height, and thus they go on till after midnight, when fatigue compels them to desist.

There is a mixture of cunning and artifice along with this superstition. Still, we cannot believe that the better informed natives (as we may consider the chiefs to be) will allow the movement to continue long. Such instances as that the account of which has just reached us will speedily suggest to every reasonable mind in the country to make common cause against these misguided people. This is the treatment of a missionary, named Volkner, by the party, a narrative of which appeared in the papers of the 6th instant.

The *New Zealander* relates the following atrocious murder, and complains that the fanatics are allowed to go on in their misdeeds without hindrance. The letter says:—"I shudder in attempting to depict the awful tragedy that has been enacted by a band of the Pai Marire fanatics, led on in their mad exploits by a savage brutish high priest, Tiu Kereopo, belonging to the Arawa tribe at Rotorua. I will not attempt to dwell on any of the antecedent stories connected with this, and of Pai Marire savages, but will leave it for another occasion, inasmuch as your readers will be all anxiety to know the particulars of the murder of that good, faithful, and holy servant of the Gospel, the Rev. Mr. Volkner, resident missionary belonging to the Church of England at Opotiki, who was cruelly and barbarously murdered at that place on the 2nd instant.

It appears that on the arrival of the Pai Marire priest in the Bay of Plenty, he openly declared that he would not respect the lives or property of the missionaries; and on reaching Whakatani, the Rev. Father Grange, R.C., narrowly escaped being murdered by him. After, however, their leaving Whakatani, and reaching Opotiki, they became so elated with the success and hearty reception by the Ngatewhaka to hear of their new faith, that the life of Mr. Volkner was demanded by the high priest. He was informed that Mr. Volkner was from home, upon which he caused an entry to be made into his premises, and everything sold by auction.

This had scarcely been carried out when the *Eclipse* schooner hove in sight from Auckland, and it was not long before it was ascertained that there were European passengers on board, which caused speculation as to who they were, but this was soon set at rest; the tide being favourable, she crossed the bar and entered the river, when it was soon spread abroad that the passengers were the Revs. Messrs. Volkner and Grace. On this being made known to the high priest he did not for one moment attempt to ascertain the feelings of the natives, who previous to this had on all occasions manifested the highest respect for their clergymen—but, alas! what a sudden change had within the last few days taken place in the feelings of these people, who had now become infatuated with the power and supreme influence of this vile wretched imposter, and when he ordered these men to go on board the vessel and fetch these men of God on shore, they immediately obeyed. In the meanwhile the priest had obtained a block and rope, which he took to a tree on the mission station, and having hung

it up all ready, he waited till his victims arrived, and it was not long before they were brought to him.

It appears that on the seizure of the *Eclipse*, the two clergymen, Messrs. Volkner and Grace, the master, and the crew, consisting of four Europeans, were taken prisoners and placed along with a soldier, who was already a prisoner in the hands of the natives. The captain, (Mr. Levy) they at once released, on account, we are informed, of his belonging to the Jewish religion. The other prisoners were then marched towards Mr. Volkner's residence at Opotiki. When arrived near a willow tree growing close by the house, and round which a large number of the inhabitants of Opotiki had assembled, they were halted within sight of it, and Mr. Volkner alone was led by a few of the party towards the tree. They pointed to a rope hanging over a branch, and told him they intended to hang him, and requested him to take off his coat. This he did, believing the whole affair to be a practical joke.

They then told the Rev. Mr. Volkner that he had forfeited his life, and that he must die, and for that purpose he had been brought up to that spot, in order to meet his fate. Mr. Volkner then cried out for his tamarakis, that is, children, to intercede for him; but alas! not one voice was raised in his favour. Seeing that they were determined to carry their designs out, he quietly resigned himself to his fate, and only asked one favour, which was granted to him, and which was that he might be allowed a few minutes to pray. After this, they ordered him to take off his waistcoat and neckcloth, which he also did, and, believing now that their intention was murder, he begged for ten minutes to prepare himself for death. The request was granted; yet while he was fervently and devoutly pouring out his whole soul before the throne of divine grace, he rose, took off his coat and vest, in which was his watch and £15 cash, and said, "I am now ready." His hands and feet were then bound, and while he was still upon his knees praying, the noose was slipped round his neck, the end of the rope drawn tight, and the man who in all sincerity and truth had ministered the gospel to them for years—this man—their friend, their pastor, their benefactor—was run up to the limb of the tree as though he had been but a mere animal for a few minutes, when he was let down, but life was not extinct.

However, the high priest ordered them to separate the head from the body, which was no sooner said than done by the use of the axe, after which an incision was made by a small knife, in order the more carefully to obtain the brains, which were ordered to be cooked, which only occupying a few minutes, the high priest came forward, and taking a small portion in his fingers, prayed over them, and threw it out to his god; he then ordered all present to step forward and partake of the remainder, which, without hesitation was soon devoured by all the bystanders—men, women, and children. His head was then carried round by the tohunga or priest, the natives standing with upturned faces and gaping lips while it was held over them, that the blood might drip into their mouths. The head was then handed to a sol-

dier, who was made to place it on a spear, and carry his horrible burden. His eyes were then gouged out and swallowed by the high priest; after this, the body of this devoted Christian minister was opened, and his heart was taken ont and was served in the same savage manner. His body was left on the ground, as prey for the dogs and pigs, but an insane native became so disgusted with the sight that he took it away and buried it.

They then informed Mr. Grace that they would take him and the other Europeans with them as trophies through the country, and that when they should have arrived at his residence they would inflict the same fate upon him as he had just seen visited on Mr. Volkner. The soldier and the crew were informed that their lot would be simply to be knocked upon the head when they were no longer required.

Such is the dreadful account which has just arrived in this country of this tragic scene That such proceedings will be allowed to go on it is impossible to believe, and we shall look with much interest for the next accounts from Auckland. It is said that the other prisoners who were taken out of the *Eclipse* escaped.

Mr. Levy to whom reference is made in the above accounts, has published in the newspapers a diary detailing the whole particulars connected with the event. The *Daily Southern Cross* complains that government has taken no steps to bring the murderers to justice. It says:—

"Since the murder of Mr. Volkner, whose head, with that of Mr. Hewett, is going circuit with the Pai Marire emisaries, the government has absolutely done nothing in the matter. There has been no judicial inquiry. No steps have been taken to preserve the peace of the province. The natives are at all points left open to the teachings of the Pai Marire apostles, who point to the heads they carry as tangible evidence of their power over the Europeans. The natives everywhere are turning Pai Marires. In the Waikato they are allowed to return to the confiscated land, and practise the Pai Marire rites openly. They are massed in large numbers in the Thames district; and a Pai Marire deputation visiting the Thames the other day, proposed to Thompson and the king to attack the three local redoubts and make a descent upon Auckland by that line. For prudential reasons this proposal was rejected by them, but the fact remains that the Pai Marire missionaries thought the project feasible, and recommended it. Those redoubts are defended by about 200 men. Rewi, with a large force, is at Hangatiki, about sixteen miles from our advanced post at Alexandra, and he is an ardent votary of the new superstition. So are those who are with him; and he makes no secret of stating that he will seize the first opportunity of renewing hostilities. The friendly natives within our lines are turning Pai Marire; and so are also those who, having got tired of fighting, took the oath of allegiance, and were allowed to go at large."

This is the account given by the local papers. We have yet to see that of the Governor, and to learn the measures which he has adopted to put an end to these atrocious proceedings.

Here is a copy of the kind of document which the party promulgates, this having been sent to Colonel Greer and Mr. Rice :—

"Salutations to you the kind fathers of the people! Salutations, friends, salutations, you who have been so kind to us.

"Listen, we have trampled on your kindness, and are obstinately seeking another god. Friends, salutation. Listen, it is not the will of man that we go, but of God. It was indeed the word of God that said we were to go inland, and if obstinate and turn a deaf ear, die with your Europeans; but if we went quietly and left you, we should die here. Therefore, believing in the God we went; but, friends, salutations to you, our fathers. I am sick of longing for my property (on support), the loving laws of the queen. Friends, salutations. Listen, if this was man's work we should not have gone (or listened to it); but, as it is of God, who could help it.

"Sufficient from your loving friends,

"Te Huha, *Rhawhakawa.*"

One cannot but be struck by the fancied spirituality of the expressions, and the settled determination which is shown by these people who leave all their goods and chattels in their flight; and few as they are at present, they have large additions everywhere they go to their numbers.

We may observe, however, in conclusion that although this strange movement should have been so implicitly and extensively followed by a large number of the natives, there are others which see it in the proper light, and hold it in the contempt which it deserves. The chief of Maketu has sent to Colonel Greer, commanding the Tauranga districts, from the Arawa chiefs assembled on the 26th of December last, the following resolutions passed at a meeting to enact laws relating to the people of the new doctrine, "Hau."

The first was—"That this false god must not be allowed to enter our boundary here."

The second was—"That no man (person) should carry reports from or about the false god in this place; never mind, be he a queen's or a king's native, should he break this law, his payment must be a large one, and for his trampling on the law, payment shall be made of five pounds (£5)".

It is to be hoped that these measures of the Arawa chiefs will be adopted, and we shall anxiously look for the next accounts.

Let no one say that cannibalism is banished from New Zealand in the year 1865. And by the following extract from a *Cape Argus* of the 10th June, the new movement appears to be making progress; will the *friendly* natives stick to their friends the Europeans, or will they relapse into their old customs? *Nous verrons.* But here is the extract from the *Southern Cross* of April 7th :—

"We are sorry to say that even during the short period which has elapsed since our last monthly summary was dispatched, affairs in this province have assumed a very serious aspect. By far the most im-

portant of the news is that received yesterday from Poverty Bay, namely, that the fanatics have made converts of about two-thirds of the natives in that district, and that the work of plunder, preparatory, no doubt, to that of bloodshed had commenced. So alarming was the state of affairs there, that a number of settlers had left and come up to Auckland, and about twenty others settlers were to leave on Monday last for Napier, in the steamer *St. Kilda*. The seeds of a rebellion on the east coast, which will probably be of as great or greater magnitude than that on the west, have now been sown. Kingism, which had its charms and its votaries, appears now under a new and irresistible form; and those who wavered before in their allegiance have no hesitation in throwing off the mask. It should be evident now, even to those who would not be convinced before, that the temporising policy under which the war has been conducted must be superseded. Pai Marireism means nothing else than the slaughter of every European in the island; and we must deal with these wretches as we do with madmen, whose own safety as well as that of their neighbours depends upon a vigorous restraint. It is really humilating and painful to reflect how little has been done as yet to stay the tide of the rebellion in the new form in which it has appeared. Although a month has elapsed, no steps have been taken to avenge the murder of Mr. Volkner."

THE UPS AND DOWNS OF LANDS AND SEAS:—*A Geological Disquisition.*

(Concluded from page 350.)

Turning to America, we cannot but be struck by the remarkable, but slow changes which both the continents present. But the coast of Chili abounds in traces which far surpass the rest. It is principally on the coast of Chili that we find evidence of a general elevation of the country. At the promontories, at the termination of valleys on the coast, with a rapid descent from the mountains, ancient beaches are readily detected in which shells of the present epoch are found, similar in fact, to those of the coast in the vicinity. These beaches have their beds at different elevations, and quite distinct from each other, in some degree resembling gigantic steppes. One may readily perceive by them that it is not by one general movement that the coast has been raised, and that intervals of rest are evident between each of them. On the hills of the island of Chiloe, Mr. Darwin found a mass of shells at the height of about 100 yards; and to the north of Concepcion, several lines of water level, from 200 to 250 yards above the level of the sea. Near Valparaiso, they are as much as 400 yards above the level of the sea, but beyond that they become lower, and on the coast of Bolivia they are not more than 60 to 70 yards high. Thus it is evident that the principal rising of the shore rocks shows

itself mostly in the same latitude as the highest of the Andes range, such as Aconcagua, Maypo, and Tupungato.

From this it might be inferred that these summits indicate the place where the crust of the earth is broken through, and continues to raise them more rapidly than the level parts beneath them. In fact, in Chili, as well as in Norway the terraces of the coast at the termination of the valleys are not horizontal as they appear to be, they become gradually more and more elevated towards the mountains, and are still more elevated as they are removed further from the shore.

The uplifting force is thus stronger under the Chilian Andes than under the rocks which form the adjacent shore; and the snow-clad summits of course become higher.

Trigonometrical measurements continued for a long period of late years have proved this in respect of the Chili mountains in the region of eternal snow; but hitherto the only calculations of the progress in height of the Chili mountains rests on observations made in the neighbourhood of the coast. From a comparison of their present condition with that derived from history, Mr. Darwin proves that in the interval of seventeen years (from 1817 to 1834) the ground about Valparaiso has risen 10 feet in 20 years, or about six inches a year.

This very rapid rising has been preceeded by a comparative repose, for from 1614 to 1817, above two centuries, the elevation of the coast according to examination of places has certainly not been more than six feet. At Coquimbo, Concepcion, and Chiloe the uplifting of the shore has been still more slow. But, however, imperceptible may be the phenomena, it no less occurs with the lapse of time, and terminates by completely changing the appearance of the American coast.

Many ancient ports in former times frequented are inaccessible now; others have been formed, thanks to the drying out of their protecting points; and numerous islands always designated by the Indian name of hapui, have become promontories.

The evidences of a gradual rising are equally evident on the shores of Bolivia and Peru. In the western part of the desert of Atacama the ground is covered with shells and saline matters, seems to have been but very recently left by the ocean. About Cobija, Iquique, and many other towns on the coast it is gradually becoming like that of Coquimbo, and which like them, was washed by the Pacific. Off Arica, the sea has retired 160 yards in the space of 40 years, and the merchants of the port have been obliged in consequence to extend their landing place outwards accordingly.

But it is off Callao, on one of the rocks of the isle San Lorenzo that the most interesting proof has been found of the uplifting of the shore in the course of the period of the human race. At an elevation of about 80 feet above the sea Mr. Darwin has discovered in a bed of shells of modern times, deposited on a terrace of roots of seaweed the bones of birds, some husks of Indian corn, terraces of shells, in fact, a pod of cotton, nearly entirely decomposed.

These vestiges of human industry exactly resemble those found in

the huacas or cities of the ancient Peruvians. It is not be doubted that the island of San Lorenzo, and perhaps the whole neighbouring coast has risen about 80 feet since the red man inhabited the country. It appears, however, that of late years the ground on which Callao stands has become lower, for the part where the old town stood is much of it under water.

This subsidence, however, may be only local, and affects only in a temporary manner the rising of the coast generally, for to the northward at Colon, Santa Martha, and at many parts of the coast of New Granada, the ground is visibly higher since it has been visited by Europeans. Admitting, however, that Callao is the northern limit of the range of upheaval, the middle of which is Chili, it appears that the whole extent of the raised ground, from south to north, ranges over about 25,000 miles.

Such effects of rising or depression are not so readily observed on the eastern side of the South American continent as on the western, no doubt in consequence of their extreme tardiness. The consideration of geological facts proves that the ground has been elevated during the period of the age of shells, and the large animals contemporaneous with our ancestors, the megatherium, the mastodon, and the glyptodon. The pampas of the Argentine state have preserved the general appearance of the ocean by which they were covered; the parallel terraces of Patagonia are to be traced over 500 miles, with a difference only of a few yards in height throughout the whole extent, and the arm of the sea which intersects the southern part of the continent preserves it in all its ancient form. This magnificent mass of ground which has been raised slowly and deliberately, seems by an almost imperceptible declivity to descend towards the Atlantic.

At the feet of the off-lying rocks of the Patagonian coast, the sea never ceases to gain on the shore, and although the surf has not sufficient strength to uproot the beds of rocks to more than two or three fathoms below the surface, the depth there increases in proportion to its distance from the shore. It would almost seem then that the bed of the sea has sunk while the surface of the land has become elevated with a remarkable regularity during the period of the mammiferous animals.

On the Brazil coast, at Bahia especially, various recent depressions seem to show that there the surface of the continent, also lowers generally. Nevertheless, the facts known are not sufficiently numerous to decide on the subject. But it is a matter of sufficient importance for science to be able to identify that slow movement which lifts all coasts of South America, from Chiloe to Callao, and depresses the eastern slopes of the Argentine Andes and Patagonia. Thus a considerable portion of the continent gains constantly on one side what it loses on the other.

In North America, the elevations and depressions are not so well known as those of the South American continent; but few observations on the coast render it very probable the hypothesis of a general up-

heaval on an area of which the Rocky Mountains, or Sierra Nevada forms the axis.

The riveraine country of Tamaulipas and Texas increases rapidly in breadth, not only because the south winds, which blow during the whole year, bring with them large quantities of sand, but also because the ground becomes higher. In the space of 18 years, from 1845 to 1860, the sands of Matagorda Bay have been raised from one to two feet, and as a consequence of this gradual increase of the ground proved by the quantities of shells collected far from the shore, the port of Indianola has been transferred to Powderhorn, above four miles from the entrance. The Florida peninsula and the Bahama archipelago are moved in a similar manner by an internal force, as shown by the coral banks growing beneath the waves. The mysterious little hills under water, those mud lumps which are scattered along the mouth of the Mississippi, and the origin of which Mr. Thomassy has attempted to explain by the pressure of subterranean water, appear also to favor the general elevation of the country. The direction of the great river itself renders it very probable that the great axis of upheaval of the North American continent is marked by the Rocky Mountains; for instead of gaining on the country on its right bank as would arise from the motion of the earth, the Mississippi bores into its left bank, and then gaining the low shores of its delta, runs S.E. parallel to the rivers of Texas and the rocky barriers. It may be presumed that the immense surface of this continent becoming gradually more and more elevated in the west, will give to the running waters of its surface a tendency to flow eastward.

In respect of the country generally of North America the surface does not become raised with any uniformity; the coasts of Labrador and Newfoundland are being gradually lifted, and it is no less certain that in other parts, the surface of the land has subsided. Sir Charles Lyell, in his second voyage, states that portions of the coast of Georgia and South Carolina have undergone some depression. Even the whole coast from South of Cape Hatteras to the north of Cape Cod, is said to be gradually settling down, especially about the coast of New Jersey.

There is an island on a chart of 1649, which has an area of about 300 acres, which now has scarcely 50 acres, even at low water, and which at high water is entirely submerged. The surveyors of the coast have calculated that the shores of the Delaware Bay lose about eight feet annually. As far as it is possible to judge from observations since the colonization of the country, the gradual depression of this part may be considered about two feet in a century.

In Greenland, which should be considered as a dependance of America, the progress of depression appears to be much more rapid. The Esquimaux have long been acquainted with this phenomena, and the Danish settlers on the eastern side are enabled to state that in the course of the last century they have seen in an extent of more than 600 miles, the promontories of the coast and their off-lying rocks

gradually disappear under the sea. Thus, while in the north of Europe and Asia this land is rising, an opposite movement is taking place in that of the New World.

A consideration of the shores has not only enabled us to detect the lifting and depression of extensive continental masses, but has also revealed oceanic changes of a similar kind among the numerous islands and groups of islands of the Pacific and Indian Oceans, that serve well to illustrate the movement of the ground on which they stand. Lines of watermark, parallel terraces, and recent banks of shells, serve to mark the surface of the sea on each of the Pacific islands, as such lifting is marked on the coasts of Europe and America. But most of these have besides girdles of growing coral, that afford a close indication of the amount of change of level, either of elevation or depression which they have undergone.

The discovery of this fact, that the variations in the level of the ground are made evident by the work of the coral insect, is doubtless one of the most important discoveries of modern physical geography, and due to the researches of Mr. Charles Darwin. Comparing his own observations with those of others who had preceded him, he was enabled to show (as if he had actually seen them with his own eyes) the various elevations or depressions of the bed of the ocean over an extent as considerable as that of the two continents of Europe and Asia.

Navigators who have sailed on the Pacific have been astonished at the reefs which have been raised by the coral insect in the midst of that sea. Some of these reefs not only surround islands, but whole archipelagoes of them. Others, far removed from any land, are found in the form of circles or crescents more or less extended, and known by the name of atolls; they enclose lagoons or bays, and are remarkable for their beautiful water of a pale green hue.

These coral edifices, invested by the sea, are very curious constructions. Those parts of the coral ridge that have not reached the surface, the sea marks their edge by the surf of the breakers. In others the coral may be observed projecting above the surface, of a beautiful pure white or delicate rose colour. Then a semicircular range of islets appears, looking like a series of druidical stones. In fact, on the dry land that forms part of the atoll most exposed to the effect of winds and waves are seen cocoanut trees flourishing, singly or in groups. Such is the form most commonly presented by the thousands of atolls scattered over the Pacific. When the coral ridges are not complete their position is revealed by a line of breakers. Those which have attained the surface have become the foundation of a circular belt of trees, which, when seen from on high, would appear like a garland of flowers floating on the surface of the "azure main."

How are these extraordinary reefs formed? The coral insects delight to work in the midst of the fluid from which they derive their nourishment, and therefore we may suppose that wherever they find a submarine bank, the insects will attack it and will form an annular

ridge round it; but where the lead can find no ground close to the reefs, how is it that these wonderful insects can construct their extraordinary dwellings from the depths whence they come. In order to answer this question some curious hypotheses are advanced. It is supposed that these atolls are the sides of volcanic craters, which have been raised within a short distance of the surface by subterranean action, on which sides the coral insect sets to work.

Now, admitting this to be the truth for a certain number of atolls, it could not apply to the hundreds of thousands of instances where these coral islands are uniformly raised just below the surface of the sea. But this can scarcely be admitted, for the supposed craters of volcanoes often assume the most irregular form. In fact, it is impossible to conceive that in such a multitude of reefs and islands which form these archipelagoes, especially the double range of the Maldives, some four hundred miles long and fifty wide, not one of these reefs or islands can produce an atom of lava or a cinder. Their form cannot be owing to volcanic effects, and, like any other terrestrial phœnomena, they can only be explained by gradual movements of the surface. The subsidence of the sea bed will account for the formation of these atolls and the rocky barriers which rise from deep water apart from coasts; and, again, a gradual elevation of the ground explains the position of the coral which fringes the coast at a certain height above the surface.

Thus the reefs of coral serve as an index to the movement which the coasts and islands and the bed of the sea undergo. It is easy to perceive the movement of the matter thrown on the shores; we see banks of coral on the strand and their fragments thrown on beaches above the level of the sea. Often, indeed, the channels may be observed which formerly separated them from the coasts, and on the summits of many islands chalky banks are found that owe their origin to the work of polypi.

As for the coral islands which do not occupy a range of volcanic action, they are surrounded by reefs apart from their shores also. When this distance is small, and the coral bank is of a considerable breadth, there is nothing to prove that the level of the shore has changed, for scientific observations show that coral insects can live and build their rocky dwellings at the depth of 100 to 150 feet. The coral walls which form the exterior of the reef are always deeper than this; the greater part of them rest on foundations formed of their own remains, and are inclined at an angle of 45° as far as some hundreds, and even thousands, of yards of depth. In such a case it is evident that the bed of the ocean itself is sunk. The insects have commenced their work at some feet from the surface; then, in proportion as they cover the ground with their work, they rise and rise incessantly towards the light. The mountainous islands which they surround at a distance with their reefs gradually diminish in height, and leave a space between them and the coral barrier that becomes wider and deeper.

The time arrives when they become islets, which are separated into clusters, and one after another subside below the surface of the sea. Then all that remains is an atoll, enclosing within its walls a lagoon, where the *debris* of coral gradually accumulates. Narrow beaches and reefs surround the space where an island will be formed, to which strips of coral, and probably a sunken wreck contribute. Sometimes, however, the movement is rapid where the coral insects are doing their work, and they keep up their habitations at the surface; but there they gradually perish, and the atolls, which, from innumerable generations of polypi, were elevated layer by layer, disappear, to form the annular foundations of others. Such is the formation of the great bank of the Chagos Archipelago, South of the Maldives, which, from soundings, has been ascertained to be one of the most extensive atolls of the Indian Ocean.

Thanks to the proofs furnished by the coral reefs, and others from a variety of places, the limits of each area of subterranean movement may be traced across the ocean between Africa and South America. While the Sandwich Island group seems to obey the same forces which affect the South American continent, the archipelagoes of the central basin of the Pacific Ocean may be seen little by little sinking downwards,—the low archipelago, the Society, the Gilbert, the Marshall, and Caroline Islands: in fact, all that milky way of islets, islands, and reefs which extend diagonally across the Pacific to an extent of 10,000 miles and a breadth of 1,000. It is, in fact, the remnant of an ancient continent, with the population which it formerly had. From the time that the first European navigators visited these parts many islets have already disappeared, and others, such as that of Whit Sunday, have considerably diminished in extent.

Along with that vast area of depression extending over a surface that would make two Europes and a half, is connected an enormous wave of lifting force that coincides with the semicircle of volcanoes surrounding the basin of the Pacific. New Zealand is situated at the southern extreme of this action: which island, resting on a bed of volcanic fires, has been rising so much that the English settlers—but a few years arrived there—have observed the change in the promontories and rocky banks gradually obstructing the harbours. At the commencement of the present epoch the mountains of New Zealand were considerably lower than at present, and icebergs of a continent that has disappeared have come there laden with their rocky freight. The New Zealand Alps have also been elevated through ten successive stages, as appears by the ten terraces that may be traced on their sides. At present they are still rising. In the course of ten years the sands of Lyttelton have risen three feet. The New Hebrides, the Solomon Islands, the northern and western shores of New Guinea, the numerous islands which form the Sunda Archipelago, and their fauna, all Asiatic, appear not long ago to have formed part of that neighbouring continent, increasing after being submerged, and coral banks are perpetually attaching themselves to their shores.

The southern part of Asia encloses the China Sea, which washes the shores of Cochin China and Tonquin. To the northward the region of volcanic action continues towards America by the Phillippine Islands, Formosa, the Loo Choo Islands, Japan, Sakhalien, the Amoor country, and Kamtchatka,—that is to say, the lands which follow the great fissure of volcanic action in the Pacific. To the west of Sumatra, fringing the eastern border of the peninsulas, which were islands not long ago, and which, bearing the name of *poulo*, is the commencement of another movement of elevation, including all the coasts of the Gulf of Bengal. The Nicobar and Andaman Islands are rising very gradually. Ceylon the same—at least in part,—and perhaps the chain of rocks that connect it with Hindostan, and which, according to the legend, formed a bridge for the triumphant army of Hanouman, will end, sooner or later, by forming a real isthmus.

It would seem that the lower course of the Ganges is also included within the limits of volcanic action of the Gulf of Bengal, and that the whole country is influenced by the movement from the South to North, for the lower affluents of the Ganges, the Coosy, the Mahanady, and the Soane, are continually withdrawing their embouchures upwards. This last course of the water has gone back four miles in the course of eighty years, according to Mr. Ferguson, from the east towards the confluence of the Ganges and the Gogra, which is the western limit of the uplifting that begins at New Zealand, many thousand miles away to the S.E.

In respect to the space occupied by Australia and the Indian Ocean proper, like the basin of the Pacific, it is in a region of gradual depression. While from New Guinea to Sumatra and the Phillippines a new continent emerges from the sea, the old Australian continent, so remarkable for its fauna and flora, which seem to belong to a former geological era, will sink gradually, with its surrounding islands, the Louisiade, New Caledonia, and the reefs of the Coral Sea. Up to the present time there is only one part of the Australian continent which is known to be rising, that is the district of Hobson Bay, near Melbourne, which, according to M. Becker, is rising about three-tenths of a foot annually. At any rate the great mass of the continent slowly but gradually sinks, and the coral insects of the coast are obliged to continue building their barriers.

To the west of Australia the Indian Ocean is nearly entirely deprived of islands; but all those which rise from the deep over a space of some three or four thousand miles in extent are atolls which would subside slowly if the coral insect did not continue incessantly building up its borders. Among these is the celebrated atoll of Keeling Island, which Mr. Darwin has studied with so much benefit to science; and also the Maldive Archipelago, that double chain of submarine mountains each summit of which is crowned with a coral tiara prepared beneath the waves.

Thus the space which lies between two-thirds of the globe, from the eastern parts of America to the western shores of the Indian

Ocean, has two districts of upheaval and two of depression, each following the other from east to west. After the American continent, which slowly rises, follow the innumerable islands called Oceania; most of which would have disappeared long ago if the works of the coral insect did not keep their summits at the surface of the water. They thus are developed in large semicircles, indicated from afar by their volcanoes as a large zone of islands with beaches, which are gradually raised, as if to replace for the future the old Australian continent. In fact, the same causes which sink the bed of the central Pacific produce a similar effect on that of the Indian Ocean, with its depths and reefs.

Beyond lies the enormous mass of the African continent, the shores of which, as yet, have not been explored, except here and there. Still, sufficient observations have been made to enable us to conclude that Eastern Africa and the districts depending on it are one-third as much as the shores of South America and the Sunda Islands. The coral banks which surround Mauritius, Reunion, Madagascar, and those of the African shores of Mozambique to Mombas, prove the elevation of the ground. Even the southern shores of the Red Sea show it at various heights, in evident traces of the different marks of the level of that sea.

Most of the voyagers who have visited those parts have been struck by the dry emerged reefs, the salt beaches, and the salt swamps, which have been evidently bays left by the receding sea. The ancient port of Jeddah, which in the time of Niebuhr was accessible to ships of small tonnage, is now completely separated from the sea. The observations of Niebuhr have also proved beyond doubt the receding of the water; and the natives of the coast say that the depths and shores of the Red Sea show the change which they are undergoing. On the north side the ground, not far from the Isthmus of Suez, instead of slowly rising, is rather subsiding, although where this commences is not yet known.

Beyond the African Continent, in the Atlantic, at Madeira, St. Helena, and perhaps the Canaries, the only remains of the ancient continent supposed to have existed in former times, are slowly settling down in the ocean. It is quite clear that facts are in favour of this hypothesis, for the equatorial contour shows three areas of upheaval that are separated from each other by three others of depression. The centres of each of these last are in the middle of the ocean. The three areas of upheaval are the great archipelago of the Sunda Islands—a continent in formation, and the massive continents of Africa and South America.

One may perceive that these regular changes of the surface of the globe cannot take place except in virtue of a general law, as yet not entirely known, but which is certain. The common phœnomena of volcanic action are occurring there, and these, wherever they occur, are produced by causes which affect the entire mass of the globe. Some day, when from one pole to the other scientific men shall have

detected all the various marks of the sea level—all those remains which the sea leaves on its borders and on the mountain slopes, they will be able to determine the limits of each area of action and the force by which it has been lifted. They will know then whether the regions that are lifted are equal to those which are depressed,—whether the surface of the ground, like any other vibrating body, presents certain normal lines (nodules) round which the parts in action operate in rythmical figures,—whether continents and seas, lifted and depressed by turns, are slowly displaced throughout the globe.

However this may be, it is certain that an incessant action produces a kind of undulation in the crust of our globe. The masses of the continents rise during a long series of ages; they then subside, to rise again: and all these oscillations come and go, as balancing each other, by slow and sure degrees. Scandinavia, which is now rising, was subsiding during the glacial period; and the populations which from that epoch have inhabited that country, have been compelled gradually to abandon the valleys, transformed into fiords. Even the Andes of Chili and the mountains of New Zealand, at present so lofty, are gradually becoming lower—the first of 8,000, the last of 4,900 feet. At many other places—Peru, Egypt, and in North America—changes of the same nature have taken place in the era of geological history, and without any violent action to overset the earth. In fact, continents are lifted and lowered as if it were the effect of slow respiration.

But all is change, everything in the world is moveable, for motion is even a condition of life. Mankind in a rude condition, isolated and in fear and distrust from their native ignorance, and aware of their own weakness, see nothing around them but eternal sameness. To them the sky is but an arched vault, in which the stars are fixed and seem immoveable; and nothing but what is to them miraculous can produce change in the surface. But the moment civilization has found its way to them,—as soon as history has unfolded ages upon ages,—as soon as astronomy and geology enable them to look back to millions of years,—man ceases to be an ignorant and becomes a rational being. Then, no longer referring the ages of the stars nor that of the earth to his own existence, so transcient and brief, but to the duration of his race, and to that of beings who have gone before him, he sees the celestial routine resolved into an infinity of space, and the earth transformed into a little globe revolving on its own axis in the midst of "the milky way."

The very ground under his feet, which he believed to be immoveable, animates and agitates him. Not only the winds and the ocean currents circulate round his planet, but the continents themselves become displaced, with their heights and their vales, travelling and making the circuit of the globe. The rocky beds heave to and fro like the sea; they, too, submit to the attraction of the heavenly bodies; earthquakes, even, are found to be more frequent about the times of new and full moon: they, too, have their diurnal tides, invisible to us, but evident from calculation. May be it will be proved one day that in

the bosom of the earth a change may be brought about between solid molecules and those of the atmosphere and the ocean. Without advancing such an hypothesis—which as yet the state of science scarcely justifies—it may be sufficient to conclude in the words of the philosopher,—"The time will come when geologists will consider the repose of the crust of the earth during a whole period of its history as improbable as the absolute calm condition of the atmosphere would be during any entire season of the year."

Oahu, and its Agricultural Prospects.

While scores of letters have been published here and abroad regarding the fertility of Maui, Kauai and Hawaii, and their peculiar adaptedness to sugar culture, so little has been said of our metropolitan island, Oahu, that many living even here in Honolulu, think it fit for little else than grazing ranches and for taro. Who has not heard of the remark—"Oh, cane will never grow on Oahu." And yet there is not a better island for it in our group, nor one where sugar investments are safer or more sure to yield a large return.

Last week we took a hasty ride round this island to visit the several infant plantations now under way, and to gratify our curiosity, as well as to gather information regarding them for our readers and others interested.

Passing by the two plantations in Nuuanu Valley, located within sight of the city, which we shall notice at the close of our sketch, we reached the *pali* about 10h.a.m., over a good dry road, which here is seldom found in winter, and encountering a cool bracing north wind, which came rushing through the narrow gap and down the valley as if it had been caged up an hour or two by the encircling mountains. What a scene opens here to the traveller, as he commences the descent of the precipice—a plain twenty five miles long, intersected with ridges of low hills, and hemmed in on the *mauka* side by bold palisades, in some places two thousand feet perpendicular. As one views it, he can hardly help remembering it as the scene of some of the old Hawaiian heroes, gods and goddesses of the ancient time. 'Twas here, in this plain, that the chase after Kamapuaa, half man and half hog, occured, ending in his famous attempt to scale the remarkable gorge at Hauula. Yonder towering peak, four thousand feet above the sea, breaking below it, was the spot where Kawelu sat and sung for her absent lover. And near here was the birth place of the lovely princess, Laieikawai, the charming story of whose exploits forms the first historical romance issued in book form in Hawaiian.

Once down the *pali*, the traveller finds himself in Koolau, which embraces all the windward side of this island, east of the summit ridge, and extending from Waimanalo at the south to Waimea at the north, a track about fifty miles in length, and varying from one to five

miles in width. All this district of Koolau is exposed to frequent showers, and is intersected with numerous small streams—all which tend to make it valuable for agriculture and pasturage.

Between the foot of the *pali* and the Protestant church at Kaneohe, lies the sugar estate of the Queen* Dowager Kalama, where Mr. Robert Wakeman has been engaged for some two years in breaking up the land, planting and cultivating cane. About two hundred acres are planted, in various stages of growth, only forty acres being as yet ready to grind. Thus far, it has not had much if any irrigation, though it is probable that this will have to be resorted to. The cane is of the small white variety, and does not grow so rank and long as in some other localities where we observed it growing. From five hundred to one thousand acres are available for cane in this vicinity, but whether this extent of land can be irrigated or will raise cane to profit, is an experiment yet to be decided.

Messrs. Cording and Wilson have entered into an arrangement with this estate, under which they erect a mill and take off the crop on shares. The mill building is of wood, large and spacious, one hundred and sixty feet in length, and, with some of the minor buildings, is completed, and the machinery erected and in working order. The mill is a large first-class machine, made by Forrester and Co., Liverpool, the rollers being fifty-four inches in length, driven by water power, which is abundant and never-failing. The chimney, train and furnaces are well constructed, and excepting some defect in the draft, works well. The latter is easily remedied.

The mill commenced operations about the 1st of February, and worked for several days. But the absence of a clarifier and some other necessaries, required it to stop till these could be provided. At the time we were there, the centrifugals were being set and put into operation. These are of English make, and manufactured in Nottingham, by Messrs. Manlove and Co. They are much larger, stronger, and we should judge better calculated to serve the purpose intended, of drying the sugar or syrup when cooled. They are

* THE QUEEN ON THE SANDWICH ISLANDS.—The visit of the young and interesting Hawaiian Queen Emma has nothing in it of a public or political character. She is the invited guest of an old personal friend, Lady Franklin, with whom she became acquainted during her stay at Honolulu, the capital of the Sandwich archipelago in the Pacific, and whose invitation the Queen very cordially accepted. The objects of her coming are patriotic and philanthropic, having solely in view the advancement and elevation of the country of her birth. She is, in fact, only giving effect to a long-entertained purpose of her husband, King Kamehameha the fourth, whose intention it was that they should together visit Europe, and especially England. His premature death brought with it the disappointment of that and many other cherished and hopeful plans. On her part, it is now but the accomplishment of a pious pilgrimage, which should be safe from the intrusion of an idle curiosity. Among her attendants, she is accompanied by the first native ordained minister of the Anglo-Hawaiian church, the Rev. W. Hoapili and his wife, fair specimens of the civilized portions of the pure Hawaiian race, and like the Queen, speaking English perfectly.

driven by water, and the arrangement for connecting the machines with the power, is one of the neatest and most simple we have ever seen. The centrifugals are checked, when it is required to stop them, by means of a brake, thus avoiding the risk of accident, which frequently occurs with the common machines. The sugar turned out from them at the time of our visit, was dark, as might be expected from the unfinished state of the works when first started, but ere this, the mill has probably commenced operations again, and when complete will be fully capable of turning out three or four thousand pounds per day.

Prior to our visit a report was current that, after various experiments, it had been found that sugar could not be made at Kaneohe. This is incorrect, and as fine sugar will be made there as anywhere else. The mill is a strong and superior one, well put up, and with plenty of cane, it must prove a successful enterprise. There is an admirable harbour close by, and the freight is landed easily from the steamer, which lies almost alongside the bank. The carting to and from the landing, as also to and from the cane fields, is easy and nearly level. These are advantages which some plantations do not have, and reduce very much the expenses of carrying on the business.

Just beyond Kaneohe is a tract of three thousand acres, called Heeia, where the Catholic church is located, which is probably well calculated for a sugar plantation; at least cane grows freely there. At present, it is leased to a company of natives, but it will not be many years before a mill will be required and erected on the place. It has the advantages of, and is very similar to the estate of the Queen Dowager.

A range of low hills, covered with green grass, and running from the mountains to the sea, bounds Heeia, and separates it from the adjoining land. In a little nook, directly under the lofty palisades that are peculiar to this district, is located the Catholic seminary of Ahuimanu, under the care of Abbé Walsh and one or two other clergymen, who have now about fifty scholars. These are mostly half-caste boys, who are taught in English and French, but chiefly in English. The site of the seminary is a very pleasant and romantic one, and quite secluded. Not finding the Abbé at home, we rode on, passing the farm of Mr. Stewart, beyond which, perhaps two miles, is the Kaalaea plantation of Messrs. Montgomery, Green, and M'Kibbin, extending from the sea back to the central mountain range. The estate comprises some two thousand acres, eight hundred acres of it being suitable for cane. About two hundred acres are already planted, of which fifty are ready to cut. These gentlemen propose erecting a mill at once, and a portion of the machinery has this week been shipped thither by the *Annie Laurie*. The cane fields look well and appear to have an abundance of moisture. Mr. Rhodes Spencer is engaged as manager. This estate, like that at Kaneohe, has a very good and smooth landing-place, and vessels can approach near the shore in still water. With good management, plenty of capital and

perseverance, there is no reason why this sugar enterprise should not prove a successful one.

Three or four miles beyond Kaalaea, we come to the Kuoloa estate of Messrs. Judd and Wilder, now called the "Oahu Plantation." Including Kaawa, it consists of about four thousand acres. When we visited the place in 1862, we did not dream of seeing on our next visit, a beautiful field of cane growing, about two hundred acres in extent, with extensive mill buildings erected, and powerful machinery driven by steam. This change has all been made within the last fifteen months, and shows what industry and determination can accomplish. Like much of the land on this side of Oahu, the cane fields here consist of rich bottom-land, lying just above the level of high tide. So near the surface is the water, that the roots of the cane find moisture all the year round, reducing the risk of drought very much. The soil, like that of Lahaina, Waikapu, and Wailuku, receives its deposits of rich alluvium from the mountains in the rear.

Two spacious *stone* buildings, each 80 by 124 feet, located near the point, and beyond the dwelling about one mile, have been erected for the manufacture of sugar. The stone was brought from the foot of the mountain, only a few hundred yards inland, while the lime was burned from coral stone procured in the sea. The cost of this large and permanent building thus scarcely exceeds that of a wooden one. The machinery consists of that which was used on the Union Plantation at Makawao, with such improvements and additions as experience has shown to be necessary. We found the mill in operation, though all the works are not yet complete. Mr. Wilder hopes to get off three tons per day, after the 1st of March, by running night and day. The entire crop this season will be between 250 and 300 tons, and during the present year the extent of land put into cane, will be increased to about four hundred acres.

About eighty labourers are employed on the estate, and we learned from the proprietors that they find no difficulty in obtaining all that are required. Mr. Cording also assured us that he had refused over one hundred applications for labour. This certainly indicates anything but a scarcity of labour. So far as we could learn, there is an abundance of field hands everywhere, and when overseers treat their men as they should be treated, no cause of complaint is found. Near the Oahu Plantation mill, we found rows of neat little houses erected for the native workmen, many of whom are permanent residents on the estate, who find it for their interest to engage as labourers on it.

NAVAL DOINGS.

The present magnificent summer of 1865 will be remarkable (as we observed in our last) for naval operations hitherto unprecedented

in all history. No contending hostile shipping meet in the waters of La Manche, as our neighbours term what we call the English Channel. Far more glorious, far more agreeable than when *bella horrida bella* held the sway, are the friendly contests of the friendly fleets of England and France in doings of mutual regard, esteem, and friendship. We have indeed laid aside the sword for an olive branch, and long may this be held for the enjoyment, the benefit, and the gratification of the world, our countries and ourselves. We read of pleasant doings at our second naval arsenal, where royalty, French and English officers mingle together, and vie with each other in friendly, harmonious, rivalry; soon, we have no doubt to be repeated at Cherbourg, to do the same—to discuss the affairs of the world—to talk over the merits of iron or steel, *versus* the old English "Hearts of Oak." Well, we say welcome to the day, and we agree with the following sentiments expressed in the *Daily News*, that so entirely describe the naval *denouement* in the year 1865 of the two countries :—

No spectacle of material power more grand and more pregnant with suggestion can be easily imagined than that which the waters of Cherbourg will soon present. The choicest specimens of the armour-plated fleets of the two great naval powers of Europe will there meet, to show by comparison the development of a new idea, by the different methods and the different resources which national genius has suggested and supplied. There is, indeed, a circumstance which makes such national comparisons peculiarly appropriate. The new idea owes its birth to operations in which the combined navies of France and England took part. The destruction of the Turkish fleet at Sinope, the repulse of the allied fleet at Sebastopol, proved that the day of wooden ships of war was past, since modern projectiles had made them useless for offence and perilous for defence. But, at the same time, the experiments at Kinburn proved that vessels might be constructed which could resist the new power of artillery. Such was our knowledge when last the French and English fleets sailed together in European seas. Now they meet to show and prove in friendly rivalry what each has done to adapt itself to the revolution which was nine years ago thus proved to be inevitable.

There will be something of national character apparent in the mere history of the change, and in the external appearance of the vessels chosen to illustrate it. The French, always more prompt to seize a logical conclusion, always more ready to avail themselves of scientific research and principles than we, were the first to enter the field. They had an armour-plated vessel almost at sea before we had made up our minds to commence; and, indeed, it was only the fact that our neighbours had made this progress that induced our authorities to stir at all. But the French Government did not confine themselves merely to the official ability they already had in their service. All that was most skilled and ingenious was sought out to aid in designing and constructing the new vessels, and the chief of the state, by his personal direction and encouragement, aided in overcoming the difficulties

attendant on so fundamental a change of system. When, however, at last, the plans were settled, their execution was committed to the public dockyards, rather from policy than necessity, since the first of the French iron-clads were built of wood, and the plates were manufactured by a private firm.

In all these respects we pursued a different course. Tardy in commencing, our Admiralty gave no eager assistance to the progress of the new system. It undertook no duty of construction, but, contenting itself with procuring designs not very carefully considered, it handed over the execution to contractors. This, however, has unintentionally contributed to two important results. In the first place, it has led to almost all our armoured vessels being built of iron, undeniably a better material than wood. In the second place, it has so educated a number of private firms in the business that we now comprise in our country a building power many times exceeding that of our official yards, and which has rendered us the workshop of the world for this class of manufacture. But, again, this method has had its disadvantages. It led us to seek to beat our neighbours in that which naturally most strikes the unscientific minds by whom the new designs were ordered, the elements of mere speed, size, and weight. So we built our *Warrior*, which can steam, when clean, perhaps a knot more than the best of the French iron-clads, but which is unprotected at both ends, which takes ten minutes to turn in a circle, and is of such draught of water that hardly any then existing dock could receive her. A dozen different plans have been tried by us since; we have vessels, some larger and some smaller, some fully plated, some quarter plated, some heavier and some lighter than our first model; but, as they have been built very much at hap-hazard, and certainly without any clear idea of adapting means to a carefully considered end, it may be doubted whether we have in them quite full value for all the money they have cost. On the other hand, the French have in the main only two types, from which they have but in slight degree departed; but then these types were adopted after the most careful consideration, and on a view of the whole of the services which were required to be performed.

Such being the difference of methods and system, nothing certainly could be more valuable to both nations than a full and minute comparison of results. Better surely for each would it be to learn in peace, rather than in war, how far the machines which cost from a quarter to half a million each to construct, are fitted for their work. All that can be known of their external appearance and internal arrangements is already known to those interested in such questions on each side of the channel. To an inch and to a pound, we know, and our neighbours know, the dimensions, fittings, stowage, armaments, and armour of every vessel in the two fleets. What each vessel can do at the measured mile, at full or light draught; what in comparison with her own consorts is her speed and handiness; what is the quickness of her crew and the advantages of her mechanical appliances, we also know.

But as between France and England we do not know anything of these questions, for the simple reason that no experiments have ever been tried between them. So let us hope it is the intention of the two governments to make not merely a parade of show, but a trial of utility. Let us hope that we shall learn not only how far the *Achilles* can outstrip the *Magenta*, but also how each behaves in the same sea, how each can work her guns in the same difficulties, how each can manœuvre as well as sail and fight. This would be a knowledge worth millions of money to each people, for without such comparison each must go on spending without any assurance that the expenditure will not be found useless and delusive when the actual trial comes. But if it is not the intention to make such a trial let us on both sides abstain from boasting too much of a greatness which remains untested. We shall still see a beautiful and imposing spectacle, and we shall all rejoice in the state of peace which allows us to witness so gallant a display. But we must not let the huger bulk of our own floating forts deceive us unto the idea that we are therefore superior, nor must we let the magnificent fleet which will represent England lead us to think that its numbers and weight prove that in all things the Admiralty has done its duty.

IRON SHIPS AND THE SPHEROGRAPH,—*By S. M. Saxby, Esq., R.N.*

Mr. Editor,—I share with others the satisfaction of having in the *Nautical* so valuable a means of ready communication with both naval and mercantile authorities, that I seek the favour of a little space in which to defend or explain a matter which, however important in a private view, has its bearing on the public interests. No man likes to be misrepresented—and I find I have been; and as none of my immediate friends conceive that a sentence which occurs in a circular of mine admits of the impression which it seems to have produced on certain persons in highly important positions in the maritime world, I think it due to the latter, as well as to myself, to offer a few remarks.

After meeting the representatives of owners, underwriters, &c., at the Jerusalem Coffee House, Cornhill, in January last, I was persuaded, for the public information, to issue a few circulars, to show what was really the nature of the spherograph as used for compass correction; and I was kindly permitted to state also in the *Nautical* a few facts connected with it. The following sentence in my circular, to my great surprise, has been quoted as proof of the unsoundness of my reasoning, in the first place, and secondly, as a disparagement of the spherograph. I said,—"He [a commander] may place his compasses wherever he please, such as near an upright stantion, or near a

beam or bolt, &c., he may carry them in his tops or cross-trees, or even place one on the crown or shank of his anchor, since he only wants, in either of these (of course) *extreme* cases, to know his compass error, and he finds it easily."

Permit me to say that if any one considers the above as an intention to "advise" sailors to disregard all selection of position for their compasses, he mistakes me. Nothing I have ever said in my various writings to the *Nautical*, &c., on the subject of compass correction, can justify such an assumption; and he must heave a very taut strain on my words who attributes to them such a meaning. In order to prevent any further misconception, I beg to say that with so ticklish a thing as a compass in an iron ship, that man is greatly culpable who neglects *any* precaution whatever.

But what I did say I maintain, in defiance of any one who contradicts me, viz., that *wherever* a compass may be placed (whether accidentally or otherwise is nothing to me), I say I will at once detect its error, provided any heavenly body be even obscurely visible. Any experienced mathematician may of course do the same, but not so readily as I can do it by the spherograph, which in a second or two simply constructs, as it were, the spheric triangle; and this, being graduated as to its angles and sides, admits of being instantly read off. It is thus a far more simple means of obtaining a result than tables can ever possibly be, because tables of equal range with the spherograph would be voluminous, inasmuch as in the spherograph the stars and moon and planets can be used quite as easily as the sun. I need not dwell on this, but will simply challenge comparison with any other means of detecting compass error, both for sufficient accuracy and for quickness.

Since January I have necessarily had much communication with accomplished navigators, both naval and mercantile, and I am fully prepared to show that the state of the compass question is still very unsatisfactory (I of course refer to the merchant service only). I remember when Dr. Scoresby lectured at Liverpool we had the same adaptation of Grey's method of adjusting (as suggested by Professor Airy) as I saw this very day on board one of our newest magnificent steamers of the Mersey. We are still depending on adjusting magnets in our mercantile marine, and what is the consequence? Look at the records of last winter,—ask the underwriters at Lloyd's. I even this day was speaking with a chief officer as we stood together at one of these costly and beautiful instruments; who told me of a ship's compass having been recently found to be 2½ points out during a homeward voyage, in consequence (as the adjuster found on arrival in England) of one of the side magnets having been displaced in a gale of wind.*

We can better compare the remedy with the disease by a comparison of facts. Now, let us see, we cannot control one magnet, and yet

* See also a former article on the compass in this number for *derangement of adjusting magnets*.—Ed.

we think of helping matters by adding two or three others! Imagine a man having an unruly wife, and in order to secure peace, if possible, taking home to her another wife, as a check upon the first! Mercy upon us! What can we expect? for this is what we are doing with our unruly compasses!

But here again I am treading on dangerous ground. I denounce the use of and reliance upon all magnets, unless the mechanical adjustments are thoroughly understood by some one on board; and even in such case mechanical arrangements should never be trusted, so long as any heavenly body whatever is, as I say, even obscurely visible.

I will give another reason why nothing but a heavenly body is to be relied on. Has not the head of the Compass Department recently published his opinion that we have yet no remedy against the effects of heeling in a ship? Let an iron ship be caught in a gale, and of what use, comparatively, is a compass to her, unless taken in immediate connection with a heavenly body, if even it be only dimly perceived in the haze or cloud?

It is at such times that the rapidity of the spherograph is a great means of safety. An eminent commander, now one of the firm of a great shipowning concern in London, assures me that about three years since, when in an iron steamer, and having nearly 700 troops on board, he found, after crossing the line, that his compasses were so altogether useless that he may be said to have navigated his ship to India solely by the spherograph and heavenly bodies,—thus, perhaps, saving the ship and the precious lives it contained. Of course, his own experience causes the firm to supply the instrument to all their numerous ships.

And, again, if I may intrude a line or two more, how is it that so experienced a commander as the accomplished gentleman who is the present captain of the *Great Eastern*,—how is it, I would ask, that he, as an extra precaution, and if the instrument be not all-important, has appointed an intelligent young officer to check all courses and distances, &c., by means of the spherograph? As a check, forsooth! I am thinking what an excellent "check" one of Dent's chronometers would have been to the hour-glasses and water-clocks of our forefathers!

A few days since, on hearing one of his captains of an iron ship say that he could always make Heligoland right ahead, but on a return westerly course invariably found himself ten to twenty miles out on either hand in making a landfall, an intelligent shipowner remarked,—"Why, if Mr. Saxby saves you by your compasses a single hour in your passage, the cost of the spherograph would be saved in the lessened consumption of coal, therefore," said he, "every one of you shall have a spherograph." (N.B. He owns eighteen ships, and ten were supplied on the spot.)

S. M. S.

To the Editor of the Nautical Magazine.

Royal National Life-Boat Institution.

A meeting of this institution was held, on the 6th of July, at its house, John Street, Adelphi, John Chapman, Esq., F.R.S., in the chair. There were also present, Captain Sir E. Perrott, Bart. Admiral Gordon, W. H. Harton, Esq., Admiral M'Hardy, Colonel Palmer, A. Boetefeur, Esq., Captain De St. Croix, and Richard Lewis, Esq., the secretary.

The minutes of the previous meeting having been read, a reward of £4 was voted to the crew of the institution's lifeboat at Groomsport, for putting off during a heavy gale of wind and rescuing the master of the smack *Agnes and Mary*, of Glasgow, struck on the rocks off Groomsport, early in the morning of the 30th of May. A shore-boat had previously attempted to save the man.

A reward of £7 was also granted to the crew of the tubular lifeboat of the institution stationed at Rhyl, for going off and assisting, in conjunction with a steam-tug, to save from destruction the sloop *Catherine*, of Liverpool, and her crew of four men. The vessel was observed in a disabled condition during a fresh gale of wind off Rhyl, on the 11th of June.

A reward of £13 was likewise granted to the crew of the lifeboat belonging to the institution at Bude Haven, for putting off through a heavy sea, and saving the crew of four men from the schooner *Johnson*, of Exeter, which was wrecked while attempting to enter Bude Harbour, on the 30th of June. The cost of this valuable lifeboat station, amounting to £600, was defrayed by a benevolent gentleman in memory of his late mother.

It was reported that the Van Kook lifeboat of the institution at North Deal had gone off in reply to signals of distress, with the view of rescuing the crew of the schooner *George*, which was found abandoned and sunk during a strong S.W. wind, on the Goodwin Sands, on the 2nd of June. The Ramsgate Harbour lifeboat had also gone out to the assistance of the wreck, but neither lifeboat could find any tidings of the wreck's crew.

Various other rewards were also voted to the crews of shore-boats and others for saving life from shipwreck on the coasts of the United Kingdom.

Payments amounting to £438 were ordered to be made on various lifeboat establishments.

It was stated that Eleanor, Duchess of Northumberland, had expressed her wish to station a lifeboat on the Northumberland coast, in memory of her husband, the late duke, who was for many years the president of the institution.

A benevolent lady, residing at Cheltenham, had presented to the institution £600 to defray the cost of a lifeboat station at Anstruther, on the Scotch coast. She wished the lifeboat to be named the *Admiral Fitzroy*, "in commemoration of the scientific efforts of the distin-

guished officer of that name to discover the law of storms, with the benevolent view to diminish the loss of life on our coast."

New lifeboats and transporting carriages had been sent during the past month to North Sunderland and to Whitby. Both boats were the gifts of benevolent persons to the institution. The Great Northern and North-Eastern Railway Companies had, as usual, kindly given the lifeboats and carriages free conveyance to their respective stations.

It was reported that the French Lifeboat Society were having six or seven additional lifeboats built for them in England and elsewhere.

Colonel Fitzroy Clayton, of the Grenadier Guards, had recently delivered a lecture at Eastbourne in aid of the objects of the institution.

Messrs. Peacock and Buchan's composition had again been used in painting the large fleet of lifeboats of the institution.

The Devon and Cornwall Lifeboat Bazaar, which was to be held at Teignmouth on the 8th and 9th of the ensuing month, under the special patronage of the Prince and the Princess of Wales, was reported as likely to be a very grand and successful undertaking.

Two benevolent ladies, who are unknown to each other, had expressed a wish to present to the institution the cost (£600) of two lifeboats, the amount in each case being their housekeeping savings. A sailor's daughter had also sent to the institution, through Messrs. Drummond, the bankers, a further contribution of £100.

The committee decided to place a new lifeboat at Cahore, on the Irish coast, and to name it the *Sir Jamsetjee Jejeebhoy*, after the late benevolent baronet of Bombay, who was a munificent contributor to the funds of the institution.

Reports were read from Captain Ward, R.N., the inspector, and Captain David Robertson, R.N., the assistant-inspector of lifeboats of the institution, on their recent visits of inspection of the society's lifeboat stations on the Irish and Scotch coasts. They found, with few exceptions, all the lifeboats in thorough working order. The institution has now 149 lifeboat stations under its management, and during the past eighteen months it had contributed to the saving of upwards of 1,000 lives from various shipwrecks on our coasts.

The proceedings then closed.

The Atlantic Electric Cable.

The grand scheme of the Atlantic electric cable is in actual execution while we write. The *Great Eastern* made her voyage to Valentia; the end of the shore cable in the *Caroline* was landed at its destination, the other end successfully connected with that on board the *Great Eastern*, and the whole expedition is now on its way to Newfoundland, sending messages daily to Valentia that are duly reported in the public prints as they arrive. Before our next number appears, it is confidently expected that the long wished for Atlantic telegraph

cable in its place will be realised. Meanwhile, the following account of the *personelle* of the big ship, from the intelligent correspondent of the *Daily News*, will interest our readers :—

People who infer from the character of this expedition, and from the fact of so much space in the vessel having been given up to the cable, that those sailing in her will suffer inconvenience or hardship, have greatly under-estimated the capabilities of the *Great Eastern*. Each gentleman, so far as I know, has a roomy, well-appointed state cabin to himself, wherein he may lounge or read, or write, if he prefers it to the grand saloon, and in which he rejoices in a freedom of ventilation and an amount of elbow room which go far to make him forget he is at sea. About 500 souls will be on board during the voyage out. Of these 115 are officers and seamen, 179 stokers and engineers, 44 stewards and their staff, and the remainder (after directors and one or two other people are counted), who are only put last because I am less certain as to their exact number—say 100—are electricians, their assistants and workmen.

Twice a day signals will be sent through from ship to Valentia, stating where the vessel is, &c., and these will be regularly transmitted direct to London. Anything, therefore, occurring on board the ship will be instantly known in England, while, on the other hand, anything going wrong with the cable itself will be as quickly ascertained —not alone from the cessation of signals, but from the tests that can be applied to the end at Valentia. The paying-out machine is being fixed up on board the ship, and the leading trough has also been completed along the deck. This latter is a plain timber frame, supporting a semicircular trough of iron, down which the cable is drawn to the paying-out machine, the friction of its passage sufficing to keep it "taut," and obviate all chance of "kinks" entering the machine. All three tanks containing the cable have now been completely filled with water, and the wire, in fact, is as much submerged now as it will be at the bottom of the Atlantic—with this difference, that the pressure of the immense depths of the ocean will materially improve the condition of the cable by the compression of the gutta-percha.

The number of words sent per minute through the entire length of the cable is a matter of considerable moment to all interested in its success Mr. De Sauty put this at 3·8 (decimal), but Mr. Varley and Professor Thompson have succeeded in sending six words through in the same time on the occasion of their trying experiments here a few days ago. In an affair of such magnitude and importance as the Atlantic telegraph it is interesting to know to whom are entrusted the details of management, on the proper carrying out of which its success depends. I give you, therefore, the names of the different gentlemen having the superintendence of the various departments. The engineer's staff comprises Mr. S. Canning, Mr. H. Clifford, Mr. J. Temple, with Mr. S. Griffiths, Mr. T. Temple, and Mr. R. London as assistants. The electrical staff consists of Mr. C. V. De Sauty, Mr. H. Saunders, and Mr. Willoughby Smith on board, and Mr. May at

Valentia. Mr. J. Long, Mr. H. Sherwin, and Mr. W. Windle are superintendents of coils. Captain Moriarty, R.N., of the *Fox*, has special leave from the Admiralty to accompany the *Great Eastern*, and has been, and is, busily engaged in swinging the vessel and adjusting her compasses. Mr. Varley and Professor Thompson will employ their scientific knowlege in generally watching over the cable and in facilitating the rapid transmission of messages; and Mr. Cyrus Field and Mr. Daniel Gooch, C.E., will cross the Atlantic as directors of the company. Indeed, the gentleman last named represent the four companies interested in the expedition; Mr. Gooch—who by the way may read of his own election at Cricklade in a newspaper on deck an hour or two back—being a director of the *Great Eastern*, and the Telegraph Construction and Maintenance Company; while Mr. Cyrus Field is a director of the Atlantic Telegraph Company, and the New York, Newfoundland, and London Telegraph Company. These are the only two directors who accompany the *Great Eastern* to the end of her voyage, and to Mr. Field, acting in conjunction with Captain A. T. Hamilton, is entrusted the task of proving, on the part of the Atlantic Telegraph Company, that the Construction and Maintenance Company has done its work, and that the cable is efficiently laid. Carrying with him a sealed letter of 106 words, he will from Newfoundland communicate with Captain Hamilton at Valentia, who will test the accuracy of the message by comparing it with another sealed letter in his possession. This experiment successfully tried, the cable will be declared laid, and be at once thrown open to the public.

Casualty Reports.

The Barque "Orion."

To the Lords of the Committee of Privy Council for Trade.

My Lords,—We, the undersigned, two of her Majesty's Justices of the Peace for the county of Devon, have held an official inquiry into the circumstances attending the abandonment of the barque *Orion*, which occurred on the morning of the 21st of May, about two miles to the northward and westward of the Wolf Rock, off the Land's End. In this investigation we have been assisted by Capt. Harris, and Capt. Fairholme, R.N., and have now the honour to report that the *Orion* was a barque of 307 53-100 tons register, built at Sunderland in the year 1848. She was a wooden vessel. Her official number was 26,660; her port number was 17. She left Newport for Vera Cruz on the 26th of April last, with a cargo of railway iron and wheelbarrows, in charge of John Collard Graves, master, who holds a certificate of competency, dated the 19th of November, 1864, and a crew of eleven hands, all told. After being at sea a few days she encountered heavy gales when off Cape Finisterre, and leaked very much, in consequence of which she put back to Plymouth, where she was beached and underwent partial repair, and was made

tight, as appears from a survey held upon her on the 18th of May, a copy of which is hereto appended. On the 18th of May she again left Plymouth, and nothing particular occurred until the 20th of May, on which day, when about ten miles off the Lizard, at noon, she was found to be leaking again. The pumps were manned, and they continued pumping for a great many hours, the ship being kept on her course for some time. Soon after midnight the port pump choked, and there was an attempt made to get it up, but the strap parted and the pump broke. The other pump was worked till about 4h.a.m. the next morning, when all the crew were exhausted, and could work no more. At that time there were about nine feet of water in the hold. About the same time the schooner *Chameleon* came alongside, and was requested to lay by the *Orion*, as she was in a sinking state. The *Orion* was then near the Longship Light. The crew got into the boat and lay alongside. They would not remain on board the ship, fearing she would sink. About 6h. a.m., a Scilly pilot-boat came alongside and offered assistance, but the master of the *Orion* declined, saying it was too late, as she was too far gone. About 6h. 40m. a.m., the screw steamer *Greatham Hall* came alongside and offered to tow the *Orion* into Penzance, but the Master declined that also, as the ship had settled so much by the head, and was rapidly sinking. The steamer remained alongside about a quarter of an hour, and then left. The master, mate, boatswain, and steward remained on board the *Orion* about ten minutes after that, and then left in their boat, and in about ten minutes after the ship sank. The court having taken into consideration the above statement of facts, were of opinion that it was not a premature abandonment, and returned the master his certificate with a caution.

Dated Exmouth, June 22nd, 1865.

J. T. Boles, Jno. Wood, } *Justices.*

We concur in this report,

Hy. Harris, Charles Fairholme. *Insptg. Comr. of Coastguard.* } *Nautical Assessors.*

The Loss of the "Annie Baldwin."

The court directed by the Board of Trade to inquire into the loss of the *Annie Baldwin*, met on Monday, at Liverpool, to deliver its decision. Mr. Preston, the deputy stipendiary magistrate, who was accompanied by Captains Harris and Baker, nautical assessors, read the following judgment :—

"The court, after a careful consideration of all the circumatances attending the loss of the *Annie Baldwin*, and making full allowance for the intricate nature of the navigation near the Florida Reefs, have come to the conclusion that the master, Mr. E. H. Netherclift, was not wanting in vigilance, and exercised proper precautions both in the

use of the lead and in heaving the ship to while awaiting daylight. The loss of the ship was attributable in all probability to the current setting to the westward and drifting her upon the sunken reef, where she was wrecked. The ship was hove to, the weather fine, the Master, only about three-quarters of an hour before she struck had obtained soundings in twenty-five fathoms, and there were no indications of danger. Under these circumstances, the court exonerates him from all blame for the actual loss of the ship. In the course of this inquiry evidence was adduced to show drunkenness on the part of the master; but, as this referred to an earlier period during her outward voyage, the court does not think it necessary to pronounce any opinion upon it, it being proved to its satisfaction that drunkenness had nothing whatever to do with the loss of the ship, and that from the time she left Port Royal on her return voyage to the time she struck on the Conch Reef, the master was perfectly sober. There is one act of the master, however, upon which the court feels bound strongly to animadvert, namely, his permitting his chief mate, who had sailed with the ship from Leith, to leave her while in a foreign port to take the command of a schooner, and appointing the boatswain, an uncertificated seaman, totally ignorant of navigation, to fill his place; for, had anything happened to the master during the voyage, the safety of the ship must necessarily have been endangered, there being no one on board capable of properly navigating her. Having made these observations, nothing remains for me to do than return to you, Mr. Nethercliff, your certificate."

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

Ports and Harbours on the N.E. Coast of Queensland.

(Continued from page 384.)

Port Curtis.

In making Port Curtis, either from the northward or southward, Mount Larcom may, as a general rule, be first steered for, until the adjacent hills are clearly made out.

A vessel from the southward, entering by the South Channel, should, after passing by the rocky islets lying off Bustard Head, bring Mount Larcom in line with Gatcombe Head, and steer for them so until Peaked Hill (a remarkable mountain, 2,000 feet in height, fifteen miles to the south-westward of Rodd Bay) is in line with the highest of the Seal Rocks, S.S.W.½W.; then steer S.W.½S. for two and three-quarter miles, (making due allowance for the strength of the stream,) or until Mount Larcom is about a quarter of a point open to the north-

ward of Round Hill, the latter bearing W.b.N., which would place a vessel about half a mile to the N.N.W. of the highest of the Seal Rocks; a W.b.N.½N. course (allowing for the stream, and keeping South-trees Point well open to the southward of Gatcombe Head) will then lead directly into the harbour, passing at about three quarters of a mile to the southward of Gatcombe Head. A secure anchorage may be chosen, if necessary, off Observation Point—the nearer the shore, with safety, the better, as the tide stream runs from one and a half to two knots at a third of a mile off. Vessels generally select this as a fairway anchorage, when waiting to proceed to sea; and those of the largest size may safely go up and anchor in six fathoms in the stream between Barney and Auckland Points.

After passing Gatcombe Head within three quarters of a mile, steer up the harbour until Mount Larcom opens out to the northward of South-trees Point; leave two black beacons placed on the N.E. edge of the banks stretching to the S.E. of South-trees Point on the port hand, and pass that point at about a cable's length, leaving two red buoys, one on the eastern and the other on the south-eastern extreme of the Middle Bank on the starboard hand. Keep Auckland Point open of Barney Point, and pass these points at about a cable's distance also, leaving a third red buoy nearly abreast Barney Point, and which points out the position of a small rocky patch having not more than five feet of water on it at low water on the starboard hand.

Vessels bound up the creek will pass, on the port hand, a small black beacon to the westward of Auckland Point, and two red beacons on the starboard hand, the first of which is placed on the end of the spit running out from the mangroves on the West side of the creek.

In working up the harbour be careful not to shut out Auckland Point with South-trees Point, and not to approach the shore between Gatcombe Head and the next rocky point to the N.W. within one third of a mile, as a dangerous reef of coral runs out to nearly that distance from off a low rocky double point. The rocky patch to be avoided off Barney Point lies with Barney Point nearly in a line with Round or One-tree Hill; and with the North extreme of the high land to the northward of Mount Larcom, just shutting in with the land on the North side of the harbour. There is room to pass on either side of this patch, which is of very small extent.

The North extreme of the high land to the northward of Mount Larcom, kept open of the land on the North side of the harbour, leads clear of the S.W. edge of that portion of the Middle Bank which lies to the westward of the rocky patch.

In entering the South Channel from the northward, a vessel should make for Hummock Hill, keeping it on a South bearing, and taking care not to bring it to the eastward of S.½E., in order that the eastern edge of East Banks may be cleared. When the Seal Rocks are distinctly made out, approach them on their northern side (which is steep to) until Mount Larcom is about a quarter of a point open to the northward of Round Hill, W.b.N.; then proceed up the harbour as above directed.

Vessels from the northward entering Port Curtis by the North Channel, should, when the land is clearly recognised, bring the extreme of Gatcombe Head to bear S.W.b.W., when it will be in line with Settlement Point, and should be kept so until the eastern coast of Facing Island is shut in by the East point of the island: a vessel will then be clear of the N.W. end of the East Banks, and of the shoal water off Facing Point, and may round the S.E. end of Facing Island. Keep about a quarter of a mile outside Settlement Point and the detached rock off Gatcombe Head, taking care to steer clear of the 3½ fathom knoll off the head. A berth may then be taken up as before directed.

Vessels proceeding along the coast from the northward towards Port Curtis, should not approach the shores of Facing Island within three miles, rocks (which are not laid down in the charts) running out from the land nearly to that distance.

Tides:—It is high water in Port Curtis, full and change, at 9h. 30m.; the rise being from ten to twelve feet. The tides here are much affected by the prevailing winds, and the stream at times sets very strong in the channels.

(To be continued.)

Particulars of Lights Recently Established.

(Continued from page 380.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
33. Daunt Rock	Irish coast	Beacon	..	..	..	Est. June, 1865. (*a.*)
34. Grundkal Finngrund	Light-vessel	Gulf Bothnia	..	..	..	Est. July, 1865. (*b.*)
	Ditto	Ditto	..	..	..	Ditto.
35. Kronstat	Time-ball	Gulf Finland	..	..	..	Est. July, 1865. (*c.*)
36. Coral Patch	Blackwood Channel	Raine Island	..	..	..	Barrier Reef, Australia. (*d.*)
37. Sunken vessel	off Bombay	India	..	..	..	(*e.*)
38. Tse-le Island	Yung River, entrance, China	29° 59·4′ N., 121°45·1′E.	F.	166	..	Est. 22nd March, 1865. At 3½ miles N.E. of the entrance to the river. (*f.*)
Pas-yew Islet	Ditto	29° 57·7′ N., 121°43·9′E.	F.	153	..	Est. 22nd March, 1865. A *red* light. (*f.*)
Sesostris Rock	Buoy	.....	..	..	..	(*g.*)
39. Molino Point	Palamos Bay South coast Spain	41° 50·1′ N., 3° 8·5′ E.	F.	74	10	Est. 1st September, 1865 A *red* light.
Palamos Mole	.....	.....	F.	33	..	Est. 1st September, 1865. Natural colour.
Is. Corrientes, off Cape Passaro	South Sicily	36° 38′ N., 15° 3·5′ E.	F.	56	11	Est. 1st August, 1865.

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a) 33.—The beacon boat carries a ball 24 feet above the sea, and lies in 12 fathoms at low water springs, at nearly 1¼ cable S.S.W. of the rock, with the telegraph tower on Roche Point in line with the peak of a distant mountain bearing N.E.¼E.; and the gable end of a white house in Robert Cove just open of the N.E. side of entrance to the cove N.¼E.

The buoy of Daunt Rock remains in its position.

(b.) 34.—*Signals at Understen Lighthouse, in* 60° 16½′ *N.*, 11° 55½′ *E.*:—
A black double cone over a red globe signifies that neither of these light-vessels are at their stations.

The black double cone alone, signifies that the Finngrund light-vessel is not at her station: and the red globe alone, that the Grundkal light-vessel is not at her station. No signal implies that both light-vessels are at their stations.

At Svartklubb lighthouse, in 60° 10½′ N., 18° 50′ E., a red globe signifies that the passage called the Oregrund Grepen is beset with drift or fast ice.

Two sunken rocks, the Engelska and Lansmans, in the northern part of the Oregrund Grepen, are thus shown:—the Engelska with a red beacon with a red ball; and the Lansmans with a black beacon with two black balls.

(c.) 35.—The Imperial Ministry of Marine at St. Petersburg has given notice, that a Time-ball is dropped from the mast-head of the Naval Telegraph at Kronstat daily during the navigation, Sundays excepted.

To call attention, the ball is hoisted midway up the mast about five minutes before noon; and entirely up at half a minute before each time it is to be dropped.

The ball falls successively at one minute before noon; at noon; and at one minute after noon of *Greenwich* mean time.

The ball will also be dropped at mean noon of Kronstat every day during the year, being hoisted to the mast-head five minutes before that time.

The position of the Telegraph is given as lat. 59° 59′ 23·9″ N., long. 1h. 59m. 3·3s. E. of Greenwich.

(d.) 36.—A coral patch discovered by H.M.S. *Salamander* in Blackwood Channel lies about a mile E.S.E. of the eastern part of the Middle Banks, in 11° 47·2′ S., 143° 41·6′ E. It is about a cable long, East and West, and half a cable wide, and has 15 to 17 fathoms in the channel, a mile wide, between it and the reef. From its shoalest spot of 7 feet, the eastern sand bank on the Middle Banks bears W.¼ N. 2¾ miles, and the South extreme of Sir Charles Hardy Islands S.W. 14¼ miles.

Directions.—Vessels entering the Barrier Reef by Raine Island, on passing this island should bring its beacon to bear N.E.¾ E., and steer S.W.¾ W. (allowing for tide and a northerly set) for Sir Charles Hardy Islands. Losing sight of the beacon, the vessel will be clear of the shoal patches westward of the 100 fathoms line of soundings, and on the bank. She will then look out for Sir Charles Hardy Islands, and when plainly seen, steer for their South extreme S.W.¾ W., and when the easternmost sandbank on the Middle Banks bears N.W.b.W., and the West Ashmore Bank (if seen) S.S.W.¼ W., she will be well to the S.W. of the Salamander Patch, and a course may then be shaped for either the North or Pollard Channels.

All bearings are magnetic. Variation 5° E. in 1865.

(e.) 37.—The Superintendent of Marine at Bombay has given notice that the ship *Ellora*, of about 950 tons, with a full cargo of cotton and seeds, sprung a leak and sunk off Bombay Harbour on the 21st of May, 1865.

The vessel was sitting in an upright position, in 7 fathoms at low water, at about 4½ or 5 miles S.W. of the outer light-vessel. On the 7th of June her masts were still standing; she had apparently settled into the mud, with 2½ fathoms over her at low water.

(f.) 38.—These lights are seen all round the horizon.

(g.) 38.—The *red* buoy on the Sesostris Rock lies nearly in mid-channel of the eastern entrance to the river, and about 3½ cables eastward of Pas-Yew Islet.

Weeks Island.

On the passage of the missionary packet *Morning Star* from the Micronesian Islands to this port, Captain Gelett observed this island, located in lat. 24° 4′ N., and long. 154° 2′ E., or about 800 miles N.N.E. from Guam. On the evening of December 16th, numerous land-birds were seen, which increased in number the next morning, and it was remarked that land must be near by; which was seen at 3h.p.m. of the 17th. The island is about five miles long, densely covered with trees and shrubbery, with a white sand beach, and rises in a knoll at the centre, perhaps 200 feet above the sea. The brig passed within three or four miles of it about sunset, and breakers were seen all around. There were no signs of inhabitants living on it, though all hands on board kept a close look out. A reef extends to the north of the island. On the old Admiralty charts a doubtful island is noted in the vicinity of the one discovered, but on Wilkes' American chart and on Laurie's chart none is laid down within 100 miles of this spot. The position of this fertile island is important and reliable. It ought to be visited by some war vessel, and fully explored. It lies directly in the track of whalers bound from Ascension to the Ochotsk or Arctic.

Oeno Reef lies forty-eight miles east of where it is located on most charts, and in the latest epitomes. Several vessels have been lost through the wrong position of this reef on the charts, and others (among them Captain C.) have narrowly escaped being wrecked. Both these errors have been communicated to Washington, but no notice appears to be taken of it. The correct position of Oeno is lat. 24° S., long. 130° 31′ W.

Admiralty Orders.

The following recent Admiralty orders have been issued :—

I.—*Officers Acting as Interpreters.*

"My Lords Commissioners of the Admiralty have been pleased to direct that officers of the undermentioned grades (executive officers, marine officers, and paymasters) be permitted to pass a voluntary examination in French, Spanish, Portuguese, and such other modern languages as may be selected from time to time. The names of officers who pass successfully will be noted for employment in flag and senior officers' ships as interpreters. When appointed they will receive an allowance of one shilling and sixpence a day, in addition to their full pay, and will act as interpreters in addition to their other duties. If the appointment be held by a senior or gunnery lieutenant he will receive the extra pay of an interpreter in addition to his other allowances: A thorough knowledge of one of the languages will entitle an

officer to a certificate as interpreter. The examination will be held from time to time at the Royal Naval College.—C. PAGET."

II.—*Prizes to Officers for Distinction in College Examinations, &c.*

The following circular has been issued by the Commissioners of the Admiralty :—

"With a view to encourage officers to acquire a thorough knowledge of professional and other useful subjects my Lords Commissioners of the Admiralty have thought fit to establish the following regulations :—A lieutenant's commission will be given in June and December of each year to the sub-lieutenant who has passed the best examination at the Royal Naval College during the preceeding six months, provided he has obtained first-class certificates in seamanship and gunnery, and not less than 925 marks in the college examination. He must also be recommended by the examining officers, and must possess certificates of good conduct and zeal in the performance of his duties for the whole period of his service. The class of certificate obtained will be noted against the sub-lieutenants' names in the *Navy List*, and those who have obtained first-class certificates on all subjects, and who are in possession of proofs of good conduct and zeal in the performance of their duties during the whole period of their service, will be favourably considered for promotion in advance of other sub-lieutenants of the same standing. My lords intend to bestow a prize of books on all sub-lieutenants who may obtain first-class certificates on all subjects.—C. PAGET."

III.—*Masters of the Royal Navy.*

The following is the copy of a memorandum on the gradual extinction and final abolition of the master class in the Royal Navy, presented pursuant to an order of the House of Lords, dated 27th June, 1865 :—

"Memorials on the part of the masters in the navy have frequently been submitted to the Board of Admiralty. The general purport of these memorials is a request that the masters should either be placed on a footing of complete equality with the executive officers, or that the class of master should be abolished. The subject can only be satisfactorily dealt with by being divided under the two heads—first, the case of officers at present in the service ; next, the case of officers hereafter to be entered for service in that class. As regards the first, namely, officers at present in the service, any attempt to deal with one class of officers without reference to other classes, whose interests would necessarily be affected by such a measure, would give rise to just complaints. In regard to officers hereafter entering the service, it will be desirable gradually to abolish the separate class of officers employed on navigating duties. With this view all further entries of second-class cadets have already been stopped, and this will have the effect of allowing the master class by degrees

to die out of the service. As the master class dies out their duties should be provided for as follows :—

1. Executive officers who have qualified themselves, and who have passed the examinations which will be required to be eligible for appointment as "navigating officers," and while performing those duties, to receive special rates of pay. The examinations should be conducted under the direction of the Hydrographer of the Navy.

2. The duties with regard to stores, at present performed, under the superintendence of the master, by the warrant officers, to be still performed by them, under the direction of the senior executive officer, who should have the same responsibility with regard to the stores that the master has at present.

3. The senior executive officer should be charged also with the care of the rigging, &c,, &c., which now devolves upon the master.

4. The accounts of expenditure of stores should be examined and checked by the officers appointed for gunnery and navigating duties; and should be signed by those officers, and by the senior executive officer, before being submitted to the captain for his approval.

5. The superintendence of holds should be performed by officers selected by the officer in command, under the general direction of the senior executive officer. It will be necessary in the meantime that staff-commanders, masters, and second masters should continue to hold the same position as to rank and pay as they hold at present. They should contine to perform the same duties, and to be eligible for all the appointments, which are now assigned to them by the regulations of the service. Masters' assistants and second-class cadets should have the option of qualifying and passing for the rank of lieutenants, when they would be placed on the sub-lieutenants' list, and until they did so pass they would retain their present rates of pay.

Submitted for the consideration of the Board of Admiralty.—

SOMERSET.

24th June, 1865.

See an article on this subject in our last number that appears to us well worthy of attention.—ED.

CAPTURE OF A SLAVE VESSEL.

The following despatch has been received at the Admiralty, from Captain Bowden, H.M.S. *Wasp*.

H.M. S. Wasp, Seychelles, May 26th.

Sir,—In compliance with article 31, page 5, of the Slave-trade Instructions, I have the honour to report, that on the night of the 12th May, an Arab dhow was captured by the pinnace and cutter of this ship, under the charge of Lieutenant Charles C. Rising, at a distance of from eight to ten miles from the port of Zanzibar, with 283 slaves on board. She had a large crew of northern Arabs, who made a desperate

resistance, but owing to the gallantry displayed by the officers and their boats' crews, the vessel was carried, the Arabs taking to the sea, and to a boat they cut from the stern, but leaving three dead and thirteen prisoners. I regret to say that John New, coxswain of pinnace, the first to board, was killed, and three officers and eight men wounded. I cannot speak too highly of the judicious way in which the attack was conducted, and the gallantry displayed by Lieutenant Rising, who has received three very severe wounds. Lieutenant Theobald received a severe wound at the onset, but notwithstanding boarded, and afterwards remained in charge, By the prisoners' statement there were seventy Arabs on board at the time of the attack, and by report from the shore twenty-five are missing of those who took to the sea. I beg to enclose the officers' reports of their proceedings, and the surgeon's list of casualties.

I have, &c.,

W. BOWDEN, *Captain.*

The following is a return of the killed and wounded, officers and men, during the engagement referred to:—John New, coxswain of the pinnace, spear wound of chest, killed; large blood vessels divided. Charles C. Rising, lieutenant, sword wound of neck, very severe; all muscles left side of neck divided; sword wound of left hand, very severe; hand amputated, except little finger and thumb; sword wound of right thigh, severe; not dangerous. Charles B. Theobald, lieutenant, spear wound of left wrist, very severe; spear went through the joint. William Wilson, midshipman, sword wound of back, severe; sword wound of right wrist, severe; some tendons and nerves divided. Oliver Norville, second captain foretop, spear wound of abdomen, penetrating; very dangerous. John Cramer, captain afterguard, spear wound though forearm, very severe. John Williams, A.B., sword wound of forehead, severe. Edward Thompson, A.B., sword wound of forearm, severe; spear wound of chest, slight. Charles Treganna, ordinary, spear wound of back, slight. William Springall, sailmaker's crew, spear wound of forearm, slight.

NAVAL MOVEMENTS.

The *Caledonia* iron-clad, Captain the Hon. A. Foley, carrying the flag of Rear-Admiral H. R. Yelverton, C.B., as second in command of H.M. fleet in the Mediterranean, left Spithead 6th of July for that station.

The *Gannet*, 11, screw sloop, is commissioned at Devonport by Commander W. Chimmo, for the North American and West India station. She is to have a complement of 118 officers and men.

The steam surveying vessel *Firefly*, Commander Wilkinson, left Malta 8th July, to seek the mythic Fox Rock, on the coast of Sardinia, which has been a source of alarm to navigators for the past half century, with no better hope of finding it than has fallen to the lot of many other surveying officers. The *Firefly* will eventually return to the scene of her hydrographic researches between Sfax and Tunis, and will not be back to Malta for some time, as she has orders to replenish fuel at Trapani in Sicily, at which place on her return

to Sardinia she will call to obtain pratique and make the necessary arrangements.

The screw gunvessel *Griffon*, 5, 80-horse power, (nominal,) Commander J. L. Perry, has been put out of commission at Chatham, the crew being paid off in the basin at Sheerness under the superintendence of Captain W. K. Hall, C.B., superintendent of the dockyard. The *Griffon* has been exactly four years in commission, during the whole of which period she has been employed in the suppression of the slave trade on the West African coast, eighteen months of which time she was cruizing in the Bight of Benin, and the remainder along the southern portion of the coast. The number of prizes taken by her amounted to six, including two large vessels fully equipped for running the slaving blockade, consisting of the *Catilina*, in the Bight of Benin, and the *Venus*, off Ambrizetti. One of the other vessels captured had a few slaves on board.

The ship *Lion* has just returned to Greenock after her month's cruize, during which time she has been employed in drilling about 150 coastguard men belonging to the Hull, Leith, and Clyde districts. The men were daily engaged in great gun, rifle, and cutlass exercise, as well as exercise aloft, making and shortening sail, shifting yards, sails, &c. At the termination of the cruize, and previous to their departure, Captain Farquhar assembled the men, and, addressing them, stated his unqualified approval of their conduct while on board. The manner in which they had fallen into the duties of the ship was highly exemplary, giving himself and officers under whom they drilled very great satisfaction, and that he should take care the proper authorities be made aware of their efficiency in gunnery and duties as seamen, as well as their general conduct while on board, no single complaint having been reported of any one of them.

The *Liverpool*, 35, screw frigate, Captain Rowley Lambert, is ordered to proceed to Plymouth, in company with the *Octavia*, 39, screw frigate, Captain C. F. Hillyar, which is to proceed on an experimental cruize with the sister frigates *Arethusa* and *Constance*, the trials having reference to the machinery by which the several ships are propelled. At the close of these trials the *Octavia* will sail for the East Indies, and Captain Hillyar will hoist the broad pendant as commodore on that station, relieving the *Severn*, screw frigate, Commodore Montresor.

The *Mullet*, 5, screw gunvessel, 430 tons, 80-horse power, Commander Cortland H. Simpson, anchored at Spithead, 5th July, from the West coast of Africa. She subsequently received orders and left for the eastward to be paid off, having been three years and three months in commission. She will be placed in the third-class steam reserve of the Medway.

Captain the Hon. Arthur Auckland Cochrane, C.B., who has been appointed to the *Fisgard*, for special service, is, it is reported, to take command, as commodore, of a squadron consisting of the *Arethusa*, 35, *Constance*, 39, and *Octavia*, 39, frigates, for the purpose of enabling him to superintend the fitting and working of a new boiler. It is also said that experiments are to be made to discover which engine of the abovenamed ships combines the greatest amount of efficiency with the least consumption of fuel.

The *Orontes*, screw troop ship, Captain H. Hire, arrived at Portsmouth on Thursday from Malta and Gibraltar, with troops and passengers on board; she brought 15 naval invalids, 22 convicts, 173 soldiers, invalids, and time expired men. The *Orontes* sailed from Malta on the 6th of July, and from Gibraltar on the 15th, and brings home a collection of antiquities and a quantity of old guns and naval stores.

The despatch vessel *Psyche*, Commander R. Stern, got up steam and left Malta on the afternoon of the 26th June in search of a party of soldiers and seamen who had deserted the previous evening in the long boat of the English

merchant ship *Adriatico*. She returned at 6h. 30m. p.m. having succeeded in finding the runaways twenty miles off, N.E.b.E. The deserters consisted of six men of the 100th regiment, and three seamen of the *Adriatico*. Four of the soldiers were sentenced about four months ago to a short term of imprisonment for attempted desertion.

The surveying vessel *Firefly*, Commander G. R. Wilkinson, arrived at Malta 30th June from Kabylia, after having completed the survey between Cape Bon and Susa.

By accounts received from Halifax, Nova Scotia, up to the 6th of June, it is reported that a steamer had arrived from St. John's, Newfoundland, with intelligence that while some of the crew of H.M. corvette *Pylades* were exercising with great guns, an explosion took place, by which five men were wounded, two of them being totally blinded.

The *Serpent*, with her tender, arrived at Madeira on the 17th June. She left Madeira for China on the 20th.

The *Sphinx*, 6, paddle, Captain Hamilton, left Plymouth 6th July for the coast of Ireland, to assist in laying the Atlantic telegraph cable.

A court-martial has been held at Sheerness, on board the *Formidable*, flagship, for investigating a charge preferred against Lieutenant J. R. D. Cooper and the officers and crew of the gunboat *Herring*, which grounded on the rocks at Inch Mickery, an island a few miles N.W. of Granton Harbour, on the 25th May. The court consisted of Captain J. Fulford (president), Captain E. Tatham, Captain M'Donald, Captain the Hon. G. D. Keane, Captain J. O. Johnson, and Captain J. L. Parry. Mr. Knight, solicitor for the Admiralty, acted as judge advocate. Evidence was given by Lieutenant Cooper, the commanding officer of the *Herring;* E. Roberts, leadsman; Staff-Commander Brown; W. Hardy, harbour-master at Granton; and the pilot who inspected the reef on which the vessel grounded. The court found that Lieutenant Cooper had committed an error in judgment in approaching the southern end of the island at an ebb tide, and admonished him to be more careful for the future, and that no blame was attached to the rest of the officers and crew.

At the conclusion of the above a court-martial, consisting of the same officers, was held on Mr. F. C. Kelson, acting engineer of the ship *Antelope*, which arrived at Sheerness a few days since from the West Coast of Africa, for being drunk on the 30th May last, while the ship was at Madeira, for being drunk on the 16th June, at Sheerness, and for being incapable of performing his duty on the 16th June. The court considered all three charges proved, and sentenced the prisoner to forfeit all his seniority as acting-engineer, and to be severely reprimanded.

A third court-martial, composed of the same officers, was held on Mr. F. Wheeler, engineer in charge of H.M.S. *Antelope*, for being drunk and for being incapable, on the 16th of June, 1865, at Sheerness. The charges were proved by Acting-Master A. Thomas, Mr. J. Hide, Assistant-Surgeon, and Mr. G. Stupple. The court found the prisoner guilty on both charges, but, in consequence of the good character he had hitherto borne, he was dismissed with a severe reprimand. At the conclusion of the case the court severely reprimanded George Stupple, the quarter-master of the ship, for the prevaricating manner in which he had given his evidence.

Rear-Admiral George Elliot, C.B., having resigned his appointment as Admiral Superintendent of Portsmouth Dockyard, will be succeeded by Rear-Admiral George G. Wellesley, C.B. The following letter has been sent to Admiral Elliot, signed by the whole of the clerks in the dockyard:—

H.M. Dockyard, Portsmouth, July 3rd, 1865.

Sir,—We, the undersigned clerks at H.M. Dockyard, Portsmouth, recently

under your superintendence, desire to express to you our feelings of sincere gratitude for your uniform kindness and impartiality towards us during the period we have had the honour to serve under your command; and respectfully beg to assure you of our warmest wishes for your future welfare and happiness, and of our sincere regret at losing you as our commanding officer.

We have, &c.,

SIGNED BY ALL.

The ships *Terrible* and *Sphinx*, and the *Great Eastern* steamship, have been fitted, by orders of the Admiralty, with Commander Colomb's flashing signal apparatus, as now in use on board the ships of the Channel Fleet; and Sir Sydney C. Dacres, K.C.B., the Commander-in-Chief of the fleet, is directed to have signalmen selected from the ships of the fleet and sent to the *Terrible*, *Sphinx*, and *Great Eastern* to work the signalling apparatus during the time those vessels are occupied in laying the Atlantic Telegraph.

Facts and Fancies.

Pay of the American Vice-Admiral.—The office of Vice-Admiral, recently created by Congress, is filled by Farragut, who ranks with Lieutenant-General Grant. His pay is to be 7,000 dollars per year on sea service, 6,000 dollars when on shore duty, and 5,000 dollars when waiting orders. There is only one grade higher rank, military or naval, than we now have in our army and navy. Full General in the army and full Admiral in the navy.

The Russian government has just contracted with Messrs. Collins and Sibley, two American gentlemen, for an electric telegraph to be laid from the mouth of the Amoor to California, *viâ* Behring Straits. The line is to be opened on the 3rd of April, 1870, the permission of the English and American governments having been already obtained for their respective territories, and every assistance promised by the three cabinets concerned.

A private letter from Yokohama describes the change made in that city during the past twelve months as having been very great. That which was cultivated ground ten months before is now built over with camp huts and hospitals. Latterly the Japanese have made a good carriage road for the English, six or seven miles long, and there may be seen every afternoon all the *élite* of the place, riding, driving, or walking. Six months before there was not a carriage to be seen. Recently, too, a race ground has been opened, and the garrison races came off on April 6th, and caused great excitement. On the 7th the garrison theatricals followed, so that our troops have not wanted gaiety. They are somewhat jealous of the Japanese officers, who are much better paid than ours, the least pay of a captain being £500, or twice as much as that of an English officer of equal standing.

A green hand on a Yankee schooner being commanded savagely to "let go that jib, there! let go that jib!" replied, "I ain't touching it!"

Naval Pastime.—We thought this schoolboy work was gone by:—

Since the arrival of H.M.S. *Clio* at Honolulu we have heard several complaints from residents of the removal of signs from their places of business. The joke was carried too far, however, when the sign from the United States Legation, in Beretania Street, was taken down by midshipmen, and carried on board the ship, where it has since been found. The Honolulu correspondent of the S. F. *Bulletin* contains the following:—

Over the gate of Dr. M'Bride's residence is a modest sign, representing the

"Bird of Freedom," with the legend, "Legation of the United States." Some nights since a party of the middies belonging to H.B.M.S. *Clio*, lying in port, being on shore on a "bit of a spree," after dislocating a barber's pole or so, and capturing a wooden boot from the front of a shoe-shop, were attracted by the higher game of the American minister resident's shingles, and having secured the detested emblem, they retired to the ship with the spoils. Next morning, some one who had witnessed the gallant exploit reported the parties to the doctor; but before he had time to make any inquiries the Hawaiian authorities were aroused to the grave consequences which might result from such deliberate insult to the representative of a friendly power, and owing to representations made to the captain of the *Clio*, the young rapscallions who wear H.M. uniform were obliged in broad day, and in the presence of a crowd of Yankees, to replace the proud bird on his wonted perch. Among these promising sprigs of "sucking Nelsons" is a Lord Beresford, a relative of that Marquis of Waterford who some years ago became familiar with the interior of the "Tombs" of New York city on account of his rowdy proclivities, and who subsequently ended a wild life by breaking his neck at a steeple-chase in Ireland.

The Table Bay patent slip is working very satisfactorily. The ship *C. S. Lemon* has been taken up. The operation, which occupied about two hours and a half, was completed in the most masterly manner by Captain Spence. This vessel is the largest which has hitherto been placed upon the slip, being 168 feet long, and 1,100 tons register; she, however, carries a cargo of 2,000 tons. At the time when she was hauled up the ship had about 400 or 500 tons of cargo and 100 tons of water on board. She will require extensive repairs. The bulwarks of the vessel, as she stands upon the slip-ways, are fully fifty feet high.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, *in July*, 1865.—*Sold by the Agent, J. D. Potter*, 31, *Poultry, and* 11, *King Street, Tower Hill, London.*

60.—Channel Islands, Alderney and Caskets, Commander Sidney and Staff-Commander Richards, R.N., 1863, (2s. 6d.)

2,475 *b.*—Hebrides Islands, West coast, from Barra Head to Scarpa Isle, Captain Otter, R.N., 1863, (2s. 6d.)

2,431.—North America, West coast, Cordova Bay to Cross Sound, including Koloscheark Archipelago, corrected from a Russian chart, 1853, (2s. 6d.)

A Method for Finding the Latitude by the Simultaneous Altitudes of Two Stars, and also their True Bearings or Azimuths at that Time, by John Burdwood, Staff-Commander, R.N., 1865, (1s.)

EDWARD DUNSTERVILLE, *Commander R.N.*

Admiralty, Hydrographic Office, 20th July, 1865.

ERRATA.

Page 400, lines 34 and 36, *for* Petrosus *read* Petrosa.
Page 400, lines 37 and 44, *for* Semmial *read* Temminck.
Page 400, line 39, *for* Corspillata *read* Conspicillata.

TO CORRESPONDENTS.

Light on Tipara Reef, Australia.—Thanks to our Correspondent. The notice of this light is already in our June number, page 321.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

SEPTEMBER, 1865.

THE MARIANAS ISLANDS.—*Discovery and Population: Narrative of Captain Don E. Sanchez y Zayas, of the Spanish Royal Navy.*

The Mariana Archipelago is formed of a chain of islands extending in nearly a North and South direction for about one hundred and fifty leagues. They all seem to be of volcanic origin; and even now in some of them the volcanic mountains of which they are formed are in an active condition.

They might be divided into three groups; in which case the southern one would be composed of the islands Guajan, Rota, Aquigan, Tinian, and Saypan, and considered of the most ancient formation. These islands, which are of moderate height, are the largest of the archipelago, the least mountainous, and all that are at present inhabited of the group. The following may be considered as forming the central group, viz., Farallon de Medinilla, Anatajan, Sarigan, Guguan, Almagan, Paragan, and Agrigan; which, in fact, are a collection of rocky islets, some formed by extinct and others by active volcanoes. They are said to have been inhabited, and everything confirms such a conclusion, for there is ample room for this on some of them. Lastly, the northern group, formed by the isles Asuncion, Urracas, and Pajaros, is no more than a series of volcanic cones,—the first nearly ceased in action, the second broken, and the third in full activity.

The islets called Mangs or Monjas need not be mentioned now, for they do not exist, nor yet the other island recently called the Farallon

de Torres, because this new name is the origin of an error which must be corrected.

It is certain that the archipelago of the Marianas was discovered by Magellan on the 6th March, 1521, although there have been doubts as to which of the islands he saw. Some consider that the group of the three islands Tinian, Saypan, and Agrigan, were all that were seen by Magellan; and yet it is all but proved that he passed between Rota and Guajan, and touched at Agana or its vicinity, where, among other things, the natives plundered him of a boat. The chart published by the Spanish hydrographic office containing his track makes him pass between the islands of Guajan and Rota. The numerous boats which he met there—a kind of canoe with two bows and triangular matting sails, similar to those used by the Caroline islanders even now—were the cause of their being called by his people the "Islands of the Lateen Sails."

But the great navigator, among whose virtues neither resignation nor patience was to be found, and whose impetuosity of temper eventually cost him the life of some of his officers, gave them the severe name of the Ladrones. This name they retained until 1668, when they received that of the Marianas, in honour of the Queen Maria Ana of Austria, the widow of Philip IV and mother of Charles II. This name they have retained ever since, although they have not entirely lost the original name bestowed on them by Magellan.

The expedition of Loaisa, which left Spain immediately after Magellan, also touched at these islands. As soon as he arrived home at San Lucar, in September, 1522, he refitted the *Victoria*, and sailed again for the discovery of the Spice Islands; and, following the track of Magellan, discovered Isle Guajan, and touched at Umata on the 5th of September, 1526, staying until the 9th, when he continued his voyage.*

About the same time that Loaisa sent Hernan Cortes from Mexico on another expedition, also in search of the Molucca Islands. According to orders from Charles V, who, under the advice of the geographers of the day, insisted, in a letter to Montezuma, the conqueror of Mexico, on the possibility of discovering a passage that would shorten by two-thirds the voyage to the Spice Islands, the expedition of Alvaro de Saavedra was prepared at Signatanejo, on the western coast of Mexico, that sailed on the 31st of October, 1527. In the course of the voyage of this expedition, on the 29th of December in the same year, his ships also touched at Umata.

But, notwithstanding these early expeditions and many other ships touching there in those marvellous times of discovery and conquest, nobody thought it worth while to occupy the Ladrone Islands. And such indifference to them was very natural. Before the astonished eyes of the Spaniards, almost in a moment, not half of the globe,

* The *Victoria* was commanded by that fortunate navigator who received from the Emperor Charles V a globe for his shield of arms, with the magnificent motto of "*Primus circumdedisti me.*"

but nearly two-thirds of it, had suddenly appeared like a fanciful vision emerging, so to speak, from the depths of the sea; and this new land, two-thirds of the globe, contained a world new and unexplored, isolated from the rest of creation,—a world which until then had evaded the discovery of man in like manner as the opposite side of the moon is turned from the earth in obedience to the laws of gravitation. Here there were vast empires for conquest, lands abounding with gold, and crowds of inhabitants to be instructed in the paths to heaven. At that epoch, so resplendent in the history of our country, which commenced with the conquest of Granada, and continued with the discovery of America, and from one conquest to another, and one discovery to another, the Spaniards completed the circuit of the globe; when, astonished by their successes, they called themselves conquerors: then, indeed, was opened a vast field for exploration and bold adventure that knew no other limits than those of the globe itself.

The Ladrone Islets were nothing more than a few rocks scattered in the midst of a wide plain. They presented no riches to be desired, nor empire to be grasped, nor people to conquer. To overcome their poor inhabitants was a very easy matter, and it was natural to suppose that the conquerors of Mexico and Peru should cast a look of carelessness at such a handful of ground as those islands, and pursue their course in search of other acquirements more worthy of their arms, without caring at the time for more than was actually necessary, and which, in fact, was a little water to enable them to continue their voyage. Small islets, Magellan called them, without remarking that either of the two which he saw was scarcely the size of Minorca, the least of the Balearic Islands. But as great and small are always relative expressions, by the side of the American continent, in comparison with the Philippine Archipelago or the Molucca Islands, the Ladrones certainly are but very small islands.

Neglected by all parties, and being considered of no other use than to afford a supply of water or provisions to any passing vessel, they were not territorially annexed until 1565, when Don Miguel de Legaspi took possession of them for the King of Spain; and he had a mass celebrated there, and was the first who named them the Marianas. But this proceeding was purely nominal: the clerical process gone through, Legazpi and his people returned to their ship, and continued their voyage to the Philippine Islands. And notwithstanding the Ladrones afforded the only place for the refitting of vessels from Mexico to those islands, and however the Dutch, in their wars with Spain, might have made them a point from which to attack the ships from Acapulco, the Spaniards did not establish themselves there until more than a century later—that is, in 1668.

A Jesuit, the Padre Diego Luis de Sanvitores, from Manila, touching at the Ladrones, was the first who entertained the idea of conquering the islands. When at Manila he found great difficulty in getting his project attended to; in fact, he was opposed by all parties. Along with the various troubles which he experienced—from want of

funds, from want of followers, and such failings—there was a maritime genius which proved to be very curious. At that time the fact was known of the N.E. Trade wind blowing at the Marianas nearly all the year round, and it was supposed at the Philippine Islands that "the ship that made the voyage to Mexico could not approach the Ladrones on account of the wind being foul." It was feared that if she did go there provisions and water would fail her.

By sheer perseverance the Padre Sanvitores managed to obtain from Philip IV a royal mandate, dated 24th June, 1665, that a mission should proceed from the Philippine Islands to preach the gospel to the Ladrone Islanders, and that a vessel and all necessary assistance should be provided for him. The Governor of the Philippines, Don Diego Saludo, had a vessel built at Cavita (called a ship by historians), that he named the *San Diego*, in order to convey the missionaries and their establishment to those islands. The *San Diego* sailed from Cavita on the 7th of August, 1667; arrived at Acapulco in the beginning of January, 1668; sailed again on the 23rd of March, and at length made her formal appearance at Agana on the 16th of June following, occupying thus more than ten months in getting there.

This was the first voyage from the Philippine Islands to the Marianas of which there is any account, and it is no doubt the first that was ever made. It will be observed as remarkable that the voyage from Manila to Agana was made by touching first at Acapulco; but the curious thing is that the same track was followed for a considerable length of time, and even up to the time of Spain losing her American colonies. Whenever a vessel sailed from Manila for the Marianas, she first went to Acapulco, both goods and passengers thus making a circuitous track of 5,000 leagues before reaching their destination. However extraordinary this may now appear, the fact is undoubtedly true that from the voyage of the *San Diego* the same track has been followed by every vessel up to the end of the last century.

When the mission of Padre Sanvitores arrived at the Marianas the population was very considerable. Some set it down at 100,000 inhabitants, others at 70,000, and others, more moderate, at 40,000. Sanvitores says in his letters (see his history, published about 1690) that in the first year he baptized 50,000 persons, and mentions 180 towns in the island of Guajan alone. The whole of these have disappeared, and only their names are preserved in the localities where they stood. I myself have been at the sites of several of them, where, according to tradition, the cabins of the Indians stood under the shade of the cocoanut trees, which places are now waste with brambles. Possibly, the accounts which the missionaries have left may be exaggerated, but the numerous remains of graves which are found at every step, not only in Guajan but in all the other islands of the archipelago; the caves full of human skulls, which among the Indians were objects of care, and which are found everywhere; nearly all the islands covered with remains, and the circumstance of the cocoanut tree growing in the most out of the way places, that within

the tropics is the sure sign of the residence of the wild Indian—this tree being considered as the mark of his footstep: these are all proofs of the existence of a very extensive population in the Marianas at the time of their discovery.

I do not treat here on the history of the reduction of these islands. Suffice it to say that soon after the arrival of the mission the natives rose against it, although it had been received at first with every mark of welcome. The Padre Sanvitores—a well informed and exemplary man, and gifted with evangelical qualities, full of benevolence towards the natives and zeal for his calling—was probably the real cause of this uprising. He commenced by baptizing the young Indians by force, and against the desire of their parents, who believed that the water which he used in the ceremony was poisoned, and that their children died from the effects of it.

This belief among the natives would seem to have arisen from the fact of the missionaries giving preference, in performing this ceremony, to sick persons and to weakly or sick children that they met with. The result was a general uprising of the whole population. The Padre Sanvitores was killed by two Indians, named Matapango and Hirao, in the act of baptizing a little child. The unknown martyr of our Saviour—the humble soldier of our religion, he paid with his life for the sins which he might have committed—for the zeal with which he gained souls for heaven. Devout priest, eloquent and learned theologian, martyr as he was, his virtues are thus placed prominently forward, and his memory is actually cherished in the Marianas as that of a saint, notwithstanding he was never canonized.

Various other missionaries met the same fate as the Padre Sanvitores, dying under the hands of the natives, and the few Spaniards in the Marianas were reduced to the last extremity. It happened about this time that a squadron of ships touched at Umata on their voyage from Mexico to the Philippine Islands, and the commander-in-chief nominated a governor to the islands, who was left on shore, with some soldiers, to get the place into order.

The first governor of the Marianas, whose name I had rather not state, but on whom it was almost necessary to force the appointment of governor, soon adopted such summary measures that in a very short time he pacified the country. He killed, burnt, and destroyed people, provisions, and produce of every kind; he carried sword and fire everywhere, instead of kindness and conciliation; and the devastation which he produced among that unhappy people, the indiscreet assimilization, perhaps, to the holy evangelical light, was only terminated with the blood of the natives and the ashes of their dwellings. Driven from the island of Guajan (Guam), they were hunted to and from islands throughout the whole archipelago. A dreadful famine and a tremendous epidemic finished the work which had been thus begun by war, and the new colony remained entirely quiet, but destitute of people.

It is a sad picture, but it is no less a sad truth. Such, in brief, is the history of the Marianas, related in plain terms of pretty words

by padres, and published in Madrid, according to law, in the latter years of the seventeenth century, in the reign of Charles II, called the Hechizado.

The population, which in 1668 was so numerous as to amount to 100,000 souls, was reduced in 1710 to 3,539; and it yet decreased, for in 1722 it was only 1,936. From that time it has increased a little, for in 1800 it was 4,060; in 1818 it was 5,406; and in 1849 it had risen to 8,709. The number of the inhabitants continues to increase; in 1856 it was 9,500, but a virulent epidemic in that year carried off half the population of the islands, leaving only 4,556 persons. At present, according to data which I have been able to obtain, and worthy of entire credit, the inhabitants of the whole archipelago now number 5,610.*

The natives, called *Indios Chamorros*, are very much like the *Tagalos* and *Visagos* of the Philippine Islands, although of a somewhat better constitution. Those that live at Saypan, who come from the Caroline Islands, are a robust and vigorous class. The *Chamorros*, perhaps, are more indolent than the Philippine Indians; but not so the Caroline Islanders, who are naturally active, industrious, and hard working.

As a general rule, according to the information which I have received, as well as from my own observation, the *Chamorros* are much like the Indians of other parts of the world. Idleness is their leading foible; but this defect is amply compensated by virtues of no small importance, among which soberness and generosity occupy a prominent position. Idleness is, perhaps, as much the inherent nature of the Indian as the colour of his skin. But it may be the effect of the soil where he is born and the necessary consequence of existing causes. The Indian gradually finds that he has other necessities distinct from

* Distribution of the population:

		In 1849.			*In* 1864.
Isles Guajan ..	Agana	5,620	Agana		
	Anigua	217	Pago		
	Asan	190	Sinajana	4,049	
	Tepungan ..	73	Anigua		
	Sinajana	250	Asan		
	Mungmung ..	102	Tepungan		
	Pago	278	Agat	202	
	Agat.	287	Sumai.....	176	
	Umata	224	Meriso	146	
	Merizo	358	Umata	110	
	Inarajan	346	Inarajan.....	126	
		7,920			4,809
Isle Rota	Rota	382	.....		335
Isle Tinian	Sunharan	40	.....		18
Isle Saypan....	Garapan	267	.....		433
Isles Agrigan and Paygan	Wrecked and taken off by the *Narvaez*		.....		15
	Total	8,709			5,610

those of his nature, and it is quite probable that the energy and activity of the Indian may hereafter compete with that of the European.

The Indian is a child who is nourished by his native isle, and who obtains toys from his tutor, the white man. When he is young he grows and gets his own education. When he has acquired information he has become a man, he then has necessities like other men, and to meet them he finds it necessary to work. Such is the uncompromising law of nature, and the Indian is subject to this like all other human creatures.

What it has been agreed on to call civilization is nothing more than the idea of the whole amount of work of which mankind is capable. Work is the immediate consequence of our necessities. The more perfect is the social condition of man the greater is the work of the individual, and the more civilized the race the larger is the catalogue of their wants, and hence civilization brings with it activity and progress.

The wants of the white man are nearly unknown to the Indian of the ocean world. This being scarcely comprehends in its actual nature what a house is, food and clothing, or what in the moral meaning the words family and religion signify, or in the intellectual meaning what is understood by literature, the arts, end sciences: and hence originate all their faults. Hence, he has the indolence and want of foresight of the child; hence, he is not educated; hence, he has not the capacity of age; hence, he is idle.

But this is not the place to discuss whether the Indian is a great child, whose tutor does not care that he should be instructed in order that he may not work, or if he be still too young to begin his education. It may happen, however, that by letting him play too long he will grow up in idleness, he will become vicious, and contract habits difficult to eradicate. A race of people may be cast away as easily as an individual, who, if he grows up crooked it will be impossible to set him straight.

The nations of Europe which possess colonies in Oceania and the Spaniards, may be assured of this truth: that when the Indian is educated and is made a man, when he is instructed and abandons his Indian habits, when he is civilized and contracts the necessities which civilization brings with it, his idleness is a tale of yesterday: the race of the Indian is extirpated from the face of the earth.

Guajan or Guam.

The Island Guajan is the largest and of most importance and most populous of the Marianas. The authorities of the islands reside in it and the few Spaniards that live in the archipelago.

Guajan is twenty-five miles long and ten in its greatest breadth; but its contour is so irregular that in one part it is only three miles across. The land on the North part is low, and here it has only a small height, called Santa Rosa; but to the southward it becomes rather mountainous, very broken, and tolerably high. The whole island is clear of wood and its soil very fertile and susceptible of cul-

tivation to the summits of the mountains, but from want of hands a very small portion is cultivated, and this only with a few articles which are the food of the Indians. Nothing is exported from it and all that is planted is consumed there. Every family has their small portion of ground for the cultivation of rice, plantains, and potatoes, which they require for their sustenance. The breadfruit trees and sago grow spontaneously everywhere. As with these and rice, which is the foundation of the food of all the people of the East, the natives of Guajan have all that they desire, they have no commercial imports or exports whatever with any part of the world. This want of intercourse encourages the natural indolence of the Indian, and their beautiful grounds, which any where else would be a mine of riches, remain entirely unproductive.

There are no rivers, as might be expected, in so small an island; but instead there is an infinity of brooks and rivulets that moisten the ground although it does not require watering. For this they are indebted to the clouds which give abundance, that might be desirable but not cared for by the natives, and much less desired by visitors who may be engaged in interesting inquiries. In fact in these islands a great quantity of rain falls, although it may be said there is no wet and dry season there. It rains every day and a *cautaros*. The enormous evaporation of the Pacific suspended in the atmosphere becomes condensed as it passes over the islands; and the consequence is that it rains with all winds and at all times. I was there in December and January, which are months of the dry season, and it was very rare that it did not rain every day most plentifully. The natives were surprised that I should marvel at seeing so much rain in so little time, and by way of consolation used to tell me that was not rain. If this be really true, when it does rain at the Marianas it must be something worth seeing.

The climate is very refreshing, and much cooler than that of the Philippines; but the natives say that in August and September the heat is suffocating. This must arise from the interruption of the N.W. wind, which blows here all the year round excepting in those months, when the S.W. monsoon from the China Sea prevails at the Marianas. At these seasons calms are common, for the monsoon has no strength to reach them effectually, and it is the hot and rainy season which produces violent hurricanes.

The greater part of the population of Guajan, and consequently of the Marianas, is to be found at Agana. This town, which bears the exalted name of city, and which partakes of all the privileges of the title, is in reality no more than a moderate sized town of 3,500 inhabitants. The majority of the houses are merely Indian cabins, formed of wood and thatched with cocoanut leaves. There are, however some stones houses, in which persons reside who are of some consequence, but they are very few. The most notable houses are those of the governor, the park, the church, and the college. The last of these, built in 1673, was the first house built in the islands. It was erected for the instruction of the islanders, and I must say it

has well answered the object of its founders, for the Chamorros at least, although they may have lost their own primitive language, they all speak and understand the Spanish, a qualification which none of the tagalos and visagos of the Philippine Islands can boast. The park or the artillery barrack is a spacious handsome building, but has the misfortune to be nearly empty. The church contains nothing remarkable, and the governor's house is very good and commodious, although by no means spacious.

The streets of Agana are wide, and are laid out in right lines; they are clean, and the society generally is agreeable. A clear and rapid stream of water crosses them, over which are two stone bridges. The humble cottages of the Indians, round which is an enclosure with pallisades, with their overspreading roofs of cocoanut leaves, scattered here on the margin of the rivulet, and seen by the soft evening twilight between the trunks of the trees, present beautiful pictures: one of these especially, enriched by an Indian playing with a dog, was exceedingly interesting; the Indian, half dressed, with dishevelled hair, and seated indolently at the door of a hut, smoking an enormous cigar, the smoke of which gradually dispersed in the still atmosphere, another Indian stooping down to caress a cock, heedless of to-day or to-morrow, and the deformed carabao, quietly chewing the cud, and beyond in the background of the picture the beautiful azure of the tropical sky lighted up by the rays of the sun behind a screen of almost transparent light clouds, and enlivened with those beautiful pearly tints which are only seen in the light atmosphere of a warm climate: all this may appear to be such a description as may seem the mere idyll of the poet; but this and the picture itself are worthy of any artist, so sweet, so full of light and colour, it seems almost more like a dream of enchantment than a scene of sad reality. In that house emptiness reigns; there is nothing there to contribute to comfort either in the way of moveables, furniture, or ordinary linen; the tranquillity which reigns there proceeds from apathy: that indifference proceeds from disease. Heedlessness is painted in that face, misery in those rags, debility in that frame, a wandering vacancy in those looks, covering, alas! a consuming disorder. The picture is soft and beautiful, but it has the stillness of impotence, the sweetness of resignation, and the pallid beauty of death.

I cannot say whether the monotony of existence in the Marianas of the Indians is the cause of their apathetic character, or whether it is the isolated life which they lead. This is a problem the solution of which is beyond my powers. But whatever may be the cause, the result is that immoveability of the native character, superior as he is by far to any of the other natives of the Philippines, and even to any description that may have been given of him, is sufficient in itself to annihilate a population, which, like a machine, is going on wearing itself out, and which must eventually cease, and that a remedy of some kind must be applied, unless it be desirable to see the Marianas without any population whatever.

A large number of the half-breeds of Agana have a remarkable

physical peculiarity. They are copper coloured, and have excessively red hair. The mixture of the native race with the Anglo-Saxon has no doubt produced this feature, and the number of these people is very considerable, no doubt occasioned by the great number of whalers which frequent the islands, the seamen of which are Anglo-Americans.

The city of Agana (for such it is called officially) is built on the sea shore, but in a most unfortunate position, for it has a very bad anchorage off it and, indeed, at all near it. The coast there not only affords no shelter whatever from the sea nor yet the tide, but there is no anchorage abreast of the reefs off the shore; an anchor could not be dropped there. The reef, which is coral, is a complete wall, and so limited is the space where the lead finds bottom, that the smallest ship would have no room to swing at her anchor. A ship that has any communication with Agana must either stand off and on under canvas or must go and anchor at San Luiz de Apra.

This port is about two miles from Agana, and is really the only port, properly so called, for ships in the island of Guajan, but also in the whole archipelago. It is formed by the peninsula of Orote, the island of Cabras, and the reef of Luminta, over which vessels must pass in 5 to 6 fathoms, coral rock. Hence the entrance of it is dangerous in bad weather, as there is always considerable sea, and a vessel might very easily touch a rocky head. There is a channel of very deep water between the reef and Point Orote, which, although it is narrow, would be preferable to take in bad weather. But vessels mostly run over the reef because they can take the anchorage directly, which they cannot do by passing Point Orote; but with a vessel drawing much water, or when there is much sea running, this entrance should be adopted, although the vessel may have only sail and it should happen that she may be obliged to anchor in the entrance. The corvette *Narvaez*, in all her communications with Apra, passed over the reef: but in spite of her small draft (15 feet) there have been times when I regretted doing so, from fearing that we might touch or run against one of those rocks and get a blow from the sea that is always following. A vessel runs in 5½ fathoms, and the water is always so clear that the bottom is everywhere seen and covered with rocks.

A vessel once inside the port of Apra finds it safe and roomy. There are rocks in it with 12 to 14 fathoms over them, between which vessels may anchor in 20 to 25 fathoms water. A vessel not passing the meridian of the West point of Isle Cabras, will have rocky ground, but past this the bottom is sandy and holds well.

The plan of the port constructed in 1819 by M. Duperrey with the French ships *Uranie* and *La Physicienne* is sufficiently good for the use of any ship. The soundings, however, require some correction, for they generally show more water than there really is.

Inside the port there is an island, on which stands a small battery, called the Fort of Santa Cruz, not only badly situated but worse fortified. In fact, this fort is no kind of obstacle to a vessel running in, for the entrance is out of range unless the guns were much heavier,

and she might anchor in the road which leads to Agana, a town which is as destitute of the means of defence as the port of San Luiz da Apra.

Anchorage may be found off the fort, where the French corvette *La Bayonnoise* anchored in 1848, under the command of M. Jurien de la Graviere. But the best anchorage is South of the isle of Cabras one mile from the said fort, where I always anchored in the *Narvaez*, and where there is more shelter and more convenience for communicating with Agana.

The port of Apra is superlatively unfortunate. The shore everywhere is pestered with reefs, extending out considerably from it, full of rocky heads and wells, which former have so little water over them that at low water the smallest boat cannot land for them. Hence all communication with the shore is very difficult, boats are not only injured but even the smallest will not do. When the tide is out it is sufficient to see the kind of landing there is. Not only is a small boat actually necessary, but the tortuous channels for her between the rocks that must be taken. One of our boats, and that not a large one, has been four hours in bringing off officers from the beach to the vessel, a distance of about a mile. Thanks to the governor of the islands, who was so kind as to provide me with a chalana and a skiff which belonged to him, the crew could go and pass their Sundays at the town of Sumay, and afforded us the means of communicating with Point Piti, where the road to Agana commences. But for this, not all the seven boats of the *Narvaez* availed us, unless it was at high water. One fine night, when my officers had a ball on board as customary, I was imprudent enough to bring the governor and padre in a boat of twelve oars. I thought we should never have got on board. We left Point Piti at eight o'clock and got on board at 10h. 30m., after repeatedly running aground. But the curious part is, that the governor's skiff, which came after us with an officer of the ship and some persons of Agana, was much longer, notwithstanding it was a beautiful night, a clear moon, and pilots for the reefs in both boats.

From Point Piti to Agana the anchorage is very good, the only part of the shore in the island, excepting another piece from Sumay to Agat. The point is a long league from the city, and there is no means of communication between them. If no vehicle be sent from Agana, it is necessary either to walk or take a bullock, which does the horse's duty in the island. The expedients adopted to get to the town are without number. No one in the ship has a fancy to do this journey a foot in the heat of the sun in the latitude of 13°. One of the officers of the ship has done the journey mounted on a carabao, holding on no doubt by the horns of the animal. It was my good fortune generally to meet with the governor's carriage, which he sent to me for the three or four times I was at the capital. But one day I had the bad luck to go to Point Piti without a previous notice, landing about one in the afternoon. There is a little village there of about a dozen huts, and consequently I was among them without any means of carriage. I did not fancy returning on board, so set about looking

for a conveyance, and with some difficulty I succeeded in finding an affair made of cane drawn by a bullock, which was taking a pig I don't know where. For the moderate sum of a couple of dollars the Indian was induced to turn out his grunter and to instal me and my servant in his elegant car. The journey, however, occupied three hours, at the end of which time we triumphantly arrived at Agana, seated in great state on a huge rough cane, which was placed across the vehicle to serve as a chair, broiled by the sun, shaken to pieces, and feeling as if all my bones were out of their places; and in this condition I alighted at the governor's palace, acknowledging with no small difficulty but with all the gravity I could command the salute of "present arms" of the Indian sentinel at his door. This was quite enough to make me vow by all the saints of the calendar that I would never subject myself again to such an outrage against comfort and etiquette, and that I would never enter Agana again but by coach, and right well have I kept my promise.

NEW ZEALAND DIFFICULTIES.

Difficulties with the natives of New Zealand do not seem likely to terminate so soon as was expected. The war on account of the rebellion proved a severe check on them, but the "Pai Mariri" superstition appears likely to recall it; and when it is confidently believed by the New Zealander that the resulting effect of this movement will be to drive the hated Pakewa from the country, it may well be supposed that there are but few of the Maories that will not join it. Indeed while we are writing, gloomy forebodings come from thence. As might be expected, the Pai Mariri movement is spreading, it is said, among the loyal natives as well as the rebels, inciting the latter to fearful acts of atrocity. Christianity, it was hoped, had changed the nature of a people whom it found thirty years ago a race of cannibals; but it now appears that war has raised the latent evil passions of the savage. Numbers of Maories are daily returning to their former state, renouncing their [new] religion, and adopting one which breathes nothing but destruction to the white man.

In our last number we related the outrage that took place at Opotiki, and we may now add that the Rev. Carl Sylvius Volkner, a clergyman of the Church of England, whose kind and social manners and Christian heart endeared him to all, had been located there for about four years. He left Auckland for his home on the 26th of February in the schooner *Eclipse*, accompanied by the Rev. Mr. Grace. On the arrival of the schooner the seizure took place, as related in our last, by the Taranaki fanatics, who it seems were traversing the island, bearing the dried head of Captain Lloyd and, another account says, of Englishmen whom they had killed, determined on murdering every clergyman and every soldier they could find, and having possession of

Messrs. Volkner and Grace, secured them in a "ware," but promised the master of the schooner, Mr. Levy, that neither he nor his brother, who keeps a store at Opotiki, should be touched, they being Jews. Mr. Levy, it is stated, offered the schooner and her cargo and the cattle and goods in the settlement as a ransom for the two prisoners. The Maories at first seemed to agree to this, but later it appears the fanatics could not resist the opportunity, as all resistance was out of the question, and Mr. Volkner was led out and executed, as related already. Mr. Grace was then informed that he would be taken with the fanatics through the country with the soldier, as his companion had been, and the Levys were told they might depart with their vessel in ten days.

The schooner was then anchored inside the bar, to wait her time, besides the wind was not fair. In the mean time, however, intelligence of this atrocious proceeding had reached Auckland, and immediately H.M.S. *Eclipse*, with Bishop Selwyn on board, was despatched to Opotiki to rescue the survivors. As soon as she was discovered off the bar of this place by the fanatic natives, a consultation was held by them as to their proceedings; but immediately after her arrival Mr. Levy went on board and soon returned to the shore, when to his surprise he found the village deserted. Here was his opportunity, and well he turned it to account. Releasing Mr. Grace, he hurried him into a canoe without losing a moment, and immediately paddled off to the anchorage. But soon were the Maories' guns levelled at him, the alarm having been given; but the escape was complete, and in the mean time the *Eclipse* had prepared her boats to bring out his vessel, which was then done. The Maories were thus doubled in their design, and great was their disappointment; and they immediately vented their rage by breaking into and demolishing the contents of his brother's store. Having done this, they set out on their march through the district in which Bishop Williams resides. Here the natives are said to be loyal, and the bishop is full of confidence in them. At Auckland, however, a very different opinion is entertained of the Maori character, and his position is considered very precarious. In fact, the general alarm has occasioned a boat being sent down the eastern coast to warn the settlers on it of the state of affairs.

It is satisfactory in this state of things to know that there are loyal and reasonable people among the Maories here and there. Those of the Waikato district are the worst, the most rebellious, and in consequence a large portion of their land has been confiscated by the government proclamation and awarded to military settlers. The accounts just brought home state that the settlers, although military men, can do nothing with their land on account of prowling Maories; the native, it is well known, considers his land as sacred. Once in a family, by conquest or otherwise, a piece of land remains its inheritance. The cultivation of it forms their subsistence. And the settlers not only complain of the prowling Maories, and not only that they are not supported by assistance from the government, but that they do not receive their allowance of rations.

This prowling system, which the settlers find so harassing, has been even tried on General Cameron's advanced troops. It is stated that the rebels fired on his leading column while on his advance down the country towards Auckland, killing one man and wounding two others. The fire, however, was very quickly returned by the soldiers with good effect. The Maories were driven from their cover, and forty of them were either killed or made prisoners.

Late accounts state that an address disowning all sympathy with the fanatics has been forwarded to the governor by several of the local chiefs, but the latest we know of is dated on Christmas Day by thirty-six males and thirty-four females, forwarded by Colonel Greer, commanding the Tauranga district. But there are many zealous professors of the new faith besides Rewi, a leading war chief; whether W. Thompson, King Mututaeru, and some other influential chiefs, will join it as well as Rewi, remains to be seen. And it was reported by General Cameron on the 7th of January last, that "the natives throughout the country are in a very unsettled state, which has been increased by a fanatical belief lately introduced, and spreading far and wide, that they were about to be aided by a special Divine interposition in driving all the Europeans out of the island. Under the influence of this belief the natives of Tauranga, who gave in their allegiance in the month of August last, have suddenly left their homes and fled to the bush." It is stated by a traveller in New Zealand, who has seen these fanatics at a friendly village, that their appearance is of the most wretched description. They sit with staring eyes and wide open mouths, looking more stupid than ferocious, and considered themselves as subject to paroxysms of passion, behaving while in them like the victims of madness. The whole Maori population may be considered as on their first trial of faith. This movement will test the inclinations of the savage, and it will soon appear whether the savage mind is so far brought over to civilization as to permanently resist the temptations of indulging in their former degrading rights and ceremonies, or whether they prefer to remain quiet in the peaceful and happy pursuits of the Europeans. The trial of the Maori mind is a severe one, and it is difficult to say who will or will not give way to former habits and the creeds of their fathers.

It is not difficult to foresee that the confiscation of the whole Waikato district, besides more in those of Taranaki and Wanganui, is likely to prove a source of trouble in New Zealand for many a day to come. It is quite true that we may consider this as a mode of punishment well merited in return for rebellion; but if it requires the strong arm of power to maintain the right of the settler to the confiscated land, as it assuredly will do, since the difficulty has already begun, what is to bring peace?—and the relatives and descendants of the ousted natives will naturally be hovering about their old grounds, ready to take any and every advantage in the weakness of the settlers.

The experiment is to be tried, it appears, of establishing companies of Maorie troops (of fifty in a company) that are friendly to us! At best it is a dangerous experiment: we trust it may succeed. But

what says Mr. George Graham on this subject? He knows the Maorie character well, and there is so much good sense and justice in his views that we shall give them in his own language. They will be found to contrast strongly with the system of confiscation. Mr. G. Graham prefaces his letter to the governor with the following remarks. He says:—

"As one of the earliest settlers in this country (Auckland), being one of those who came down with the troops to New Zealand in the year 1840, and having been stationed in the southern provinces, as well as in Auckland, as having resided in the immediate neighbourhood of a large Maorie population, and having been a large employer of native labour, and as having been for the last few years a member of the House of Representatives of New Zealand, I submit that I have had special opportunities of being well acquainted with important facts bearing upon these questions, and of forming a judgment upon them."

The subjects in question may be briefly summed up in Maori affection or disaffection. It appears that the House of Representatives took a strong bias against the Maories, and this was commented on in harsher terms by a New Zealand newspaper. These are the matters to which Mr. Graham addresses himself—to disprove such conclusions as are calculated to do great injury and to mislead persons in England. He says—"I have known many of the Waikato chiefs above twenty-three years, and have been for several years on the most friendly terms with them. We respect each other as old friends. . . . There are many that they sincerely respect, and whom they would risk their lives to protect." This was in case of a general uprising of disaffected natives. Then, continues Mr. Graham,—

"On the arrival of Sir George Grey as governor of this colony, the natives anxiously expected that justice would be done to William King, and that the disputed land at Waitara would be relinquished. They thought that his excellency knew the merits of the case in dispute; but his despatches have subsequently shown that the essential facts did not become known to him until he had been a considerable time in the colony. Mean time the natives saw that in the Auckland province military buildings were being erected near the Waikato, at a place called Mangatawiri, about thirty-five miles from Auckland,—that telegraph wires were being fixed and roads made by soldiers in this direction, where the settlers were few. The tone of some of the local papers which they read was most violent and warlike, and they knew that a steamboat was being built, or about to be built, covered with iron. From these circumstances they were naturally led to expect war, and some few among them did make threats, but it was a very few that ever desired to injure this settlement."

The next statement of Mr. Graham's is very remarkable, and is a good proof of the kind of neighbour the Maori makes. Mr. Graham continues:—

"I would beg leave to call your attention to the fact that since the treaty of Waitangi was signed, in the year 1840, until the troops in-

vaded the native territory on the Waikato, on the 12th July, 1863, only one Maori had in this province been charged with the crime of murdering a European; and in that case the natives gave up the chief who had committed the crime, and he was executed at Auckland in the year 1842. His name was Makatu. This is a fact highly favourable to the Maori character: we should like to know which of the three countries forming Great Britain, with all its civilization, can boast of this fact in an interval of twenty-three years!"

Again, as neighbours, Mr. Graham speaks of the Maories. In his experience of working a farm for fifteen years, he says,—"There were but few loose characters; better neighbours I could not have wished for. They were very honest, sober, kind, and obliging. At harvest and at other times they willingly worked for me, and always did a good day's work. We had no lock or other fastenings on the outer doors of the farmhouse: we feared nothing from them. The day never dawned or sun went down without our hearing the bell calling all to public worship, and all that were able to do so habitually met for prayer. I deny that these, my friends and neighbours, ever contemplated to do me or mine, or any of my fellow countrymen, any injury."

Thus far, by Mr. Graham's account, was peace and happiness, and no country villagers could ever live on more amicable terms. But now comes the change. The happy Waikato Valley soon becomes different. But why this? Let Mr. Graham say why. He continues thus:—

"On the 9th of July last [1864] an order was printed, and in pursuance thereof, on Saturday the 11th of July, a messenger was sent with a proclamation ordering the natives to take the oath of allegiance or quit their settlement. There was not time given for these people to be sworn in, or even mustered together while the messenger was there. On Sunday, the 12th July, they were ejected. This was the middle of our winter, and they left their happy homes,—I may say their all. Other native settlements were at this short warning similarly treated; and, as before stated, on Sunday, the 12th of July, General Cameron and the troops crossed the Mangatawiri River, which was the actual commencement of war in the province.

"On the following day the native settlements at Mangarie, Pukaki, Ihumata, and other places, were plundered by Europeans. From Ihumata some cavalry drove away fifteen horses and a foal: other horses, cattle, pigs, poultry, grain, &c., were taken away, as also farm implements. The church bell was stolen, as also the door and sashes, and even the floor torn up for the materials. Nearly all the buildings were destroyed. I believe that the loss to my native friends in being ejected from Ihumata and Pukaki must be at least £2,000 sterling, including the property taken and destroyed.

"I again repeat that up to the date of their ejectment they had been as kind and well conducted a people as any Europeans; and I never heard of any serious charge being made against them.

"When they left their homes they were compelled to fly to the forests or the Waikato. There they were followed by the troops from post to post, and have ever since acted on the defensive."

The origin of the New Zealand war we had long been anxious to discover. Whatever it may have been about land in another part of the country, in the few foregoing lines there is ample cause for it in what is termed the seat of rebellion in the Waikato country, all of which is now confiscated ground. It is difficult to doubt statements made thus by a gentleman holding the position which Mr. Graham does, and deliberately stated to the governor. But we will follow out this gentleman in his assertions as they stand in folio of "Further Papers relative to the affairs of New Zealand."

"Some settlers," continues Mr. Graham, "had been warned by others not to pillage native houses. I believe that if there had been no such pillage we should have had no murders to report. Two persons who had taken some articles were killed in one day, and some were that had not done so."

And now Mr. Graham himself reviews these transactions and their effects. He very naturally remarks:—

"When half civilized [and we may add warlike men, who cannot easily brook such treatment] were ordered off from their homes and their all, when they saw the soldiers and others employed to invade their lands, and the whole of the European population armed against them, could we expect anything else than that they would seek revenge? But the *earliest of these events occurred several days after the expulsion of the native settlers on this* (the Auckland) *side of Maungatawiri*, the boundary of the native territory, and also *several days after the crossing of Maungatawiri by our troops*. But it was only a few that did take revenge. They could have killed many outsettlers and destroyed a great deal of property if they wished to do so."

Mr. Graham then proceeds to show that the natives who have been thus attacked have not killed any European settler, excepting such as have taken arms against them. He enumerates many places where settlers are unprotected and unmolested, especially on every part of the East coast, where private property has been respected without an exception, and says that many persons all through this war have fearlessly gone on with their farming, digging gold and sawing timber, erecting costly mills, cutting firewood (wood being the principal fuel in New Zealand), and numbers of trading vessels have coasted as usual, and he adds it is false to say that "they commenced by a desperate attack upon Auckland, the seat of government; if such had been the case, long ere this the governor would have reported the occurrence for your information."

It would appear from this refutation of false assertions that the Maories have been maligned by some New Zealand newspaper. Among others, it appears that Thompson has been fearfully so; and notwithstanding Mr. Graham offered his services to go among these unfortunate, persecuted Maories, to try and get them to lay down their arms, he was not permitted to do so, notwithstanding his confidence that he

would then have induced many to submit to British rule. But the natives had been told that the troops sent to Tauranga had brought reaping-hooks and other implements to cut their grain and take their crops. They scarcely knew where to look for a friend. They turned their cattle into their cultivations. Some fine fields of wheat had been left to waste, and in their despair they told Mr. Graham that "when we had taken or destroyed their food, and seized their lands, then we could take their lives.

"These men," continues Mr. Graham, "I am sure, for the most part, fought against us with reluctance: they fought for their lands and homes. And to their honour it has been written that they offered no violence to the wounded nor stripped the dead. While an officer lay wounded in the Gate Pa, a chief, at much personal risk, fetched him water. I would ask," says Mr. Graham, with all the fervour of admiration for the Maori character, "Are these men for us to go to war with? What are we fighting for, except their lands? Kindness and justice will conquer them. The confiscation of their lands will never do so!"

How truly are we now verifying Mr. Graham's words. The confiscation of their lands has been accomplished,—they have been assigned to military settlers, and what has followed? Their former owners are prowling about them,—the settler is unsafe,—he may be attacked at any moment,—and he calls for protection. How long is such a system of occupation to be maintained? How different from the state of affairs described by Mr. Graham before this wretched war began.

But in our view, as far as we have been at present able to discover, from a consideration of the subject, the ministry, that is the government without the governor, have brought on this war by their own acts and deeds. They appear to be the "responsible advisers" of the governor, who carries into effect their wishes, communicating the same to the home government. And these "responsible advisers" are no friends to the poor native, who is cut down where he can be, either killed or taken prisoner, without mercy, and lodged in a prison-ship with bare decks, and no attention paid to their comfort or cleanliness. We are trying the experiment of responsible government on these poor natives, and sad work it appears to be for them, driven from their homes and lands at the point of the bayonet. And well will it be for these responsible gentlemen if they do manage to keep some of the Maori population to ward off the result of their government. What this responsible government consists of we will look into in another number. Meanwhile Mr. Graham shall continue his story. Here is another glimpse of the Maori character:—

"Twenty-three years ago," continues Mr. Graham, "I was at Tauranga with the troops under Major Bunbury, 80th Regiment. Some of the natives in that district were then cannibals. Since then they have given us very little trouble. They have been large consumers of British goods; but, like other men, they are not faultless. But in January last I found them, as before stated, very friendly, industrious,

sober, and a *Sabbath-keeping people*. Their conduct and their cultivations reflected honour on British influence, and especially on those from whom they had received instruction." And these are the people, we may add, against whom we are carrying on a war of extermination.

"Is it likely," asks Mr. Graham, "that any people would have undergone the toil of sowing large tracts of land in the immediate neighbourhood of the coast, where they knew that we could easily obtain access, if they entertained the hostile designs imputed to them by the New Zealand ministers? If they had intended 'to drive all the Europeans out of the island,' would they not have destroyed the sawmills near to them at Mercury Bay and other places, driven the woodcutters from the forests, and the gold-diggers from Coromandel, and the settlers from their homes on the East coast and other parts?"

The answer is obvious, Mr. Graham. To our apprehension these unfortunate Maories are a brave, enduring, and honourable people, little removed, as some may be, from the condition of the cannibal. The natives, it appears, have been no less misrepresented in reference to making overtures of peace. Mr. Graham says:—

"It has been customary among the Maories for the victorious party to make overtures of peace. For instance, when Hongi Keki, the most noted warrior ever known in New Zealand, conquered the Waikato country, he was the first to make overtures of peace, and the whole of the territories which he had overrun were given up and left in the hands of the vanquished."

Other cases of this kind are cited by Mr. Graham; all of which go to show that it is not a native custom to confiscate the land of a conquered people, and he adds:—

"When his Excellency Sir George Grey made peace with the natives in the Bay of Islands, in the year 1846, he wisely seized none of their lands; and ever since they have been our friends, and looked upon the governor with respect. They have since then sold nearly all their waste lands to government: large tracts have been purchased at about sixpence per acre. *It was far cheaper for us to purchase than to confiscate.* Our settlers are living—I may say, prospering—near their native friends, and making great improvements in the country. Here there is room for a large population, and no fear of the Maori ever disputing the title. It would have been otherwise if the governor had confiscated their lands. England would have had to spend several thousands of pounds in war, and many lives would have been sacrificed.

"In the Wellington province, after the southern war with Rangihaeta, when peace was made, no land was confiscated. There again we have seen the wisdom of Sir George Grey. He was at that time censured by the press for not taking large tracts of land then owned by the natives. Fortunately, at that time he had no *responsible advisers* to thwart him, and since then no settlers' lives or property have been sacrificed. The government or Europeans are now the owners of nearly all of the once disputed lands, which have been purchased at the trifling outlay of a few pence per acre. The natives, in both

cases, did 'consider themselves conquered,' although their lands were not taken from them.

"After the defeat at Rangiriri William Thompson sent his 'mere' to the general as a token of submission to the governor. Letters were also sent to the governor from the Waikato chiefs; which letters are printed in the blue book, in the appendix to the journals of the House of Representatives; and there is also a copy of the reply to one of the letters, signed W. Fox. A letter sent by the governor in reply, and also contained in the same blue book, is as follows:—

"'*Government House, 6th December*, 1863.

"'O all you chiefs of Waikato. O Pene Pukewhan.

"'Your letter of the 2nd of December has reached me. The general must go uninterrupted to Ngaruawahia; the flag of the Queen must be hoisted there. Then will I talk to you.

"'G. GREY, *Governor*.'"

Mr. Graham continues,—

"When his Excellency's responsible advisers wrote their memorandum they could not have forgotten these and other letters that they have received from the Maories, conveying overtures of peace.

"If we exasperate the Maories and confiscate large tracts of their lands, and settle upon them armed bodies of men, who are to be drilled frequently and treated as soldiers, I believe that in that case England must be prepared to spend much blood and treasure, and that there never will be peace until the natives are exterminated.

"On the other hand, if the treaty of Waitanga be faithfully adhered to, if the Maories be treated honestly, and men of character are sent among them as magistrates, &c., then may we introduce into this province a very large European population, such as the natives would gladly welcome; they would be pleased to see some hundreds even of soldiers settle among them, if they do so as civilians."

This last is a consoling assurance of Mr. Graham's. It is something to learn that by honest dealing and good treatment European settlers may purchase land and live side by side with the natives, as they are even now doing through all this war North of Auckland. They are not opposed to Europeans, says Mr. Graham. But are they always treated honestly? We have seen how they are plundered of their land on the plea of being rebels. There is, however, something more than even this, according to Mr. Graham. He tells us:—

"The government have for years employed as government officers some persons of *very dissipated* and *bad characters*. Often have the natives reported some of them to the government; they have been dismissed to be again employed, perhaps to be sent to important stations, and since the commencement of the war to hold high military positions. Such men have assisted to destroy the confidence of the Maori in government," and we may add, not only in the governor's "responsible advisers," who are charged with, indeed forming, the government; but these *bad characters* of the government bring disrepute on that of their own countrymen. The spectacle of a drunken

"dissipated" man holding a government appointment must naturally shock the Maori, over whom he is of course invested with power. This produces an appeal. The disgraced individual must be dismissed for the sake of consistency in the eyes of the native, who hears of his reappointment somewhere else. Would the natives tolerate this? Would they have such a chief? Not they. But the civilized European breaks faith, to be told of it by the uncivilized Indian. It will be a curious inquiry for another number to look into the composition of this "government."

Mr. George Graham has here laid bare the real cause of the dislike of the natives to our government. We treat the Maori badly. At a moment's notice we drive him from the land of his fathers, from his home and all that he holds dear in the world, because he will not take an oath of fealty for which there is not even time. He resists, and we make war on him to death. We then, through a government of "responsible advisers," appoint and reappoint disreputable persons, and find that after confiscating his land and giving it to Europeans, the Maori is prowling about his former homestead. The settler finds himself unsafe. Can we wonder at it? No! and Mr. Graham's reasoning seems just and proper when he says:—

"When we see a people fighting as some of the Maories have done for their *land* and their *homes*, when we know that their houses have been burnt, their property and cultivations destroyed, the aged, the sick, and their wives and families forced to fly from their settlements, —and when we still see this noble people setting an example to those who call themselves Christians by paying respect to property and the lives of unprotected settlers,—when we know that *they have no paid* newspapers to defend them against those who may have the control of a great expenditure and who take every opportunity of misrepresentation,—when we think of their noble conduct towards the wounded at the moment of their being excited with victory at the Gate Pa at Tauranga, for they neither killed the wounded nor robbed the dead,— can we believe that they ever intended to 'drive the Europeans out of the island,' or 'that the struggle has become one for the bare existence of the colony?'

"It is a well known fact that there have not been more than 2,000 Maories in arms against us, although by the last census there were residing in this province about 38,000 natives. I trust this will prove that the Maories are not now, as represented in the Memorandum, 'fond of war.' Again I declare that we have only to act justly to the natives to insure their friendship, and then I am sure that in the Auckland province thousands of happy homes can be made, and with God's blessing the two races may yet again be as one people."

We shall conclude our present notice with these words of Mr. George Graham. To us they appear to be fraught with good sense and common justice towards a nation among whom we have gone to extricate them from a state of barbarism. We have gone among them as Christians, our mode of government has plunged us into a desolating

and expensive war, which, if necessary, we would carry to extermination. What that mode of government is we will look into in our next.

Since the foregoing was committed to paper it appears, by the daily prints, that on the subject of this unhappy war in New Zealand the Aborigines Protection Society have addressed a memorial to the Queen. After remarking that the "natives, whether rightly or wrongly, entertain a belief that their rights of property in the soil, their most cherished institutions, nay their very existence and perpetuity as a race, have been jeopardised by a dominant party in the colony," the memorial proceeds as follows:—

"Your memorialists need not remind your Majesty that your rights of sovereignty in the islands of New Zealand are based upon the treaty of Waitangi, which guaranteed to the natives the enjoyment of all their possessions, and promised that they should receive all the privileges of British subjects. In return they were required to give the government a monopoly in the sale of their lands. This stipulation has been strictly enforced, and has, your memorialists think, been the source of much of the irritation and suspicion now existing in the native mind: but the vast majority of the natives have yet to be treated, in any real and comprehensive sense, as the equals of their colonial fellow-subjects. They have been visited with the penalties of rebellion, but in all other respects they have been practically regarded as an alien race, entitled to none of the civil or political rights of Englishmen." After alluding to the unfortunate extension of the war, the society concludes by praying that trustworthy and unbiassed commissioners may be dispatched to New Zealand, "to investigate all the circumstances attending the outbreak of hostilities, with a view not only to ascertain their cause, and, if possible, to secure their early termination, but also to redress any grievances which may be proved to exist, and to devise some well-considered plan for uniting the two races, on terms of equality, under one government."

The memorial is signed by Lord Alfred S. Churchill, vice-president of the society and chairman of the public meeting. His lordship, it is stated, has received the following reply:—

"*Downing Street, July 24th*, 1865.

"My lord,—I am directed by Mr. Secretary Cardwell to acknowledge the receipt of your letter of the 10th inst., enclosing a memorial addressed to the Queen which had been adopted at the public meeting of the Aborigines Protection Society, praying that her Majesty would despatch to New Zealand trustworthy and unbiassed commissioners to inquire into the causes of the war, and to recommend measures for uniting the two races. I am to inform you that the petition has been duly laid at the foot of the throne; and I am at the same time to state that it appears to Mr. Cardwell that the issue of a commission of inquiry at a time when the governor is compelled to devote all his energies to bring about a termination of a deplorable state of rebellion and

warfare in the colony would be likely not only to produce no beneficial results, but seriously to aggravate the difficulties with which the executive government is contending.

"I have, &c.,

"FREDERICK ROGERS."

It is thus unhappily but too clear that the government of New Zealand, composed of "responsible advisers," have now to deal with the natives as best they can. But it does not appear likely that a permanent peace will be maintained while the system of confiscation of Maori territory is followed.

Recent accounts say that "an expedition to Opotiki for the purpose of capturing the murderers of Mr. Volkner has failed in a most remarkable manner. Her Majesty's ship *Eclipse* was despatched for this purpose, and landed a party at Opotiki with the intention of surprising the natives and then effecting a capture. The movements, however, of the *Eclipse* men were anticipated, and they were compelled to retire to their ship. The failure of the expedition must have a very injurious effect along the coast."

A TRIP TO A SLUMBERING VOLCANO FROM HONOLULU.*

The long-desired, anxiously looked-for, coming, and not coming, *has come* at last. The *steamer is here*—we hear her whistle—we see her posters, and *now*, all the good people of the city who have waited so long, and wished so fervently, for the opportunity to travel for pleasure in the "dull season," and could never make up their minds to attempt it in the schooners—"diving bells," as Steve calls them—which, by the way, are, as a class, second to none, in a similar trade, and which we sincerely hope will find an increased business, stimulated by the steamer. Now that the steamer is really here, surely they will be on hand, and not let this opportunity pass to show their appreciation for the investment made by her enterprising owners, in bringing so fine a vessel for the public accommodation.

* Mr. Editor,—While here in the Old World we are occasionally entertained at descriptions of the eruptions of Mount Etna, those of the New in the East and West seem to be but of small account. I send you herewith some notes of a trip to a slumbering volcano of the Sandwich Islands, which may be worthy the attention of your readers. They have, no doubt, heard of the great volcanic mountain of Mauna Loa, by the side of which the Italian mountain would look small, and the present trip would be well worth repeating by any of your nautical readers on their visit to the islands, where our celebrated circumnavigator, Captain Cook, lost his life, about a century ago.

Yours,

A VOYAGER.

We expected to see the steamer well filled, if not crowded, with pleasure seekers, eager to escape the heat and dust of Honolulu, for the cool refreshing breezes of the sea, and the sights of Owhyhee. Elbowing our way through the crowd on Steamboat Wharf, we feared lest we should not be able to get passage; but once on deck, we found the crowd still on the wharf. The steamer was ready, but the people were not; and when we left the wharf, and made a count, were very much surprised to find so few on board. However, numbers are not always requisite for a good time, and the few did not regret the pleasure they enjoyed; the better from the fact that there was no *crowd*. The wind was fresh during the night, and we made the run to Lahaina in fourteen hours, reaching the second city at 7h. a.m. The appearance of the town from the anchorage is very pretty, there is so much foliage, and the houses along the beach shaded by the green-leafed *ko*, present a very cool and inviting prospect. We were allowed time to land and spend an hour or two, and were well repaid for the visit. We met, as we always meet, with a cordial reception, and improved the opportunity of a hasty glance about town. We were glad to hear that the Marshal still lives, and had we time, might entertain our readers with some of the stirring scenes of quite an eventful life. Suffice it to say, that after explorations and fights with the grizlies of the Rocky Mountains, hair-breadth escapes on the plains of Mexico with that favourite corps of riflemen, he has settled down to quiet life, and no one keeps a more open door at Lahaina than the Marshal. There goes the whistle! and we must be off—not without first securing some very fine bunches of grapes, for which the place is noted. It is a great pity that vineyards could not be started here, and the culture of the grape be entered into, as in California, for the fruit is fully equal to that on the coast.

Leaving Lahaina at ten o'clock, we steamed along the coast, enjoying the smooth sailing, the delicious, cool sea breezes, the green mountains with their deep ravines, till the peaks of Hale-a-ka-la came to view, towering eight thousand feet above the sea—the largest extinct volcanic crater in the world, and which, it is said, would hold the island of Lanai, if it could be cut off at the water-line and inverted into the crater—a mountain as well worthy a visit as any object of interest on these islands.

A fine run across the bay, with sails and steam, gave us the opportunity of seeing the two qualities of our vessel combined, and she acquitted herself much to the satisfaction of all. Stopping at Makee's Landing, we landed and took off passengers, and hurried on, taking a distant view of Rose Ranch, nestling on the side of the lofty mountain.

Now comes the tug of war. We have opened out into the dreaded Hawaii Channel, and meet the combined force of the trade winds, sea and currents against us. Now comes the strife—man's power and human skill contending with the elements. But our good steamer steadily presses on, though her speed is not as rapid as before; *but she accomplishes her work*, and we advance with comfort. The night

falls around us in the channel, thick and showery, with strong wind. But we have found in Captain Bush, a careful captain, and in Mr. Beckley, a good pilot. The latter, who has crossed and re-crossed this channel times almost without number, told us of his narrow escape from shipwreck on the old steamboat *Akamai*, in that fearful *kona* gale off Honolulu, in 1854 or 1855; and, with a shudder, said, "he hoped never to see such another night." This channel is always rough, but the night wore away as comfortably as could be expected. Morning revealed to us the shores of Hawaii, and soon the clouds around the mountains broke away, and we had a fine view of Mauna Kea from its base to the summit, on which we could see small patches of snow. The slope upwards from the sea is so gradual that it is difficult to realize its great altitude of 14,000 feet—the highest mountain of the Pacific Islands.

At noon we were at Laupahoehoe, the great pulu depot for this side of the mountain. It is a pleasant-looking hamlet, situated at the mouth of a deep ravine; and we could see the establishment of Messrs. A. Harris & Co., who have been the original and principal agents in developing a very important item of our export trade. From here to Hilo, we sailed close along the coast, so near, that we had a very fine opportunity of seeing all its natural and varying beauties. Most prominent of these were the numerous waterfalls or cascades, of which we counted upwards of twenty, varying much in height, volume, and appearance, and yet each possessing a beauty peculiar to itself. The faces of the bluffs were covered with verdure, while the grass on the table lands above was a soft, delicate, shade of green, while here and there we had glimpses of pretty vallies and distant forests, groves of trees and comfortable-looking houses of the natives, all very different from the approaches to other cities of the kingdom. At 4h. p.m. we anchored in Hilo or Byron's Bay. It may be mentioned here that for the last few hours before arriving at Hilo, the coal was changed, and with *very perceptible* improvement, and had the soft English coal which had been tried during this day, been used the whole trip, there would have been a saving of several hours on the passage. The experiment was so successful, that we understand the owners intend using the soft coal with the American hard coal.

Hilo, viewed from the harbour, presents much the same tropical appearance of any port of the islands, and as a panoramic view, it is not surpassed in beauty and grandeur of scenery by any other spot in the kingdom. There is a luxuriousness and freshness in the vegetation, a living green in the verdure and foliage, that combine to present an almost perfect picture. The crescent sweep of the bay, ending with the cluster of cocoanuts on the island, the towering heights of Mauna Kea behind, the majestic dome of Mauna Loa, all help to form a landscape-scene seldom equalled.

One of the finest traits among the foreign residents of these islands is that of the open-handed hospitality, which everywhere prevails, and we were soon made to realize that our friends of Hilo formed no exception to this general rule, and a short time found our whole com-

pany most kindly provided for among the different families of the town, for there are no hotels in Hilo. We must mention *one* luxury that we enjoyed, as fully, more so, than ever before in these islands—a bath—none of your small bathing *tubs*, no mere sprinkling bath, but a rush of waters, soft and sweet as ever fell from the clouds, and such only the Wailuku basin can give. *That bath!*

The next morning was all bustle and excitement, for there were twenty or thirty horses to be *hired*, and thrice that number to be let, many of which 'twere best to let alone. While they were gathering, we took a quiet stroll, and passed over the cable Suspension Bridge, over the Wailuku, the one built to replace that which fell last fall. This bridge seems to be firm, strong, and well-secured, and does credit to those concerned in its construction, especially so, as it was an experimental undertaking. Having selected our horses and mules, hired our calabash bearers, with their calabashes in which we stowed our clothing and provender, and which are better calculated than anything else for travelling with in this section of the country, at ten o'clock, a.m., we started for the volcano, rather a motly crowd, to be sure, but all in good spirits.

In passing through Hilo, one cannot fail to observe how luxuriantly everything grows, and how very rich the soil is. Our road led us through the centre of the town, and the pretty cottages were the subject of remark, all shaded more or less by trees and vines, and all looking neat and attractive, indicating thrift and comfort. An hour's ride over ground, more or less cultivated, brought us to the woods, and we entered at once a dense jungle, and moss of under-growth. The pathway was nearly obstructed by the weed *oi*, or joi, as it is sometimes called, which is only a nuisance, as it kills out almost everything else, and is of no manner of use. We had never seen it grow so rank as here, forming quite a woody stem. On either hand stood the trees of the forest, and we soon noticed a peculiarity about them, new to us. We did not see two trees having branches two feet thick. Most of them had but few branches near the ground, and those thrown out high up were small, presenting a scraggy appearance. The trunks, too, were covered with moss and parasitic plants, and looked as if suffering from premature decay. There was not that healthy look about the growth which makes an American forest so attractive. A very heavy undergrowth of ferns, ti plant, pandanus, &c., gave evidence of the richness of the soil beneath. The ohia-kalehua was in blossom, and more gorgeous colouring was never seen on trees than these scarlet flowers made.

The road through the woods was very good, and two hours from starting we emerged on the edge of the Lake of Ferns—such we would designate the vast fields of fern leaves that were spread out before us. For miles on either side there was nothing but the pulu-bearing ferns, intermingled with the bright green leaf of the ki plant. Far off on the left the Puna mountains could be seen, then the line of forest, encircling at the distance of several miles their Lake of Ferns. A government road has been laid out through this fern field, and for

miles is as straight as it could be made, and a more weary, monotonous, tiresome ride to a pleasure-seeker there is none than the road to the volcano. To the manufacturer of *okolehao* this might be the most attractive part of the journey, for there is *ti-root* enough here to manufacture liquor sufficient to kill off the whole population of the kingdom. Two hours' ride through this fern field brought us once more to the signs of habitation and civilization—a house, and more especially attractive, a rose bush in bloom, whose old familiar look was very cheering, and came to us like speaking a ship at sea, reminding us of friends and flowers far away. We passed the village of Olaa, which is quite a little settlement, and looks in good condition. The ferns and bushes have been cleared off from quite a large tract of ground, and the grass allowed to grow up, which gives the place the appearance of an oasis in this pulu desert. Rev. Mr. Coan of Hilo has a station here, and was holding service as we passed. His influence over the people may be judged from the fact that some of our party on their return to this place on Sunday, p.m., could not get the people to kill a fowl for them for supper, as it was tabu day.

A few miles further, we were overtaken by a rain storm, during which we arrived at the half-way house; and never was the half-way better appreciated. It had been raining for some time, and all were more or less wet and tired. The house soon presented the appearance of a Gipsy's camp, some crouching over the fire which burned in the house and verandah, others busy in getting supper ready, others lying about on the mats, but all making as much comfort out of our circumstances as possible. A warm supper, a cup of tea, eaten as best we could, some standing, some lying down, invigorated us all; and soon places for the night were taken, the ladies occupying a raised form covered with mats, the gentlemen on mats spread on the floor.

The night passed, and morning came; and with it an early breakfast, and we mounted. Our way was now over a rocky road, that seemed very trying to the feet of the horses, and it was with difficulty that they could travel it. Every horse ought to be shod to come this journey. There was but one, however, in the whole company that was shod. The natives do not seem to care what becomes of their horses if they can only let them and get them started. We hurried on at as rapid a pace as possible, there being here very little to attract attention. The pulu fern increased in rise as we ascended, and we saw, here and there, stacks of wet pulu gathered to dry. This business has opened quite a mine of wealth to the natives, for a long time unknown, which we hope may continue for years to come. A short distance, half a mile perhaps, before we reached the crater, the character of the ground changed, from the hard *pahoehoe*, over which we had made such slow headway, to a soil of loam and volcanic sand, over which our foot-sore beasts cantered with more life than we thought they possessed. A fine grove of young *koa* trees marks the line of distinction. It is said that probably the outline of the crater once extended as far, but ages have caused the soil to collect and the distinctive lines to disappear.

The approach to the crater is so different from all preconceived ideas, and so from what we are apt to imagine, from the pictures we see of volcanoes, that the first feeling of a stranger is one of disappointment as the bank is gained, and instead of looking up a cone, you look *down into an immense pit*, several miles in circumference. We stood on that bank, and it was with varied expressions that each gave vent to their feelings. But with all it was one of wonder, astonishment, and awe. At our feet, but far below us, appeared the black surface of a congealed lake, rough and rugged. In different places we could see long lines of rocks piled on rocks, with here and there chasms that looked like mouths of the fiery pit below, while in the furthest part from us we could see the sulphurous smoke as it rose over the boiling lake, and was driven before the wind. Not a green thing met the eye; it was the blackness and barrenness of desolation.

After partaking of some refreshments, and our party having all come up, we prepared to descend the crater to the liquid lake, each person provided with a long stick for trying the lava, and as a help in walking. The word was given, and we fell into line behind our guide, and commenced the descent of the precipice to the floor of the crater. This descent we found quite easy, though very precipitous. The cliff, from the floor to the brow, must be near 800 feet, and nearly perpendicular, but the path zigzags down its face, and is comparatively easy of descent. The *ascent* on our return we found *extremely fatiguing*, and were half an hour in accomplishing it, with much labour and toil. On reaching the floor of the crater, we struck across it in a south-westerly direction, for the chief point of attraction, the molten burning lake. The rocky surface on which we walked, gave evidence at every step, of the mighty power that was pent up beneath our feet, for it was riven and cracked, and thrown into all sorts of shapes. In some places we could see the white steam escaping; others into which we gazed were deep and fearful to look into, while many we could step over as we pursued our way. There is a singular pile of rocks, or a rocky ledge, extending for half or three-quarters of a mile across this plain, between which we passed. Among them was one immense rock, which bears some resemblance to the human face, and to which one of our party, who had visited the Sphynx in Egypt, called our attention. It was named the Sphynx rock.

This part of the floor of the crater must have remained undisturbed by any flow of lava for many years, as we found ferns and mosses growing in the crevices of the rocks; but the innumerable fissures show that the earthquake often shakes the bed, and makes this not the safest place to be found for a night's rest, as there is no knowing at what moment Pele may shake herself. The rocks over which we were passing often gave back a hollow sound to our sticks as we thumped our way along, indicating that the foundation could not be relied on. We were obliged to deviate some from the old path, on account of a recent flow, yet warm, and which looked as if but just poured out. It was of inky blackness, and glistened and shone in the

rays of the sun. This warm flow we passed safely over, stopping a few moments to visit what was a blowing cone, covered with beautiful specimens of lava which had been blown up, and were yet heated. A few steps further, and we stood on the brink of the molten lake. And here the pen fails to convey what the mind fails to comprehend, and describe a scene of fearful, terrible sublimity,—a vast pit, a thousand feet in circumference, with black walls forty feet high, rising perpendicularly, and at the bottom, a mass of ever-moving, ever-heaving molten lava; now crusted over with a thin crust which was cooled by the atmosphere, now swelling and bursting through the crust, throwing up a mass of red hot lava, spouting and beating tumultuously; now pressing one way, now another, surging against the sides, to be dashed back again into the ever-moving mass; seams opening, showing the lurid mass beneath. This sight was awfully grand. The mind was forced back on itself, and probably none of the party that stood and gazed and wondered, but felt constrained to compare the terrible sight before us with *that* lake whose fire burneth for ever and ever.

There has evidently been a very great change in the whole character and appearance of this crater since it was visited by Mr. Stewart in 1825. Its action must have then been much more general and extended throughout the whole floor of the crater, whereas the only part now active is the small lake in the south-western part. There is something strangely fascinating in lingering near this mighty display of creative power, and many persons expose themselves to danger in the excitement of procuring good points for a view, or specimens as mementoes of the visit. And some of our party who seemed a little timid in approaching it were the last who cared to leave. We were much surprised to find or see a mass of lava like an island in the molten lake. It may have been thrown up by the action of the volcano, or it may be a mass detached from the side of the cliff and fallen in. It forms quite a striking feature of the lake, and the question of how it withstands the action of the molten mass that washes its base is an interesting one. At our right was a steam escape, which at short intervals emitted a loud protracted blast, like a high pressure steamboat. Madame Pele might have been giving the usual steamboat salutations to the gentleman who was now first visiting her dominions, for christening his fine steamer after her residence, *Kilauea*.

It is impossible to do proper justice to this wonderful exhibition of Nature's God. Truly, "with God is terrible mystery." Let any one come and stand where we stood, and they will acknowledge the inefficiency of language to describe the scene. Our return was by the same path by which we came, and we arrived at the house, much fatigued, but well satisfied. Travellers in going down to the lake should carry a good supply of cool water. Some of the members of our party, not being satisfied with a daylight view, descended again in the evening, and passed the night in the crater. They describe the island as having moved, showing it is not connected below; while the beauty of the fires are seen to much better advantage.

On reaching the hut, we found Mai Kuna, the major domo, had

dinner ready; and it was soon being discussed with a hearty relish, and the best of sauce—a good appetite. As the sun sank in the west the clouds that had been hanging over the mountains cleared away, and we had fine views of Mauna Loa and Mauna Kea. These giants are very dissimilar in their outlines, Mauna Loa presenting a smooth dome-like surface, while Mauna Kea's peaks seem to pierce the skies. As night gathered around us there was no little amusement in getting ourselves properly arranged. The house was 12 feet by 18 feet, and there were seventeen white persons and about twenty natives seeking accommodation. The latter, however, took possession of the verandah. We each at last got our due proportion of the floor, for there was not an article else in the hut but the mats that had been laid down for us to sleep upon. It was, however, one thing to lay down, and another to get to sleep, for we found that there were other occupants before us, and they were disinclined to yield their ground. That was an uneasy night, sometimes we started up to see the very brilliant fire-cloud that hung illuminated over the lake. Again, there was a native stealing our water, a precious article just now; but this was a false alarm. There was no one but welcomed the approach of day. At 6h. a.m. part of our party were off, and rode through to Hilo, arriving at 8h. 12m. p.m., the others rode to the halfway house, and to Hilo the next morning.

We left Hilo that evening regretting we had not more opportunity for viewing its beauties more thoroughly, and deeply mindful of the hospitality of the residents, to whom the whole company were under many obligations. After a good night's run, the steamer touched at Honoipu, and took off passengers and freight; also at Captain Makee's Landing, arriving at Lahaina the same evening, and Honolulu the next morning.

The steamer was absent seven and a half days, four of which she was at anchor at Hilo. A more comfortable convenient boat and more gentlemanly and attentive officers we could not wish to travel with. If you doubt it go and see for yourselves.

Dartmouth Harbour Improvements.

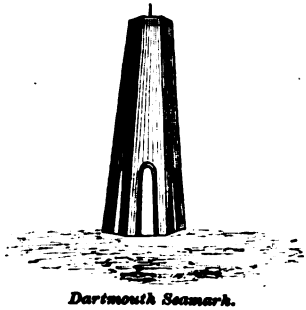
We congratulate the inhabitants of Dartmouth on the completion of their useful sea mark for enabling our mariners to recognize the entrance of their harbour. We learn that it has been distinctly seen from the sea at a distance of above thirty miles; and therefore, as it is not only valuable as a harbour mark, but also as a useful beacon for ships navigating that part of the English Channel within its view, the sooner it is inserted in our charts the better,—and this, we hope, will meet the attention of the Admiralty and the Trinity Board.

The "Pin Rock" having been removed by blasting, is another important matter, information of which should be circulated far and

wide; for although a report has reached us of the fact from a private source, we have as yet seen no official statement of it.

A description of the leading lights for entering Dartmouth Harbour appeared in our December number of last year (pages 684–5). But in dealing with a channel of not more than a cable across, like the entrance of Dartmouth, it appears to us that the distance between the upper and lower lights (namely 110 feet) is not sufficient to show readily when a vessel is not in the line of those lights; and therefore that distance should be increased to at least double. This we found, on our visit to the spot, may easily be effected, the edge of low water being at the required distance from the upper light, and admitting of the necessary staging for the lower one.

The difficulty of keeping two lights accurately in a line when so near each other as they now are is well known to the practical seaman, and in this instance the importance of these lights being well apart, in such a narrow entrance as abovementioned, must be especially evident,—for fractions of points in compass bearings are but poor guides in such cases as that before us.



Dartmouth Seamark.

Referring to the sea-mark abovementioned, having taken an opportunity of visiting it, we annex a sketch for the mariner's information, and had the satisfaction of finding it to be a good strong octagonal open tower of masonry, thirty feet across at the base, built of durable stone, and rising to the height of eighty feet above the ground. It stands most conspicuous towards the sea, on the summit of a hill which is said to be 500 feet above the sea level, and towards the sea the ground has a considerable slope, thus enabling it to be seen in all directions from the southward. In fact, although it is said to have been seen at the distance of thirty miles, we have little doubt of its being visible much further off. To vessels making for Dartmouth it is all that they could desire, whether from East or West.

Considering the construction of this tower, the removal of the Pin Rock by blasting, the leading lights for the entrance of the harbour, and the landing pier for the railway, as well as the steam ferry, we cannot but express our admiration of the noble exertions of the people of Dartmouth in their endeavours to bring their harbour into notice. Such exertions are most praiseworthy, even as such works must contribute to the general commerce of the country,—in which point of view they might have looked very reasonably for assistance from the Trinity House. On the East coast the mercantile harbour of Harwich, Yarmouth Roads, and other places, obtain favours which seem to be denied to Dartmouth. At those places the channel of the leading lights, or the positions of the sands, are no sooner changed by the sea, than the Trinity House busies itself in

rectifying them on the chart, and not only that, but in immediately publishing an account of the alterations. This is really the duty of the Trinity Board, and those, as well as other favoured places on our much frequented eastern coast, are only receiving their due.

But why, we would ask, is Dartmouth to be left unassisted? Dartmouth has as good a mercantile harbour as Harwich, and, happily, is much easier to get in and out of; and fortunately, too, Dartmouth has deep water, with a channel not so liable to change as that of Harwich. Is it on this account that Dartmouth is left to take care of itself, to improve its own port, and to publish its own improvements afterwards, for the benefit of navigation?

Such exclusion from participating in the general care of the Trinity House is not fair to Dartmouth, which can find ample room for two of our line-of-battle ships—forming the nursery of our naval officers—without interfering with the working room of her snug little harbour.

A short time ago we pointed out the advantages of Dartmouth as a port of call for the mails, and those advantages have been crowned with the improved accessibility of her port, that must hereafter contribute to enlarge its commercial resources: to which the intended gridiron for the repairs of vessels will also form another important addition.

Deep Soundings of the Atlantic.

Of the several accounts of deep sea soundings that have appeared in the pages of the *Nautical*, those obtained by the *Bulldog*, Captain Sir L. M'Clintock, being the last, may be considered unexceptionable for accuracy. The following remarks on this subject are by one of her officers:—

In the deep sea soundings, a small line and heavy weight were found to be best adapted for determining the depths *accurately*, as with these the surest indications of the weight having reached the bottom were obtained. With a large line—deep sea line, for instance—it was found exceedingly difficult to ascertain when the lead was at the bottom. Cod line was, therefore, invariably used for the purpose, with weights as follow:—In depths under 150 or 200 fathoms, with a 28lbs. lead; beyond 200 or 300 and up to 800 or 1,000 fathoms, with a 56lbs. lead; and in all greater depths with an iron sinker of 118lbs. weight.

The cod line was supplied from the manufacturers on small wooden reels, containing 1,000 fathoms each; and to prevent the inconvenience of bending one line to another whilst sounding, was usually transferred to a larger, but very light, reel in one length of 2,500 fathoms.

The method of ascertaining the depths was as follows:—The line was eased down for the first hundred fathoms, and then allowed to run off the reel unchecked. The times occupied by the running out

of each successive hundred fathoms were noted, and the rate, as might be expected, was observed to decrease *gradually* as the weight descended. When a *marked* decrease in the rate occurred the weight was known to have reached the bottom; and, under favourable circumstances, the line almost ceased to run out after this happened. Usually, it was also quite possible, by allowing the line to run loosely through the hand, and exercising great care, to *feel* when the bottom was reached. It was, however, the invariable custom, after the weight was known to be down, to allow the line to run out to the next mark, so that the *time* noted should prove the fact. The slack line was then hauled in, and the depth taken when the line was quite tort, and up and down.

The line was then hove in slowly by the deck engine; but it very seldom happened that more than a few hundred fathoms were recovered, so that the weight and most of the line were sacrificed upon each occasion. Once, however, the iron sinker, of 118lbs. weight, was brought up from a depth of 1,913 fathoms.

For bringing up a specimen of the bottom a special apparatus, had, of course, to be employed; and it required a strong line to bear the heavy strain put upon it whilst being hove in with the engine. Deep sea line was ordinarily used for this purpose; but when the ship had much pitching motion, the tapered whale line alone possessed the requisite strength.

In all the deep sea soundings obtained by the *Bulldog* two distinct operations were, therefore, performed: one for determining the depth, and the other for bringing up the bottom.

It may be well also to add that in addition to the uncertainty of obtaining the depth accurately with a large line, the difficulty was rendered greater by the circumstance of the sounding machines being furnished with detaching weights, which released themselves the moment they touched the bottom.

The time occupied by procuring a specimen of the bottom was usually about three hours; during which long period it was necessary to keep the ship over the line, and this was frequently attended with great difficulty. It was ordinarily effected by keeping her head to wind by means of the driver, and occasionally turning the paddle-wheels very slowly. When blowing fresh, the main topsail set aback, and braced about as required to assist the driver, was found very useful. It also tended to keep the ship astern, so that the paddle-wheels could be moved sufficiently to give effect to the rudder.

In this, as in every matter connected with deep sea sounding, the utmost care is necessary in order to obtain complete success; and without it the labour is worse than useless.

The Naval Fetes.

Why the summer of 1865 happens to have been selected for that happy interchange of the friendly visits of the respective squadrons of France and England may be gathered from an extract of the *Moniteur*, (since that is considered as an official publication,) which says, on the 16th of August,—The British squadron has arrived in Cherbourg to join with our sailors in celebrating the name day of the Emperor. In return, the French squadron will visit England. Everyone knows how the two countries were led to this exchange of visits. It had been rumoured that some vessels of the imperial navy would this year make an excursion in the Channel and German Ocean, on which several towns on the English coast solicited the favour of a visit from our flag. But this step having led to diplomatic communications, the two cabinets made arrangements for reciprocal visits of their fleets in the course of the season. England desired that her squadron should be present on the 15th of August in Cherbourg, and France must congratulate herself on the sentiments of friendship and courtesy which dictated this wish on the part of the British government.

Accordingly the British squadron has visited Cherbourg, and we shall endeavour as far as our limited space allows to preserve a record of the event from the full accounts that have already appeared of it.

Cherbourg was ready, indeed well prepared for its visitors, and right well Cherbourg did all that could be desired. On the day of arrival, one account says, the wind was off the shore, and the waves were consequently not high, but the breeze was sufficiently stiff to necessitate a reef in the foresails of large and well built boats, and when, from time to time, it became necessary to change the tack in beating to and fro whilst awaiting the arrival of the fleet, many a sea was shipped, which at the same time wet the jackets and damped the spirits of the venturous landsfolk who, in the pursuit of pleasure, had braved the perils of the deep. But in truth it was by no means necessary to risk a ducking in order to view the pageant of yesterday. In a previous letter I spoke of a hill, surmounted by a fort, at the rear of the town, which commands a view not only of the roadstead, but of the sea beyond. And I should say that those who took up their position at this point obtained a more comprehensive, though a more distant *coup d'œil* than those who lay in wait in the waters of the port for the approaching fleet. Not only was this hill crowded, but also the various forts and bastions which on both sides of the port overlook the roads; whilst many, very anxious to see the fleet as it neared Cherbourg from the Channel, betook themselves in boats of all kinds to the breakwater, which stretching almost from point to point of the opposite promontories of *Le Roule* and *La Fauconnière*, creates the gigantic harbour which serves for the protection of the French fleet; and it must be confessed that even before the arrival of the fleet the roadstead presented a very pretty appearance. Anchored nearly in middle, but rather nearer to the eastern entrance, lay the *Magenta*, her

superior size, but more especially her singularly shaped prow, sweeping forwards and downwards into the massive *eperon*, which lay hid beneath the waves, rendering her easily distinguishable from her consorts, the *Flandre* and the *Heroine*, which, as she swung to the ebbing tide, lay respectively on her starboard and port quarter. Still further to the eastward rose high out of the water the old sailing line-of-battle ship *La Forte*, which now serves the purpose of a naval school, and here and there one distinguished the ensigns of the despatch boats and transports, which, together with the iron-clads, at present represent the French navy at Cherbourg. It was not, however, to any of these vessels that the roadstead was indebted for the gay appearance which it presented. Crowded with yachts, for the most part English, and thickly covered with sailing craft from almost every port in the Channel, dressed in the many coloured flags which on other occasions serve the mere useful purpose of signals, the general effect was pleasing in the extreme. The sun shone brightly, and as the cutters danced over the waves, the time, which might otherwise have seemed to lag, passed quickly enough whilst awaiting the arrival of the much expected fleet.

In the van came the *Osborne* and the *Enchantress*, the former carrying on board the Lords of the Admiralty, the flag of that department flying from the main of the royal yacht, and in their wake followed the flag-ship *Edgar* and the rest of the fleet.

The breakwater marks at each extremity an entrance to the port, and through the western passage it was arranged that the English fleet should steam into the roadstead. Coming from a point almost due North, the fleet bore down on the fort which marks the middle or elbow of the breakwater, and then, skirting its western half, doubled the fort, in which it terminates on that side, and entered the harbour in single file. First to round the point, at a few minutes past five o'clock, was the *Osborne*, whilst at the same moment a salute was fired by the guns of the fort. Immediately afterwards followed the *Enchantress*, and then, slowly wheeling round, came the *Edgar*, her lofty masts visible high above the fort. Steadily and majestically she steamed in, her sides and poop towering far out of the water, and the two broad white stripes which mark her tiers of guns, broken at intervals by the port-holes, through which peeped the cannon ready to return the compliment she was about to receive. As she passed the end of the breakwater the *Magenta* fired a salute of 11 guns, which was immediately returned by the English admiral's ship with one of nineteen guns. These compliments having been exchanged, the *Edgar* slowly steamed up the roadstead to her appointed moorings midway between the *Magenta* and the shore, and astern of the Admiralty yacht, which had by that time dropped her anchor.

In the wake of the flag-ship came a vessel the singularity of whose appearance struck with surprise all who saw her for the first time. Broad out of all proportion to her length, with a bow so flat as scarcely to deserve the name, with sides raised to all appearance but a few feet above the water, and unpierced by any port-holes,—a deck covered from stem to stern, except at one point where a steam funnel raised

its head, with four cistern-shaped objects not unlike small gasometers, —the *Royal Sovereign* presented an object as ugly and as *outré* as any naval architect ever called into existence since the world began. If Rear-Admiral Dacres was desirous of striking a contrast, and by this means showing to the best advantage the graceful ship which carries his flag, he could not have done it more effectually than by interposing this great iron barge between the *Edgar* and the armour-clad frigates which brought up the rear.

Following each other at about quarter-mile distance, the English iron-clads then entered the harbour. First came the *Black Prince*, then the *Hector*, the *Defence*, the *Prince Consort*, and the *Achilles*. Varying in size and in the strength of their armaments, these vessels presented a fair sample of one of those new fleets with which modern science has superseded the bulky wooden built navies, of which the flag-ship was the representative. Not rising out of the water to the height of the old two-decker, presenting a smaller object for an enemy's guns, the English vessels appeared to be all that the most exacting of naval engineers at the present day could have desired. The graceful lines which marked the fast steaming frigates which they have replaced have not perhaps been preserved, but even those most prejudiced against the form of the new ships cannot say that beauty has been entirely sacrificed. Strong and massive, their very solidity creates a special charm which was wanting in their wooden rivals, and the eye quickly becomes accustomed to what now appear to be departures from the hitherto recognised canons of taste. It was not over easy, whilst making their way to their moorings, to draw a comparison between them and the French armour-plated vessels; it may, however, suffice to say that the admiral's ship, the *Magenta*, is larger and carries a heavier armament than the *Black Prince*, which is the principal of the English iron-clads. The steam-frigate *Constance*, and the three despatch-boats, the *Victoria*, *Salamis*, and *Trinculo*, were the last to pass inside the breakwater.

I have this moment learned that the English fleet was compelled to cross the Channel in the teeth of a heavy gale. The breeze, which, under the lee of the hills which shelter Cherbourg from the south, seemed tolerably stiff, was in the Channel a perfect tempest. The squadron left Portland Roads at seven o'clock on Sunday evening, in the expectation of entering Cherbourg early on the following morning, but even before it left its anchorage the constantly recurring squalls from the south-west augured a dirty night. The fleet had scarcely gained the open sea when the gale burst forth in all its fury, and some apprehensions were entertained lest it should have been found necessary to return to port. In the course of the night the *Salamis*, which, on account of her superior speed, was compelled to employ only half of her available steam power, carried away her foretopsail-yard, and the *Liverpool*, a screw frigate of thirty-nine guns, having been fouled by the *Octavia*, was signalled to proceed to Portsmouth. What other casualties may have happened I have not been able to learn; but however unfortunate it may have been in one respect that the fleet should have encountered such tempestuous weather, no better opportunity

could have been afforded for testing the sea-going qualities of the iron-clads, and especially the new cupola ship, the *Royal Sovereign*. That the latter should have succeeded, not merely in weathering such a gale as that to which she was exposed on Sunday night and Monday, but should have been enabled to have steamed against it and reach her destination in as good trim as the other vessels composing the fleet, is in itself matter for congratulation. In the *Royal Sovereign*, as in the American monitors, sea-going qualities have to a great extent been sacrificed in order to secure what, it is believed, will prove to be an impregnable floating battery. Of course, for whatever purpose a vessel of this class may be designed, it must at all events be tolerably seaworthy, and the difficulty that naval architects have hitherto experienced has been in drawing the line so as to avoid sacrificing the vessel to the fury of a gale in their anxiety to make it invulnerable to the attacks of man. The cupola ship of Captain Coles has now experienced as heavy weather as any to which it will probably again be exposed, and the apprehensions that were entertained that it could only be made available for the protection of our own ports may now be considered as set at rest.

In the evening the English admiral entertained on board the flag-ship at dinner the captains of the several vessels composing the fleet, and this evening the Prefect Maritime of Cherbourg will give a banquet to the Lords of the Admiralty and the principal officers of the English fleet.

In reference to the whole visit, which was to terminate on the 18th of August, it is said there is less connection here than might be supposed between the fleets and the fêtes. There are illuminations every night, and the ships see the illuminations of the town, while the town sees the illumination of the ships. But in the "nautical jousts," international boat races, and amusements mentioned in the municipal programme, the ships do not seem to take any part. There were some boat races to-day in front of the Casino, but they excited very little interest, and the English officers, for the most part, did not know that they were going on. The principal feature of the day has been the visiting of the ships by the public. All day long little steamers and sailing boats innumerable have been taking parties from the jetties and the quays to go on board the ships—the English ones principally. Most of the Cherbourg boatmen are drunk, in consequence of excitement and the quantity of money they are earning. Some of them come alongside the English ships in such a lubberly manner as to cause a good deal of confusion. There was a very bad accident to-day close to the jetty. In the narrow passage leading from the harbour to the landing quay, an English passenger steamboat ran foul of a pleasure boat very full of people. One of the paddle-wheels caught the boat and upset it, throwing all the passengers into the water. One officer told me that four people were drowned, and another said thirteen, but I am happy to say that according to the latest information in the town nobody was drowned at all. The party were all fished out alive; one lady was taken to the Hotel de l'Amirauté in a state which was thought alarming, but she ultimately recovered.

The very few sailors allowed to come on shore as a great treat are called "special leave-men"—being men upon whose good conduct when left to themselves the officers think they can implicitly rely. I continue to hear it said that it would "never do" to allow the sailors to go into the town in any great numbers.

At the banquet above alluded to, given to the Lords of the Admiralty, sentiments were mutually expressed well becoming the occasion of celebrating the first visit of this nature that has ever taken place. It is stated that at the banquet given here on the 15th of August to the Lords of the English Admiralty, M. Chasseloup Laubat, Minister of Marine, in his speech proposing the toast of "Her Majesty Queen Victoria and the British Navy," said the time of hostile rivalry between the two countries had passed away. There now only remained emulation in doing everything that could advance the cause of civilization and liberty. "Freedom of the seas, pacific contests in labour, and beneficent conquests achieved by commerce," said the Minister, "such is the signification of the union of the noble flags of England and France."

The Duke of Somerset, replying to the toast, thanked the Minister for the sentiments he had expressed, and continued:—"We accept the toast as a proof of the cordial friendship of the Emperor and the French nation for our Queen and country. We also on our part entertain the same sentiments of esteem for the Emperor of the French. We trust that his Majesty may long continue to enjoy his present good health. This we desire, not only because it is profitable for the welfare of the two countries, but also because it tends to guarantee the happiness and the pacific progress of Europe. In proposing the health of the Emperor, I wish to speak, not only in the name of the government or of any political party, but in the name of every enlightened Englishman."

A return visit of the French to Portsmouth is expected to take place in the latter end of August, the banquet on the 29th.

The Atlantic Cable.

Misfortune, it appears, is inseparable from our attempts to lay down an Atlantic Cable. Our adventurers in the scheme employ all the art they can command, improved with all the experience of former attempts; the cable is made, embarked—but to fail. Failure marks it at its outset, is remedied, follows it up, and when scarce two-thirds of it is in its place the crisis comes, the cable is broken, and the big ship, the *Great Eastern* herself, comes home with the remainder to tell her tale. We always thought that the former had trials enough, but that did reach the shore of Nefoundland, in spite of all difficulties, but only to live its brief life. Surely the weather was more unfavourable then than with the last, and yet this could not stand the test of the necessary strain. Query! was this strain really necessary? We cannot

stop to look into this now. The *Great Eastern* has told her own tale at great length, and we shall content ourselves with preserving here the final report which we shall precede with a statement of the telegrams as they arrived, announcing her progress, at the same time regretting, as we do, sincerely, that such progress, in which serious difficulties were overcome in a masterly manner, but to be terminated as the report makes them.

The friends of the enterprize will still rejoice in the cheering character assumed by the report, and we rejoice to see in it the prospect of an electric cable, and, no doubt, more than one still destined to take its place in the Atlantic.

Date.	*Time.*		*Paid Out.*	*Dist. Run.*	*Remarks.*
	a.m.	p.m.	Naut. Mls	Naut. Mls	
Sunday, 23rd . .		4.30			Ship leaves her station off Valentia. Electricians satisfied.
Monday, 24th. .		4.30		70 or 80	Want of insulation near shore end of cable.
Tuesday, 25th. .		4.30	lat. 52°	lon. 12°	Fault discovered and repaired. Paying out well.
Wednesday, 26th	6.59		150		Said at Valentia to be 150 miles from shore.
	9.50			150	
		3.0	200		
Thursday, 27th .	5.50		300		
	9.50			300	Signals perfect. All well.
		12.50	350		
		4.50		350	All well.
Friday, 28th . .	9.50			450	Signals perfect. Weather fine. All right.
	10.50		500		
		4.50	550		
Saturday, 29th .	6.50		650		
	8.50			600	Insulation lost. No information. Water deeper (2,400 fathoms).
		1.50	700		
Sunday, 30th . .	1.50				Fault repaired. Insulation perfect.
		4.15	750	650	
Monday, 31st. .	7.50			750	All going on well.
		1·50	900		
Tuesday, Aug. 1st	9·50			900	All going on well.
	10·50		1050		
Wednesday, 2nd .	6.50			1050	All going on well.
	7.50		1200		
					At Valentia, at 8h. p.m., signals from ship said to be unintelligible from noon. Cause unknown.
Thursday, 3rd .					At Valentia, 11.30 a.m., no information from ship. Cause unknown.

We first add the following official telegram from Mr. Varley to Mr. George Saward, Secretary and General Superintendent of the Atlantic Telegraph Company, forwarded to us yesterday afternoon. "Copy of telegram just received from Mr. Varley, on board *Great Eastern* steamship;"—

"Partial loss of insulation when seventy-four miles of cable paid out; depth, 500 fathoms; recovered ten and a half miles of cable, cut out fault, and started again next afternoon. Detention, thirty-eight hours.

"July 29.—Total loss of insulation when 708 miles paid out, picked up two and a quarter miles, cut out fault, and sailed same day; depth, 2,000 fathoms; detention, eighteen and three-quarter hours; insulation of submerged cable more than doubled, conductivity considerably increased.

"August 2.—Partial loss of insulation when 1,212 miles paid out, recovered two miles, depth, 1,950 fathoms; fault still overboard, when cable fouled hawser pipe and broke in consequence of damage sustained in clearing it thereform.

"August 3 to 11.—Moored two buoys; grappled four times for cable, and hooked it three times. On each occasion, after lifting it several hundred fathoms from the bottom, tackle broke close to bow of vessel; and the grappling rope being lost obliged to return.

"All entertain hopes that the lost end of the 1,200 miles can be recovered, and the line successfully completed to Newfoundland."

Return of the Great Eastern.

Crookhaven, August 17th.

The *Great Eastern* arrived off here this morning, and furnishes the following particulars of the operations for laying the Atlantic Telegraph cable, which, it will be seen, have failed:—

The *Great Eastern* sailed from Valentia, after making the splice with the shore end on the 23rd of July, and continued on her voyage to lat. 51° 25′, long. 39° 6′, being 1,063 miles from Valentia and 600 miles from Heart's Content, Trinity Bay, Newfoundland. She had then paid out 1,212 miles of cable, when it parted on the 2nd of August, at 12h. 35m. p.m., in soundings of 3,900 yards, under the following circumstances:—A partial loss of insulation having been discovered, the *Great Eastern* was stopped to recover that portion of the cable in which the fault lay, electrical tests placing it probably within six miles. The cable was passed from the stern to the bow of the ship for this purpose, and, after getting in two miles of cable, the fault being still overboard, the cable broke about ten yards in board of the wheel at the bow, having been injured by chafing on the stern of the ship. Two previous faults had been discovered, the first in soundings of about 1,000 yards and the second in about 4,100 yards, and had been successfully recovered and made good; in the first case ten miles, and in the second two miles and a half, of cable were hauled in. After the cable parted, a grapnel, with two and a half nautical miles of rope was lowered down, the ship being placed so as to drift over

the line of cable. The cable was hooked on the 3rd, and when 2,200 yards of the rope had been hauled in, a swivel in the latter gave way, and 2,800 yards of rope were lost, the cable having been lifted 1,200 yards from the bottom.

On the 4th a buoy, with a flag and ball, was moored with 500 yards [?] of rope, to mark the place. It is in lat. 51° 35′, long. 38° 42′ 30″. From the 4th the fogs and adverse winds prevented a further attempt until the 7th, which was then made nearer the end of the cable, and was unsuccessful from the same cause when the cable had been lifted about 1,000 yards. Another buoy was here placed, in lat. 51° 28′ 30″, long. 38° 56′ 9″.

A third attempt was made on the 10th, which failed on account of the grapnel chain having fouled the flukes of the grapnel. The grapnel and last 800 yards of rope came up covered with ooze. A fourth atttempt was made on the 11th, at 3h. p.m., which also failed through the breaking of the grapnel rope, when the cable had been raised 600 yards from the bottom.

The stock of rope having now become exhausted, it became absolutely necessary to proceed to England for more and stronger tackle.

The practical conclusions unanimously arrived at by those engaged in various capacities in the expedition are as follow:

1. That the steamship *Great Eastern*, from her size and consequent steadiness, together with the better control obtained over her by having both paddles and screw, render it possible and safe to lay an Atlantic telegraph cable in any weather.

2. That the paying-out machinery, constructed for the purpose by Messrs. S. Canning and Clifford, worked perfectly and can be confidently relied on.

3. That the insulation of the gutta percha covered conductor improved when submerged to more than double what it had been before starting, and has proved itself to be the best insulated cable ever manufactured, and many times higher than the standard required by the contract. The cause of the two faults which were recovered was in each case a perforation of the gutta percha through to the proper conductor by a piece of iron wire found sticking in the cable. Electrically the third fault was analogous to the first. The difficulty may be provided against in future.

4. That nothing has occurred to create the least doubt in the minds of those engaged in the expedition of the practicability of a successful laying and working of an Atlantic cable, but, on the contrary, their confidence has been largely increased by the experience obtained on this voyage.

5. That were the *Great Eastern* steamship supplied with sufficiently strong tackle and hauling-in machinery for depths of 4,000 to 5,000 yards, there is little or no doubt of the possibility of recovering the lost end of the cable, and completing the line, already about two-thirds laid.

The *Great Eastern* proceeds direct to Sheerness. All well on board.

She reports having parted company with H.M.S. *Sphynx* a few days after starting.

The weather was for the most part very calm, but often foggy and rainy. A stiff breeze blew on two days, but although the sea washed over the *Terrible*, scarcely any motion was observable on board the *Great Eastern*, her greatest roll being seven and a half degrees, and her greatest pitching one to one and a quarter degrees. The cable paid out beautifully, and owing to its diameter and lightness the strain required to prevent the too rapid egress never exceeded fourteen cwt. Its angle with the horizon during the paying-out rarely exceeded nine and a half degrees. No difficulty whatever was experienced in mooring the buoys in the deepest water, two having been left behind moored with pieces of cable that had been picked up from a depth of two miles. One of them rode out a stiff summer gale, its position after nine days being unchanged. Captain Moriarty's chronometers found the true position of the ship to within a fraction of a mile.

The *Terrible* has sailed for Newfoundland to coal.

[We have no more space left here than for the remark that the ONLY chance of recovering this cable is by beginning to take it up at Valentia.—ED.]

WRECKS OF BRITISH SHIPPING.

The present time has been prolific of wrecks, as usual, but more so in cases of fire. From among them we preserve the following account of the loss of the *Fiery Star* and *Glasgow*:—

The "Fiery Star."

The *Auckland Argus* contains a more graphic account than any which has yet appeared of the burning of this unfortunate vessel. Mr. Sargeant, the chief officer, who stood so gallantly by the ship, and who has arrived here by the steamer *Auckland*, has favoured us by correcting some errors which found a place in the report:—

The Black Ball line of packet ship, *Fiery Star*, has been totally destroyed by fire. The only survivors as yet heard of, numbering in all seventeen men, were brought here by the ship *Dauntless*, which arrived on the 15th of May. The *Fiery Star*, Captain W. H. Yule, of 1,360 tons register, left Moreton Bay for London, laden with wool, hides, and tallow, on the 1st of April. She was off the south end of New Zealand on the 11th of April. The fire was first discovered on the 19th, at 6h. p.m., in 46° 10′ S. and 170° W., when one of the crew, of the name of Adams, came aft, and reported a strong smell of smoke in the forcastle. The captain and chief officer, (Mr. Sargeant), on hearing this, went forward and found the smoke coming up in clouds from the lower hold. Every hatchway in the ship was immediately battened down, and the ventilation stopped as far as possible. They were at this time running free, and were about 400 miles from Chatham Islands. On the next day a steam-pump which was on board

was set to work on the hatchway, and several of the sails were cut down from aloft, to secure the hatches. The passengers were obliged to leave the cabin from the suffocating smell of gas emanating from the burning wool.

At 6h. p.m. the fire broke out on board, through the port bow and through the waterways on deck. The boats were immediately got out, and the captain, officers, passengers (with one exception), and most of the crew, got into the four boats—(we should here mention that two of the six boats belonging to the ship had been completely destroyed a few days previously by a heavy sea which struck them). Those in the boats took the chronometer, sextants, charts, and compasses with them. The chief officer, Mr. Sargeant, seeing that the four boats could not possibly hold all that were on board, gallantly volunteered to stand by the ship, and found only four able-bodied men to follow his noble example. He had also thirteen boys with him. Notwithstanding these discouraging circumstances, he at once set to work with a will that showed astonishing presence of mind. He divided his little gang, setting some to put provisions into the boats and others to attend to the steam-pump, as the ship was all in flames forward. He also collected what blankets and clothes he could to stop the holes made by the fire outside the ship and on deck. He then nailed boards over these to keep them air-tight. When the boats were got out, Mr. Sargeant asked them to lie by him during the night, but could not see them the next morning, the 21st of April. We have been unable to find out the exact number of those who left in the boats, but there were about seventy-eight souls in all. We will not speculate on the fate of these people; time will prove whether they were saved or not, but grave fears are entertained as to whether they could ever reach the Chatham Islands,* as the strong winds which rose shortly after were very unfavourable to their doing so, especially in the crowded and overladen state of the boats.

We shall not attempt to picture the feelings of those who were left on board when they found themselves deserted, without chart or compass on deck of a burning ship. Mr. Sargeant, finding himself in this difficult position, determined at all hazards to endeavour to get one from the cabin. The precaution was taken of fastening a rope round the men before allowing them to enter the cabin, but the first two fell insensible, overpowered by the noxious gases. He succeeded at last, however, in getting a compass, chart, &c., necessary for the navigation of the vessel. Some of the hands were at this time employed in preparing a raft, and others in endeavouring to keep down the fire. We shall give the record of how Mr. Sargeant managed to keep his burning ship afloat from the 19th of April to the 12th of May by short extracts taken from his log, which he kept on board. Indeed, too much credit cannot be given to Mr. Sargeant, who could sit quietly and write his log, with the fire beneath his feet, apparently no

* Then 400 miles distant. H.M.S. *Brisk* has been sent there for them, but it is feared that they have all perished.

hope of being saved from a death by either that or the sea. We will premise that during all this time neither he nor his crew had any protection from the wretched weather that they experienced:—

"*April 22nd.*—Light breezes and fine; the fire still raging. Repatched the hole over the side. I sent a man to the masthead to look out for ships. The raft ready for putting over.

23rd.—Ship under three lower topsails. Cut the deck in several places to get at the fire with the steam-pump, and got the fire under a great deal. We tried to get below to get coals for the steam-pump, but could not do so, on account of the smoke and gas below. We had to burn everything to feed the engine, even some of the fittings and the upper spars. Dark and gloomy at midnight.

24th.—Three feet of water in the ship, keeping the steam-pump at work, and pumping ship every two hours. The fire did not break out all night. In the afternoon took the fore-hatch off, and could not see any fire; but found the foremast very badly burned. The men could not stop below to get coals, on account of gas, so we had to fasten down the hatches again. Cut away the fore-topgallant sail and royal, and sent down the fore-topgallant and royal yards. Weather squally, with rain.

25th.—Strong breeze. Kept the fire still under. I kept the ship N.E.b.N., to get into the track of ships if possible. Everybody in good health.

26th.—Fine Weather. Fire broke out again. Set two pumps to work, one by steam and one by hand; three feet of water in the ship. managed to get the fire under. 39° 24′ S., 170° W.

27th.—Strong gale, with heavy passing squalls. Ship rolling heavily. Pumped the ship every two hours.

28th.—Wind more moderate. Pumping ship every two hours. A great deal of smoke and gas, but the fire still under.

29th.—Fine. Fire still under. I tried to get into the cabin, but could not, on account of the gas and steam; also tried to get the cables up, but found it impossible.

April 30th to *May 2nd.*—Pumping ship as usual. Took off fore hatch, to try to get coals, and found a great deal of steam and gas, but no smoke below; the men could not remain down more than two minutes. A great deal of the pitch coming out of the seams. Sent down several spars from aloft. 3rd.—Light breeze; cut up a studding-sail boom, to make sweeps for the raft. Still pumping water below, and pumping ship every two hours. 4th.—Sighted two islands, supposed to be Mercury and Cuvier; wore ship, and stood to the eastward; cut a hole in the deck and got hawsers up, not able to get cable; the ship labouring heavily under three lower topsails. Pumping ship every two hours, and pumping water on the fire; heavy squalls and rain at midnight. 5th.—Course E.N.E.; strong gale continuing; ship making a great deal of water; wore to S.S.W. Thunder and lightning in the evening, and the ship labouring heavily. 7th.—N.N.W.; gale continuing; shipping a great deal of water. 8th.—N.N.W., gale, ship labouring heavily, fire still under. 9th.—N.W.b.W,

gale, with heavy head sea, and ship plunging very much. Took off fore hatch again, to get coal; but could not stop below. 10th and 11th.—Strong gale in the morning from the northward; made the land at 5h. p.m., bearing W.S.W., at about twenty-six miles distance. At 10h. p.m., a ship in sight on the lee bow; kept the ship off; fired guns and rockets, and showed blue lights; spoke her, and she proved to be the *Dauntless*, Captain Moore, from Dublin."

For the remainder of the description we quote from Captain Moore's log:—"On May 11th, lat. 37° 5′ S., and 175° 42′ E. long., my attention was drawn to the report from cannon and the flashing of rockets. I answered by firing rockets and showing blue lights. I hove the ship to, and the vessel came within speaking distance. She was on fire. The chief officer, Mr. Sargeant, spoke us, and told us the vessel was the *Fiery Star*, from Moreton Bay to London, with tallow, hides, and wool; she had then been on fire twenty-one days. Mr. Sargeant asked me to send off a boat. I lowered two boats, and found Mr. Sargeant and seventeen hands on board; the captain, purser, second mate, passengers, and part of the crew having left her three weeks before, taking all the boats, and leaving the first mate to his fate. The *Fiery Star* was in a bad state, the foremast being nearly burnt through. I offered him every assistance. I advised Mr. Sargeant to stick to her, and I would lie by him till morning, as there might be a chance of getting into harbour with a fair wind. I left one of my lifeboats with her. Next morning I sent off my second officer and purser. The fire was then getting worse. Mr. Sargeant decided to leave the ship, but wished me to come aboard to give my opinion before doing so. At 10h. a.m. I saw the fire was getting much worse, and I therefore thought the best and only thing was to desert her. We saved what stores we could. Mr. Sargeant had done all that man could do to save her, and I consider that every praise is due to him. After getting everything we could out, we finally left her at 4h. p.m. She was then all in flames. I stood by her till 10h. 30m. p.m., when she went down."

We find by the New Zealand *Southern Cross* that the gallant conduct of Mr. Sargeant and the crew in sticking by the ship has been acknowledged by the merchants of Auckland, who subscribed £160 as a testimonial to them; £80 was presented to Mr. Sargeant, and the remainder was divided amongst the men. We are sorry to say that Captain Thomas Moore, of the *Dauntless*, who was instrumental in rescuing the crew of the *Fiery Star* from their perilous position, died from intermittent fever on Monday night, the 29th of May, and was buried yesterday. His decease caused much regret, owing to his name having been so inseparably connected with the humane deliverance of the crew of the burning ship.

The Burning of the steamship "Glasgow."

The following are the particulars received in Liverpool respecting the burning of the Inman Company's steamer *Glasgow*, Captain Manning. The *Glasgow* left New York on Sunday morning July 30th, for the Mersey, with a large cargo, consisting of cotton and cheese, and

250 people. All went well until 10h. a.m. on the 31st, when a cry was sounded of a man being overboard. A boat was lowered, but all efforts to save him were unavailable. He had come on board at New York in a state of *delirium tremens*, and had been put in a strait jacket by the surgeon. Thus confined he rolled himself overboard. The excitement caused by this event had scarcely ceased when the cry of "Fire, fire," sounded from all parts of the ship. All on board were at once on deck, the second-cabin passengers running aft in the wildest confusion. Orders were at once given that no person should get into the boats without permission, and that any man attempting to get into a boat before all the women and children were provided for would be hauled out and shot. This order was at once acquiesced in; and in the meantime every effort was being made to get the flames under. At about noon a vessel was sighted about eight miles off, and the *Glasgow* was at once put under a full head of steam towards her, at the same time firing guns and displaying signals of distress. The strange ship soon changed her course and made for the *Glasgow*. In the meantime the boats were lowered, and the transmission of the passengers to the boats at once commenced. The women and children preceded the male passengers, the officers and crew following. The strange vessel was soon within hailing distance, and she proved to be the *Rosamond*, Captain Wallis, bound to New York. After all the passengers had been transferred, the crew and officers, together with all the baggage, ship's plate, &c., joined the barque, Captain Manning remaining by the *Glasgow* until it was no longer possible to stay on board. On the 2nd the National Steamship Company's steamer *Erin* hove in sight at daybreak, and, being signalled by the *Rosamond*, came alongside and took off the passengers belonging to the *Glasgow*. It is believed that the fire originated in consequence of one of the strange passengers throwing a fusee, after lighting his pipe, into one of the foreholds, where the cotton was stowed. The captain of the *Erin* states that previous to sighting the *Rosamond* he fell in with the hull of the *Glasgow*, which was then in tow of the brig *Martha Washington*, of Seaport, bound from Boston to New York.

Casualty Reports.

The Loss of the Ship "Empire."

At a Naval Court of Inquiry into the circumstances connected with the loss of the ship *Empire*, of Liverpool, official number 50,261, William Borlase, Commander, held at the British Consulate Office, New York, on the 11th and 12th of July, 1865: Present—E. M. Archibald Esq., C.B., Her Britannic Majesty's Consul, President; John Mirehouse, Commander of the *City of Baltimore*, screw-steamer; Thomas Fleetwood Roskell, Commander of the *Edinburgh*, screw-steamer; and Thomas Charles Jones, Commander of the *City of*

Limerick, screw-steamer; the said William Borlase being also in attendance:—

After hearing the evidence of the chief and second mates, and one of the able seamen of the ship, and also the statement of the said William Borlase, on examination of the coast chart, and on full consideration, the Court is unanimously of opinion—First. That the *Empire* proceeded to sea on the voyage on which she was stranded and abandoned without being properly equipped in regard to boats, kedges, and hawsers, and without being supplied with a proper coast chart and sailing directions; and that the neglect of the owners and their agents in respect to these particulars is highly censurable. That the stranding of the ship, as well as the subsequent inability of the crew to haul her off, were in a great measure attributable to this improvidence and neglect. Second. That, under the circumstances detailed, and considering the very defective condition of the ship's boats, the peculiar character of the coast near Hatteras, and the distance from the shore of the shoal on which the ship stranded, the officers and crew were justifiable in abandoning the ship, since, in the event of a gale or strong breeze from the eastward, their lives would have been imperilled by remaining on board. Third. That the master, William Borlase, appears to have been unfitted for the proper discharge of his duties, owing to intemperate habits during the voyage, and displayed a want of proper seamanship on sighting the land at so dangerous a part of the coast, and having regard to the soundings, he ought to have headed the ship directly off shore, instead of standing on the course mentioned by him. Fourth. That the Court hereby suspends the certificate of competency of the said William Borlase for twelve months from this date.

E. M. ARCHIBALD, *H.B.M. Consul, President.*
JOHN MIREHOUSE, *Master of "City of Baltimore."*
T. F. ROSKELL, *Commander of "Edinburgh."*
THOMAS C. JONES, *Master of "City of Limerick."*

New York, July 12th, 1865.

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

PORTS AND HARBOURS ON THE N.E. COAST OF QUEENSLAND.

(Continued from page 439.)

Keppel Bay.

On rounding Cape Capricorn, steer about W.b.N. (making due allowance for the set of the tide) for the Second Lump, a bold rocky island; or when a peaked hill on the mainland (called the Cock's Comb is visible, keep it open to the northward of the Second Lump, until Broad Mount opens out to the northward of the outer Keppel

Rock. These marks lead clear of the black buoy on the northern edge of Cottier Bank, on which there is about 7½ feet of water at low water springs. When abreast the outer Keppel Rock, which may be passed within half a mile, steer for the centre of Broad Mount, which will bear about W.S.W., until South Hill is well opened out to the westward of Sea Hill. South Hill will then bear about South by compass. Strangers should always pass outside the black buoy off the Timandra Bank, which shoal extends off the shore between Sea Hill and the Keppel Rocks; on it there are several patches of dangerous rocks, which only partially show at very low tides; and at the edge of the bank the water shoals very suddenly. Here the *Timandra*, from which the bank takes its name, was lost.

After passing the black buoy off the Timandra Bank, a vessel may haul up to the southward, and if intending to anchor in Keppel Bay, will find good anchorage within half a mile of the shore, by bringing Sea Hill to bear N.E. There is also good safe anchorage along the western shore of Curtis Island, in from three to five fathoms, as far southward as Division Point. Care must be taken to avoid a sand bank running off from Division Point, the North extreme of which lies in a line drawn from Sea Hill Point towards South Hill, one and a half mile distant from the former point. Its position is marked by a black buoy.

Vessels intending to proceed up the Fitzroy River, should, when abreast of Sea Hill Point, and at a distance from it of half a mile, steer S.W.½S., and pass a red buoy on the eastern edge of the West banks on the starboard hand, and the black buoy off the northern extreme of the spit running out off Division Point on the port hand.

When South Hill is beginning to open to the N.E. of the high land about Mount Larcom, and the Second Lump is shut in with the South Keppel Island, the Elbow Buoy, which is red and to the left on the starboard hand, will be close to; haul up to the westward round this buoy, and steer for the centre of three small peaks, which can be seen in clear weather about half a point to the southward of the large mangrove island; pass at about a cable's length from this island, leaving a black beacon on the spit off Raglan Creek on the port hand, and after leaving the large mangrove island, keep the port shore on board within half a cable's length, leaving a red buoy which is placed on the N.W. extreme of the spit running off the small mangrove island on the starboard hand, and entering the Fitzroy River in mid-channel. The starboard shore should be kept on board throughout the first reach, beyond which the channel is marked out by white beacons on the shore, and black and red buoys and beacons, which are to be left on the port and starboard hands respectively. From the shifting nature of the shoals in the Fitzroy River, masters of vessels who are not constantly visiting the port will save much time by taking a pilot.

The pilot station is situated on the Grassy Hills, a point of land between Cape Keppel and Sea Hill, and vessels are boarded by the pilots off the Keppel Rocks.

Tides.—The rise and fall are from 7 to 15 feet, and the stream runs from two to three knots in Keppel Bay.

Broad Sound.

There are three entrances into Broad Sound; the first between West Hill and the Flat Islands; the second, through Thirsty Sound; and the third and best, between the Flat and North Point Islands.

Vessels coming from the northward and using the western channel, should be careful to avoid a sandy shoal lying E.b.S. four miles from West Hill, and on which there is as little as 9 feet water. Third and Fourth Islands are sufficiently steep to on their western sides to admit of the channel being navigated by small craft without much difficulty; and there is anchorage during easterly and south-easterly winds close under the N.W. side of Fourth Island. At the S.E. opening of this channel it becomes very contracted, though there is a narrow channel through with about 10 feet at low water.

The easternmost channel through Thirsty Sound shortens the distance to Broad Sound considerably to vessels coming from the southward; but the tides are very strong in this channel, and the bottom very foul through a great portion of its length, causing a heavy tide ripple; there does not appear, however, to be less than two fathoms water in the channel. The centre channel, which is by far the best, lies between Flat and North Point Islands. After passing Cape Townshend, a good look-out should be kept for the numerous rocks and shoals which lie off the entrance to Broad Sound. When midway between North Point Island and the Second Flat Island, a vessel should steer S.b.W. sixteen miles,—making due allowance for the tides, which run nearly three knots,—when she would be near the Fairway Buoy off the entrance to the St. Lawrence Creek. In fine weather vessels may, while waiting for tide or a pilot, anchor close to the N.E. end of the Fairway Buoy, in 4½ fathoms at low water, the red cliffs bearing about W.b.S., two miles distant.

All vessels visiting Broad Sound, should be provided with good ground tackle, as the tides run with great velocity, and when setting against the wind, cause a very heavy short sea.

Vessels requiring the service of a pilot should fire a gun when off the entrance to the creek.

All red buoys are to be left on the starboard hand on entering, and all black buoys on the port hand.

The sand banks which are to be seen at the entrance of the St. Lawrence from the anchorage off the Fairway Buoy, should be nearly covered before attempting to get under way for the purpose of going up to the township.

To go up the creek, pass the Fairway Buoy, which is black, on the port hand; steer to the southward for about a mile, being guided by the buoys on either hand, then haul up W.b.S., and pass within ten or fifteen yards of the red buoy off the South end of Rocky Island; then haul rather more to the southward, passing a black buoy on the port hand, and steer direct for a white beacon on Mangrove Island.

When within a cable's length of the island, steer for the beacon on Small Island, passing it within ten yards; then cross over to the beacon on the opposite shore; keep that shore on board until abreast the next beacon, when again cross over to the North side; keep the North shore on board until abreast the next beacon, when again cross over to a beacon on the South side; keep along the South shore until abreast the next beacon, when again cross to the North shore and pass two beacons; cross once more to the South shore, and keep that shore on board until nearly as far as the rocks below the township.

The best place for mooring abreast the township, is just above and inside the rocks.

It is necessary that all vessels visiting the St. Lawrence, should be provided with good warps for moorings.

Should vessels, after entering the river, not be able to reach the township, care should be taken to ground fore and aft in the channel, so as to insure lying on an even keel, and end on to the flowing tide.

The sand banks above Rocky Island are shifting sands, and are liable to alter their positions after floods, or even after spring tides.

There is anchorage from northerly winds under Turtle Island, off the entrance to the River Styx, in from 4 to 6 fathoms at low water. Vessels should approach from the N.W., between the banks off the mainland and Turtle Island. Bearings at anchorage,—Upper Head, E.S.E.; West Head of Styx, S.S.W.

It is high water in Broad Sound at full and change at 11h. 15m. Rise and fall of tide at the head of the sound, from 20 to 36 feet; at the mouth of the St. Lawrence, about 18 feet.

The Robur Rocks,—*Meiacosima Group, Formosa.*

The following statement appears in the *London and China Telegraph* concerning a danger, said not to be in the chart, by the report of the French ship *Robur*.

"On the 28th of December, at 10h. a.m., I was off the island of Formosa, with a strong breeze from the North, and dull weather. I took sights, and subsequently at noon I made careful observations. At 2h. 30m. p.m. I noticed at a distance of about four or five miles a group of rocks about twenty metres high. At 2h. (?) o'clock they were bearing S.W.¼S. They seemed perpendicular on all sides, the summits being of a uniform height, broken in two or three places. The side which I saw seemed between 80 and 100 metres in length. At 3h. 30m. p.m. I lost sight of them in a fog. At 4h. I came in sight of the Island Kounia of the Meiacosima Group, when I rectified my position. The position of these rocks is lat. 24° 9′ N., long. 122° 23′ E. They are probably the same as those seen by the *Langdale* in 1854, which are placed almost correctly on the chart with respect to longitude, but 13′ too far North."

There is a very useful chart of the navigation between Formosa and Japan (No. 2,412) published, with which the navigator will be quite at home with this reported danger of the French ship *Robur*.

The chart by which she was navigated is not stated, but about a couple of miles North of the position given, and in the same longitude, appears the Chungchi, a small round island, which at once accounts for the *Robur's* rocks. And as its position may be better determined than the *Robur's* was, seamen need be under no apprehension of danger from this discovery, especially as everything appears to be standing up like a church above the surface of the water.

Particulars of Lights Recently Established.

(Continued from page 439.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
40. Salonica	Panomi Pt.	Gulf of Salonica	F.	..	..	Est. 1st August, 1865. (*a.*)
Mersina	At half a mile S.W.	Karamania	Ffl.	..	14	Est. —. Flash every 2 minutes. (*b.*)
41. Bancha Rock	France, mouth of the Loire	47° 10·6′ N., 2° 27·2′ W.	F.	70	10	Est. 15th August, 1865. A *red* light.
Pointe de Grave and Isle Patiras	France, River Gironde	.....	Ffl.	..	..	Est. 15th August, 1865. (*c.*)
Cape Priorino	Spain, N.W. coast	.....	..	..	..	To be discontinued for repairs from September 1st to October 1st.
42. Werder Island	Gulf of Riga, Baltic	58° 34′ N., 23° 31·3′ E.	F.	94	11	Est. —. (*d.*)
Kin Island, S. extreme	Ditto	58° 5·8′ N., 23° 59·6′ E.	R.	92	11	Est. —.
43. Cape Granitola	Sicily, S.W. coast	37° 33·7′ N., 12° 36·8′ E.	F.	123	19	Est. 15th July, 1865. (*e.*)
44. Dardanelles	Electric Telegraph	.....	..	..	..	(*f.*)
45–6. Downs	.....	.....	..	..	..	Changes of positions in the sands and buoys. See note (*g.*) for new positions of the buoys.
47. Alguada Reef	Burmah coast	.....	R.	144	20	See Light No. 27. Revolves once a minute. (*h.*)

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a) 40.—The fixed red light hitherto on Panomi Point will be replaced by two *fixed* white *vertical* lights.

(b.) 40.—The two fixed red lights hitherto about half a mile to the S.W. of Mersina or Mersyn are to be replaced by a *fixed* white light, varied by a *flash* every *two minutes.*

(c.) 41.—In reference to the alteration of lights on Pointe de Grave and Isle Patiras, mariners must be careful to observe that the light on Pointe de Grave will show a *flashing* light with eclipses of very short duration, succeeding each other at intervals of *seven seconds,* in the direction of Talais Light, and in the South Pass into the Gironde; but it will continue to be a *fixed* light in the direction of the North Pass. Thus this light has two characters, being fixed in one direction and flashing in another.

The light at the Isle Patiras will be a *flashing* light, with eclipses every *four seconds.*

(d.) 42—The light shows white between the bearings of N.¼W. and N.N.E.¼E. over a safe channel between the shoals extending from the coast of Livonia and those from Moon Island; and shows *red* when bearing from

N.N.E.¼ E. round by East to S.E.b.S. over the shoals of Moon Island, as well as the South side of Moonsund, for choosing the anchorage, as the further navigation of the strait during the night is impracticable.

River Dvina.—The depth of water on the bar at the mouth of the western Dvina is now 15 feet, and that of the channel from the mouth of the river to the town of Riga 14½ feet. The direction of the channel over the bar is S.E. and N.W.

(e.) 43.—No mention is made of the light hitherto exhibited on Sorello Point, but the new light is supposed to replace it.

(f.) 44.—The Turkish government has given notice that a new submarine cable has been laid down across the Strait of the Dardanelles, between the castle of Kilid Bahr, on the European shore, and the castle of Chanak Kalehsi, on the Asiatic shore.

All vessels are forbidden to anchor in the vicinity of these castles under penalty of making good all loss or damage that may result therefrom.

(g.) 45–46.—The *N.E. Goodwin Buoy* is in 12 fathoms: St. Lawrence church, N.W.; Upper Deal mill, W.b.S.; Goodwin light-vessel, N.b.E.¼ E., distant 2 miles.

The *East Goodwin Buoy* (was the Swatchway Buoy) in 19 fathoms, with the Goodwin light-vessel N.b.E.½ E.; Upper Deal mill, West; Goodwin beacon, W.S.W.; N.E. Goodwin buoy, N.b.E.¾ E.; S.E. Goodwin buoy, S.W.¼ S.

The *S.E. Goodwin Buoy* (was the South Calliper) in 17 fathoms: the South Foreland, W.b.S.; Northbourne mill, W.N.W.; East Goodwin buoy, N.E.¾ N.; Goodwin beacon, N.¾ E., 1·6 miles; and the South Goodwin buoy, S.W.b.W.¼ W., 2·8 miles.

The *South Goodwin Buoy* (was the S.E. Goodwin buoy) in 14 fathoms: St. Lawrence church, N.¾ W.; Shakspeare cliff, W.¾ S.; S.E. Goodwin buoy, N.E.b.E.¾ E., 2·8 miles; and the South Sand Head light, W.¾ S., 2·4 miles.

The *Deal Bank Buoy* lies two cables to the N.N.W., in 4½ fathoms: Minster West mill N.¼ W.; St. Peter's church, Sandwich, N.N.W.¼ W.; Deal pier, end on, W.b.N.¼ N., 5½ cables; South Brake buoy, E.b.N.¼ N., 1·2 miles; and the South Sand Head light-vessel S.¼ E., 3·9 miles.

The *Broadstairs Knoll Buoy* is moved 2 cables to S.E., in 3¼ fathoms, with St. George's church, Ramsgate, W.¼ S.; St. Peter's church tower, N.W.¾ W.; Elbow buoy, E.b.N.¾ N., 1·3 miles; Gull buoy, S.b.E.¼ E., 2·2 miles; North Bar buoy, S.¾ W., 2·3 miles; North Brake buoy, S.S.W.¼ W., 1·9 miles.

(h.) 47.—Approaching this reef remember that the tides set across it and run strong between it and the Phaeton Shoal. Stand no nearer than in 20 fathoms water on its N.W. side, as it shoals suddenly; and on the southern and eastern sides no nearer than 15 fathoms.

Should a vessel have to go North of it, borrow on the reef, passing about half a mile from the north-eastern visible rock, but not in less depth than 11 fathoms. At high water breakers show the rocks.

On its eastern side vessels are clear of danger with the high land of Heingyee or Negrais Island well open eastward of Diamond Island.

Light on Cay Sal Bank,—*Erroneous Statement.*

The following notice has just been published by the Spanish Hydrographer:—

Madrid, 15th July, 1865.

In page 100 of the Spanish book of lights on the coasts of the two Americas and their adjacent islands, published in 1864, it is erro-

neously stated that there is a light on Cay Sal, which light really is on the N.W. part of the Roques Shoal. As this may lead to mistakes, for the said light is on the Planquata Cay, which is thirteen miles North of the Cay Sal, navigators are hereby informed thereof, that they may be aware of it in leaving the New Bahama Channel. The latitude and longitude which are assigned to this supposed light on the Cay Sal, are the same as those of the Palanquata Cay: and the rest of the notice corresponds with what is given in p. 686 of the first part of the *Derrotero de las Antillas*, published in 1863.

SALVADOR MORENO.

HARBOUR OF HONOLULU,—*Buoys.*

The western side of the passage to the harbour has been bouyed by our efficient Harbour Master, so that schooners beating in may avoid grounding, as has often been the case of late. A bell has been placed at the anchorage upon a decked launch so that coasters or our San Francisco packets may anchor with little trouble on the darkest night.

KELSO SHOAL,—*Coral Sea.*

We preserve the following although we have considered it to be in a part of the ocean well explored by the *Herald*, Captain Denham.

Shanghae, June 5th, 1865.

Sir,—Will you kindly insert the position of a shoal seen by me in the ship *Kelso*,on her passage from Sydney for Shanghae. On the morning of April 20th, on looking over the side at daybreak observed the water discoloured, but could see the bottom quite plain. Took several casts of the lead, getting bottom from 25 to 13 fathoms, fine coral sand with red specks, small shells, and seaweed, a strong N.E. swell on at the time. Could see no broken water from the deck. At 8h. a.m., ship clear of the shoal, heading N.N.W., wind N.E., going from three to four knots. At noon the ship's position, lat. 23° 54′ S., long. 159° 20′ E., by observations I place the North end of the shoal in lat. 24° 12′ S., long. 159° 27′ E. We sailed over it in a N.N.W. direction for two hours, the bottom was distinctly seen the greater part of the time, with large stones covered with seaweed. As this shoal is not laid down in any of my charts, and being in the fairway track to China and India from the Colonies, and as there may be some shoal patches on it, by giving this publicity for the guidance of navigators, you will greatly oblige, yours respectfully,

ROBERT BLACK,
Master of the Ship "Kelso," of North Shields.

Mr. Gale's Non-Explosive Gunpowder.

Nothing has for a long time more excited the curiosity and interest of the scientific world than the announcement lately made by Mr. Gale, a gentleman resident in Plymouth, that he had discovered a means by which gunpowder could be rendered perfectly harmless during storage and transit, without, at the same time, diminishing its explosive qualities when required for explosion. Mr. Gale first exhibited his invention in Plymouth, where there are so many competent judges to decide upon its value, and subsequently came to town, where he has had the honour of submitting it to his Royal Highness the Commander-in-Chief, who has not only expressed his entire approval, but given a most valuable suggestion as to how the plan might be made as useful in preserving the powder from damp as it professes to be in securing it from the untimely action of the fire. Since then Mr. Gale has given experiments at Ravensbury park, the seat of Mr. Bidder, the eminent engineer, before a highly scientific circle, every member of which expressed his entire approval; and subsequently at Torwood, Wimbledon, the seat of Mr. J. J. Randell.

A final series was given on a plot of waste ground opposite the Westminster Palace Hotel, and notwithstanding the inclemency of the weather, quite a crowd of scientific and professional notables attended. Amongst these Mr. Gale began by igniting a mixture of equal parts of "pure" and "protective" powder. We had then combustion but no explosion. Subsequently the proportion of "protective" was increased to two to one, and then each single grain of powder burned separately and in the most harmless manner. Gradually, and by successive experiments, the proportions were increased to four to one, when the powder became perfectly incombustible, and a red hot poker thrust into a barrel of it produced not the slightest symptoms of explosion. Finally the powder was sifted and relieved from the presence of its protective companion, when, on being ignited, it exhibited all its original explosive properties. Everyone being by these experiments satisfied as to the results, Mr. Gale proceeded to explain the means by which they were brought about. He had long been impressed with the desirability of making gunpowder non-combustible during stowage or transit, and had had many materials to mix with it for that purpose, but had found all liable to the objection of injuring the powder, or of being difficult of separation, until at last he hit upon finely pulverised glass, which is the "protective" powder he has now patented. The glass, upon being mixed with the powder, completely isolates the grains, and is a non-conductor of heat from one grain to the other. It is not damp, and it does not adhere, and the consequence is that whenever the powder is wanted for use, it is only necessary to sift it in a fine sieve, when the glass all passes through, and the powder resumes its original condition. This was proved to demonstration after each experiment, and the general result left in the minds of the spectators was that Mr. Gale had completely realized what he had

promised to do, namely, to render gunpowder completely harmless without in the least injuring its explosive powers when the latter should be called into action. The only objections that were taken were that the bulk of the mixture would be inconveniently great, and that there would be risk of explosion both whilst the powder was being mixed with the "protective," and subsequently, when it was being sifted for use. It was considered, however that both dangers could be effectually provided against by a few simple appliances, and that advantages which would be secured, of perfect safety in storage and during transit, were so great as entirely to put all minor objections out of court.

We believe we may fairly say that the opinions of all present during Mr. Gale's experiments were entirely in favour of his invention; or rather, perhaps, we should call it, discovery.

NAVAL MOVEMENTS.

The *Octavia*, 39, screw frigate, Captain C. F. Hillyar, the *Constance*, 39, screw, Captain E. K. Barnard, and the *Royal Sovereign*, 5, iron screw turret ship, Captain F. Herbert, arrived at Spithead, August 18th, from Cherbourg.

The *Sprightly*, steam-vessel, Master G. Allen, arrived in harbour, on August 18th, also from Cherbourg.

The *Fire Queen*, steam-vessel, Staff-Commander F. W. Paul, arrived in harbour on August 18th, from Cherbourg, with Admiral Sir M. Seymour, G.C.B., and Rear-Admiral G. G. Wellesley, C.B.

The *Urgent*, iron screw steam troop-ship, Captain S. H. Henderson, arrived on August 18th, from Cherbourg, with officers of the navy who went out in her to be present at the *fêtes*.

The *Vivid*, steam-vessel, Staff-Commander T. W. Sullivan, returned on the 18th August from Cherbourg.

The *Scorpion*, 4, iron screw cupola ship, Captain J. E. Commerell, V.C., arrived at Spithead, August 16th, from Plymouth.

The *Sealark*, 8, brig, Lieutenant W. H. Heaton, arrived at Spithead on the 16th from Plymouth.

The *Dee*, 4, steam store ship, Staff-Commander G. Raymond, arrived in harbour on the 17th from Plymouth, and sailed on the 18th for Woolwich.

A court-martial on board H.M.S. *Defence*, lying in Portland Roads, tried Lieutenant Denny, of H.M.S. *Hector;* who was charged by his commanding officer, Captain Preedy, with going on shore in plain clothes, on the 29th of July, contrary to orders, and also with being drunk at a cricket match in Kingston Park, near Dorchester, the same day. Evidence having been adduced proving that six or seven months ago Captain Preedy issued a general order that no officer was to go ashore unless in uniform without special permission, Captain Hornby, of H.M.S. *Edgar*, and Captain Lord Kerr, of H.M.S. *Black Prince*, said they were in Kingston Park, July 29th, at a cricket match, and saw prisoner there in plain clothes, and drunk. Neither of them spoke to him. Lieutenant Scott judged from the way prisoner was riding towards the park that he was drunk; and Captain Preedy deposed to refusing prisoner permission to go ashore in plain clothes on the day in question.

Prisoner said that having been refused permission to go ashore in plain clothes he went in uniform. Several hours after, being about to ride fourteen

or fifteen miles into the country, he took off his uniform and put on plain clothes. He did so because riding on horseback in naval uniform would have made him appear conspicuous and ridiculous in the eyes of the public. He flatly denied the charge of drunkenness. On the way from Dorchester to Kingston Park he was told that if he crossed a certain place it would lead him direct to the park. In jumping his horse across the place he was thrown, and fell heavily on his head and shoulder. He, however, got upon the horse and rode to the cricket field. He there told Lieutenant Campbell what had occurred, and that officer assisted him to take off one sleeve of his coat, and bind a handkerchief round his shoulder. The pain brought on faintness, and he lay down on the green sward. Soon after, Captain Lord Kerr and Captain Hornby passed him, but did not speak. A few minutes later Lieutenant Campbell came and told him that Lord Kerr and Captain Hornby had ordered him to get him (Lieutenant Denny) off the ground. He immediately rode off to Dorchester. His appearance was caused entirely by the fall, and not by drinking.

Several witnesses were called who had conversed with prisoner on his way from Weymouth to Kingston Park, and at Kingston Park, and they all concurred in expressing their opinion that prisoner was not drunk. He had, it appeared, drank three glasses of wine and three glasses of beer during the day. Messrs. Hoggins and Johnson, naval surgeons, agreed in saying that a severe fall from a horse was calculated to produce nausea and faintness. The latter gentleman, hearing of the accident, visited prisoner. He was in bed, and did not present the appearance of a man who had been drunk. The court was then closed for a short time.

On resuming, the president announced, to the evident surprise of all present, that the court considered the charges fully proved, found the prisoner guilty, and sentenced him to be dismissed from the service.

Lieutenant Denny was highly esteemed by his brother officers and the men under him. About three weeks ago, as he was on the voyage between Portland and Weymouth, a man fell overboard; Lieutenant Denny jumped in after him, and kept him above water till a boat was lowered, and they were both picked up.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, *in August*, 1865.—*Sold by the Agent, J. D. Potter*, 31, *Poultry, and* 11, *King Street, Tower Hill, London.*

206.—Mediterranean Sea, Corfu Channels, Captain Mansell, R.N., 1863, (1s. 6d.)

710.—Vancouver Island, Griffin Bay and adjacent anchorages, Captain G. H. Richards, R.N., 1858, (1s. 6d.)

364.—Vancouver Island, Duncan Bay, &c., Captain G. H. Richards, R.N., 1862, (1s.)

Admiralty, Hydrographic Office, 22nd August, 1865.

A pamphlet containing the "Naval Discipline Act," drawn up with copious references and index, forming a most useful acquisition to the naval officer, by J. F. Collier, Esq., has been published by Allen and Co., of 13, Waterloo Place, London. We commend it to attention.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

OCTOBER, 1865.

Visit of the French Squadron and Portsmouth Festivities.

Portsmouth has been busy since our last number, not only with the usual routine duty of a government arsenal, but in the no less important one of doing honour to her foreign guests. The French squadron has paid her a visit as ours did to Cherbourg and Brest, and Portsmouth, emulated by the reception given to ours at those ports, has responded right well to the call of this novel and pleasant duty.

Great deeds are recorded in history, and many a page is very properly dedicated to their narrative. Be they of gallant feats of arms —of splendid victories—of no less dazzling visits of royalty than feats of valour and daring, they all find a welcome in the page of history. But there is one event greater even than these for the pen of the historian to record. When the navies and their chiefs of two great countries vie with each other, not in the desolating havoc of war, dealing death and destruction around them, but in the midst of a long and happy peace when they meet to exchange in each others ports the civilities of neighbours that warm up into reciprocal feelings of friendship, and thus vie with each other in amicable and brotherly acts,—then, indeed, may the historian exult in the subject which he has before him, and rejoice to celebrate in becoming language (if he can find it) the particulars of so auspicious an event.

That event to which we allude is especially naval, and therefore

falls specially within our province to record. Do we deny our powers of description?—we must do our best! Do we grudge our space and say it should be otherwise employed? How can it be better filled than with such records as those to which we have alluded? The complimentary visits of the French and English squadrons have been a great success, and it will always be pleasing in reflection to know that every one concerned in them was highly gratified; and that the last of these visits, that which took place at Portsmouth in the last week of August, will be remembered for its splendour, its thorough goodfellowship, and exchange of friendship, as long as any one of the present generation lives who had the good fortune to witness it. We emphatically add *sit perpetua*. With these sentiments we break through our ordinary routine, as the routine of years has been thrown to the winds by this event, and lay by our promises of usual matter for what we can cull from the friendly prints of the day,—and that to which we are mainly indebted for what follows, is that valuable journal, which we knew more than half a century back, rejoicing in the name of the *Hampshire Telegraph*, which says,—

The festivities are over, and the fraternization of the two most powerful fleets the world ever saw, has become a matter of history. There can be no doubt that the welcome accorded to our allies has been worthy of the great fact which it is intended to commemorate. The hospitalities of Cherbourg and Brest have been amply reciprocated by those of Portsmouth. The greeting was cordial and demonstrative on both sides, and its very heartiness and spontaneity by all classes of society are a sure guarantee of its sincerity. A great change in public sentiment on both sides of the English Channel must have occurred to render such an interchange of hospitalities possible, and the effect of this meeting will be to strengthen the bond of friendship and give a still further security for the peace of the world.

The British Squadron at Spithead.—To the eastward was the *Edgar*, 71, Captain G. T. P. Hornby, bearing the flag of Rear-Admiral Sir S. C. Dacres, K.C.B.; and to the westward were the other vessels of the squadron in the following order, anchored about a cable's length apart:—The *Hector*, 24, Captain G. W. Preedy, C.B.; the *Defence*, 16, Captain Augustus Phillimore; the *Black Prince*, 41, Captain Lord Frederick H. Kerr; the *Achilles*, 26, Captain E. W. Vansittart; the *Prince Consort*, 35, Captain G. O. Willes, C.B.; the *Royal Sovereign*, 5, Captain F. A. Herbert; the *Liverpool*, 39, Captain Rowley Lambert, and the *Research*, 4, Captain A. Wilmshurst. Lines of buoys about 200 fathoms apart, and in front of the Channel squadron, were laid down, near which the French ships dropped their anchors.

Rather more than fifty years ago, in 1813, there were about 1,000 ships in commission; but in the year 1821 the number had decreased to 609. These vessels, of course, afforded a striking contrast with

those of the present day, as may be readily imagined from the most casual observation of their representatives now in our harbour. But important changes and improvements were made in naval architecture, and with them the size of our ships of war increased. The navy had materially declined in efficiency, and this unfortunate state of things became so apparent in 1839, that a reaction was produced; the government, backed up by the people, determined on a reform; and from that time a series of improvements commenced. A "Channel Squadron" was called into existence, though of a somewhat different calibre to that now anchored at Spithead! But the application of steam, and (in 1845) the substitution of the screw for the paddle-wheel, caused two revolutions in our navy, which were followed fifteen years later, viz., in 1860, by another no less important—the experiment (for it was at that time but an experiment) of arming the sides of ships of war with armour-plates to resist artillery. So rapidly has this principle become developed, that we have now a powerful iron-clad squadron, numbering between twenty and thirty vessels. By the end of the present year the higher figure will be reached, the names of the vessels being as follow:—The *Warrior*, the *Black Prince*, the *Achilles*, the *Minotaur*, the *Agincourt*, the *Northumberland*, the *Bellerophon*, the *Lord Clyde*, the *Royal Oak*, the *Prince Consort*, the *Ocean*, the *Caledonia*, the *Royal Alfred*, the *Lord Warden*, the *Zealous*, the *Hector*, the *Valiant*, the *Defence*, the *Resistance*, the *Favourite*, the *Research*, the *Enterprise*, the *Pallas*, the *Viper*, the *Vixen*, the *Waterwitch*, the *Royal Sovereign*, the *Prince Albert*, the *Scorpion*, and the *Wyvern*..

Tuesday, August 29.—*The Arrival of the French Fleet.*—The arrival of the French squadron of iron-clads was anticipated with the most eager interest. Shortly before eleven o'clock the French squadron hove in sight off the East end of the Isle of Wight, under steam, and shaped its course round the Nab Light, the second master-attendant and several masters in the navy having been transferred to the several ships, to pilot them to their respective anchorages. The *Osborne*, *Enchantress*, *Fire-Queen*, and *Black Eagle*, with the Admiralty on board, and the naval authorities of the port, steamed out of harbour and met the imperial yacht *Reine Hortense* near the Warner Light, but their Lordships of the British Admiralty did not at that time go on board the imperial yacht, which was only boarded, according to the official programme, by the master-attendant of Portsmouth Dockyard.

As the ships steamed up towards Spithead they were received by a large fleet of yachts and pleasure boats, which, viewing them from the shore, were so crowded together as to appear as though they impeded the progress of the fleet and were in actual danger of being run down.

As the *Solferino* approached Spithead, exhibiting the British ensign, she saluted the Admiralty flag with nineteen guns, and the salute was returned, gun for gun, by the *Edgar*, which carried the

French flag at the fore. The *Reine Hortense* then steamed into Portsmouth Harbour, and the *Osborne*, *Enchantress*, and other steamers in the service of the Admiralty and naval authorities of the port, followed in her wake. As she passed the Spit-buoy the *Victory*, flag-ship of the Commander-in-Chief, saluted the flag of the French Minister of Marine with nineteen guns, the several ships in commission in harbour manned yards, and the *Solferino* returned the salute gun for gun. As the imperial yacht entered the harbour a salute was also fired from the battery at Blockhouse Fort. When the *Reine Hortense* brought to off the King's stairs in the dockyard, the French Ambassador, as we understood, embarked in the Port Admiral's barge in the full uniform of his rank, and proceeded on board the imperial yacht to pay his respects to the French Minister of Marine. Visits were afterwards exchanged between the admirals and rear-admirals of both fleets, and the formalities, and let us say, also, the realities of the day were brought to a close by the banquet on board the *Duke of Wellington*, to which we have hereafter referred.

The *Sprightly*, steam-vessel, Master Allen, was placed at the disposal of the Mayor of Portsmouth, R. W. Ford, Esq., and the French Vice-Consul, the Chevalier Vandenbergh. As soon as the ships arrived in the offing these gentlemen embarked on board the steamer, and awaited the arrival of the Minister of Marine in the *Reine Hortense*. The corporation flag was hoisted at the main, and the French tricolour at the fore, and as the imperial yacht passed, the *Sprightly* dipped her colours, and the compliment was returned by the yacht. Shortly afterwards his worship proceeded on board the yacht, accompanied by the Vice-Consul, and paid a ceremonial visit to the Minister of Marine, at the same time proffering the hospitalities of himself and the inhabitants of the port and neighbourhood, which were most courteously accepted. In acknowledgment of the Mayor's welcome the Minister said he was very pleased to visit Portsmouth, and to receive so kind a reception at the hands of the civic authorities. The Mayor at the same time gave a general invitation to the Minister of Marine and all the officers in command of ships to the civic banquet; and invitations were also given to all the other officers to the subsequent concert and ball, which were readily accepted, the Minister stating that it would afford him much pleasure to meet the Mayor and inhabitants of Portsmouth on such an occasion. The Mayor was introduced by the Vice-Consul, and, after the interchange of other civilities, both gentlemen returned to the *Sprightly*, and proceeded to Spithead, where they were received on board the *Solferino* by the Admiral and other officers in command, and were saluted with five guns on leaving. His worship and the Vice-Consul afterwards visited other ships, and exchanged the usual courtesies with the Rear-Admirals of the fleet.

The French ensign was hoisted at the Albert Yacht Club House as the imperial yacht passed, and the compliment was acknowledged by the *Reine Hortense* dipping her colours. An invitation was given to

the officers of the fleet by the secretary and a deputation from the club, inviting them to participate in its privileges during their stay in the port.*

* The French fleet anchored in two lines, parallel with the British squadron, which occupies the outer line nearest the isle of Wight.

The middle division is headed at the eastern end of the line by—

The *Magenta*, 52 guns, (all 60-pounders,) 7,000 tons, 1,000 horse-power, bearing the flag of Rear-Admiral Baron de la Ronçiere. The following are the officers:—Baron de la Ronçiere, l'admiral commandant; MM. Pierre, capitaine de frégate, chef d'ètat major; Vignes, lieutenant de vaisseau, aide-de-camp; Pougin de Maisonneuve, lieutenant de vaisseau, secretaire; De Lason, commissaire adjouis, commissaire de division; Gourrier, chirurgien principal, chirurgien major de division; Metairie, aumonier superieur; Le Bris, capitaine de vaisseau; Le Fevre-Bubua, capitaine de frégate; Ronamy de Villemereuil, lieutenant de vaisseau; Ehierry, lieutenant de vaisseau; Lendormy-Erudell, lieutenant de vaisseau; Littré, lieutenant de vaisseau; Hardonin, enseigne de vaisseau; De Leantand-Bonine, enseigne de vaisseau; Gestin, sous commissaire mer ingenieur de premiere classe; Eleoute, chirurgien de second classe; Ehéret, ditto, troisieme; Julien, aspirant de second classe; Belin, aspirant volontaire; Charpignon, ditto; and Buffet, ditto. The *Magenta* has a crew of 700 men.

Next following the *Magenta*, in the same line, comes the *Heroine*, 36 guns (all 60-pounders), 5,500 tons burthen, 1,000 horse-power. Her officers are—M.M. Sagot-Duvauroux, capitaine de vaisseau; Lerval, capitaine de frégate; Romieux, lieutenant de vaisseau; Fougères, lieutenant de vaisseau; Chaumonot, lieutenant de vaisseau; Reilhac, lieutenant de vaisseau; Le Pontois, enseigne de vaisseau; Le Cointre, enseigne de vaisseau; Le Beau, aide-commissaire; Daniel, chirurgien de premiere classe; Brannellec, chirurgien de second classe; Froideval, aumonier de second classe; Bourgarel, chirurgien de troisieme classe; Barrial-Dubrenil, aspirant de premiere classe; Coulomb, aspirant de premiere class; Vannier, aspirant de second classe; Beard-Dudezert, aspirant volontaire! Cabrol, aspirant volontaire. The *Heroine* has a crew of 500 men.

The next ship, and the last in the central line, is the *Flandre*, of 36 guns, (all 60-pounders,) 5,500 tons burthen, and 1,000 horse-power. Her officers are—MM. Baehme, capitaine de vaisseau; Le Bescond de Coatpont, capitaine de frégate; Longueville, lieutenant de vaisseau; Gondeville, lieutenant de vaisseau; Lasne-Ducolombier, lieutenant de vaisseau; Eiret, lieutenant de vaisseau; Poudra, enseigne de vaisseau; Rendu, enseigne de vaisseau; Henry, aide commissaire; Eoye, chirurgien de premier classe; Mathis, ditto de second classe; Beaurain, aumonier de second classe; Le Bunetel, chirurgien de troisieme classe. Her crew numbers 500 men.

The leading ship, eastward, of the in-shore division, is the *Solferino*, 52 guns, consisting of 12 50-pounders, 38 60-pounders, and 2 188-pounders; 7,200 tons burthen. She carries the flag of Vice-Admiral Count Bouet-Willaumez, and her officers are—MM. Bourgeois, capitaine de vaisseau, chef d'ètat major; Duburynon, capitaine de frégate, premiere aide de camp; Lequémener, commissaire d'escadre; Crigaro, aumonier supereur de l'escadre; Quemar, chirurgien principal de l'escadre; Julien, lieutenant de vaisseau, secretaire particuliare de l'amiral; Courbet, lieutenant de vaisseau, second aide de camp; De Braglie, officier d'ordnance de l'amiral; Bouet, commissaire de marine, secretaire particulaire du commissaire d'escadre; De Barbeyrac St. Maurice, aspirant de premiere classe; Gourgas, attaché; Vincent, ditto; Durand St. Arnaud, ditto; Robinet de Slas, capitaine de vaisseau comman-

The Dinner on board the "Duke of Wellington."—On Tuesday evening the Minister of Marine and his staff, Capitaine de Frégate dant; Demarguessac, capitaine de frégate second class; Bernard, lieutenant de vaisseau; De la Guéronniere, lieutenant de vaissaux; Pucher, lieutenant de vaisseau; Morel-Beaulieu, lieutenant de vaisseau; Meumier, lieutenant de vaisseau; Braubt, enseigne de vaisseau; Belort, enseigne de vaisseau; Huir, sous ingénieur; Coste, aide commissaire; Lauyier; Jean, chirurgien de second classe; Sonery, chirurgien de troisieme classe; Leclerc, chirurgien de second class; Bener, aspirant de premiere classe; Bayle, aspirant de premier classe; Lacombe, aspirant de premiere class; De Eulle-de- Ville-Franche, aspirant de premiere classe; Bonnaffé, aspirant de premiere classe; Hamner-de-Clay-Brooke, aspirante de premiere classe; Bernard, aspirant de premiere classe. She has a crew of 824 men.

The next ship in the inner line is the *Couronne*, 44 guns, (all 60-pounders,) 7,000 tons burthen, and 900 horse-power. She carries the flag of Rear-Admiral Saisset. Her officers are—MM. De Foulcault, capitaine de frégate, premiere aide de camp; Clement, lieutenant de vaisseau, second aide de camp; Michau, enseigne de vaisseau, officier d'ordnance; De Rosencoate, capitaine de vaisseau; Commodore Sellier, capitaine de frégate, second; Cormao Dumanoir, lieutenant de vaisseau; Guillevin, lieutenant de vaisseau; St. Ives, lieutenant de vaisseau; Lugeol, lieutenant de vaisseau; Lentzue, lieutenant de vaisseau; Baudin, enseigne de vaisseau; Du Laurent, ditto; Arquier, chirurgien major; Morel, chirurgien second; Loreal, commissaire; Courmé, officier mechanicien. The *Couronne* carries a crew of 600 men.

The *Provence* comes next. She carries 34 guns, 16 of which are 50-pounders, 16 30-pounders, and there are two 80-pounders. She is of 5,500 tons burthen and 1,000 horse-power. The officers are—MM. De Surville, capitaine de vaisseau; Morin, capitaine de frégate; Aiguillon, lieutenant de vaisseau; Donireaux de la Balie, lieutenant de vaisseau; Haudin, lieutenant de vaisseau; Ventre, lieutenant de vaisseau; Hennecart, lieutenant de vaisseau; Vincenot, enseigne de vaisseau; Cabannellas, enseigne de vaisseau; Escarde, aide commissaire; Martu, chirurgien premierre classe; Antoine, chirurgien second classe; Labe Laporte, aumonier de premiere classe; Dounon, chirurgien troisieme classe. Her crew numbers 580 men.

The *Normandie* comes next in order. She carries 28 guns, 2 of which are 200-pounders, 12 50-pounders, and 14 70-pounders. Her burthen is 5,500 tons, and her engines are of 900 horse-power. She carries the flag of Rear-Admiral Fabre de la Maurell. Her officers are MM. Saly, capitaine de frégate; Estu de Balincourt, lieutenant de vaisseau; Mareq St. Hilaire, lieutenant de vaisseau; Dangeville, capitaine de vaisseau; Gisque', capitaine de frégate; Le Calloch, lieutenant de vaisseau; Massienne, lieutenant de vaisseau; Bertrand, lieutenant de vaisseau; Hamelin, lieutenant de vaisseau; Jamin, lieutenant de vaisseau; Muiron, enseigne de vaisseau; Giron, ditto; Launay, officier d'administration; Vivant, mécanicien principal; Boelle, chirurgien major; Ricard, chirurgien second classe; Maurel, chirurgien troisieme classe; Roustan, aspirant de marine; Earon, ditto; Vidal, ditto; Dupuis, ditto; De Gentil de Baichis, ditto; Audic, ditto; Druelle, volontaire de la marine; Lis, ditto; Nicolas, aumonier. Her crew consists of 600 men.

The *Invincible* comes next in order. She carries 32 guns, 2 of which are 185-pounders, and 30 60-pounders. She is of 6,000 tons burthen, and 900 horse-power. Her officers are—Chevalier, capitaine de vaisseau; Dumas-Vence, capitaine de frégate; Planché, lieutenant de vaisseau; Pouzolz, lieutenant de vaisseau; Désouchés, lieutenant de vaisseau; Bionne, lieutenant de vaisseau; Chabaud, lieutenant de vaisseau; Martin, enseigne de vaisseau; Blacas, ditto; Souenson, ditto; Legros, aspirant de premiere classe; Aragon,

Charlemagne, and Lieutenant de Vaisseau De Warn, with the flag-officers and captains of the French squadron, were entertained by the Duke of Somerset and the Lords of the Admiralty at a private dinner on board the *Duke of Wellington*. The middle deck of this grand vessel has, perhaps, never presented a more pleasing appearance, and it would be difficult to imagine that one was dining on board a "three-decker" in her Majesty's service. The port side of the middle-deck had been separated from the starboard side by a partition of flags, and a similar wall had been constructed fore and aft, about three fourths of the deck being thus set apart for the dining-room. A design of arms—consisting of bayonets, swords, pistols and muskets with swords

ditto; Benoil, aspirant auxilier; Ducros, ditto; Desauls, ditto; Seon, chirurgien premier classe; Chomas, ditto second classe; Bertrand, ditto, troisieme classe; Barral, officier d'administration; Boucher, aumonier. Her crew numbers 600 men.

The *Gloire*, 36 guns, 10 of which are 50-pounders and 26 60-pounders, 6,000 tons, 900 horse-power. Her officers are—MM. Miquel de Riu, capitaine de vaisseau commandant; Geoffroy, ditto; Delacoux de Marivault, ditto; Brosset, capitaine de frégate, second; Rostan, lieutenant de vaisseau; Delian de Staplande, ditto; Chardonneau, ditto; Andrea de Nerciat, ditto; Revault, ditto; Denaus, enseigne de vaisseau; Bertrand, ditto; Pephan, aspirant de premiere classe: Sergent, ditto; Siland, ditto; Vidal Hypolite, aspirant volontaire; Vidal Pierre, ditto; Daless, ditto; Delmas, chirurgien major; Boissier, chirurgien second; Infernet, chirurgien troisieme; Brun, aide commissaire; Moisan, aumonier. *La Gloire* has a crew of 569 men, and she is anchored at the western end of the inner line.

In addition to these iron-clad ships there are the *Caton*, the *Ariel*, and the *Faon*, small wooden paddle sloops of war.

The *Caton* carries 4 guns, (30-pounders,) is of 800 tons burthen, and 240 horse-power. Her officers are—MM. Grivel, capitaine de frégate, commandant; Serval, lieutenant de vaisseau de second classe; Morvan, enseigne de vaisseau; Dumé, enseigne de vaisseau; Datin, enseigne de vaisseau; Gad, enseigne de vaisseau; Negu, chirurgien major; Lesquin, officier d'administration, Her crew is composed of 130 men.

The *Ariel* carries two small guns, and is 100 tons burthen. Her officers are—MM. Perier d'Hauterise, commandant; Arago, lieutenant de vaisseau; Lullier, enseigne de vaisseau; Clemenceau, ditto; Cosquar, chirurgien major. Her crew numbers 83 men.

The *Faon* carries no guns. She is 170 tons burthen and 120 horse-power. Her officers are—Guys, lieutenant de vaisseau; Harmand, ditto second; Augier, enseigne de vaisseau; Denis, ditto; Deloriffe, chirurgien second classe.

We have only to add that a number of British gunboats of the first division of the steam reserve are in attendance on the French fleet. These include the *Earnest*, manned by men belonging to the *Prince Consort*, under the command of sub-lieutenant Henderson; the *Stork*, manned from the *Hector*, under the command of sub-lieutenant Bloxsome; the *Charger*, manned from the *Achilles*, under the command of sub-lieutenant Down; the *Minstrel*, manned from the *Defence*, under the command of Lieutenant Paul; the *Trinculo*, manned from the *Edgar*, under the command of Lieutenant J. B. Creagh; the *Whiting*; the *Pheasant*, manned from the *Black Prince*, under the command of sub-lieutenant Abbs, and the *Pigmy*, Master Vine, commander.

fixed, all being crossed and forming an arch, surmounted by evergreens, festoons, and flags of various nations, in which the French tricolour was conspicuous—was the first of the decorations in the forepart of the vessel to which the attention was directed. Passing along the port side towards the gangway, we noticed the late Prince Consort's standard, the English Union Jack, the Greek flag, and the Prince Consort's standard once more. At the gangway was a design of the sun, and the line was continued by the Portuguese flag, the Brazilian ensign, and the English Union Jack. A large mirror, surmounted by evergreens, with the French and English colours, and the Prince Consort's standard in the back ground, formed a handsome partition aft. On the starboard side were a Monte Videan flag, the Prince Consort's standard, the English royal standard, the French ensign, &c. A number of festoons and pendants of various colours had been tastefully arranged, the appearance being much improved by the roses which here and there greeted the eye. The water ways below the ports were decorated with blue and white, the linings being covered with bunting of various colours. In the space between the pendants a neat reflecting light was suspended, and as there was a long line of these lamps on either side of the temporary dining-room the effect was most pleasing. Last, but by no means least, were the foliage shrubs and plants in bloom which had been placed between the ports, on the tables, and in other parts of the deck; and when we state that these were the best plants and shrubs of their respective kinds which Mr. Legg, of Gosport, could obtain, we leave our readers to imagine how materially they enhanced the beauty of the decorations.

Wednesday the 30th.—To-day the number of visitors to the town had greatly increased. The principal streets were thronged throughout the day; and flags, arches, and decorations of various devices were everywhere visible. These, however, will be found described more fully in another page. The French colours were very conspicuous. Not a few ladies had introduced them into their toilets, while, for the benefit of the lower orders, they were sold at the corners of the streets at, we presume, a comparatively low price. The bridles of cab horses were, in some instances, decorated with the red, white, and blue; in short, wherever the colours could be introduced, there they were. Among the thousands crowding the streets were a large number of French officers and seamen on leave, who appeared to be much gratified with the cordial reception with which they had been greeted, and the preparations which were being carried on at the Governor's Green and other parts of the town.

The Dinner by the Lords of the Admiralty at the Naval College.—On Wednesday evening the Minister of Marine and the officers commanding the French ships were entertained at a grand banquet in the Royal Naval College by the Duke of Somerset and the Lords of the Admiralty. About seventy officers of the English navy and army and other gentlemen were also invited. The extensive quadrangle at the back of the College was specially fitted up for the purpose, and never was transformation more complete. The quadrangle was converted,

as if by the wand of an enchantress, into a magnificent hall, and one could not but be surprised at the change which had been effected in so short a time. A floor, covered with a handsome carpet, had been laid down, and a tented roof covered this large quadrangle. The French colours prevailed throughout. The walls and roof were of red, white, and blue drapery, and a woollen rope passed under the apex of the arch and round the room. Surrounding the room was a dais, and pedestals had been placed at the entrances to the side rooms, which communicated with the hall, though they were not required on Wednesday evening. At either end of the room two terra cotta fountains were playing, the effect being very pleasing. Large vases of flowers had been placed in different parts of the room, and a number of mirrors were on the walls. At the end of the room, and immediately above the Chairman, were the French tricolour and standard, and the English union jack and standard, with other flags. The lighting of the hall was most brilliant. Three large and handsome chandeliers, each weighing 8 cwt., were suspended from the centre of the room, while on either side was another row of ten of smaller size. Wax candles were used, each of which was enclosed in a glass, to prevent the wax dripping on the floor, an accident of that kind having occurred at Cherbourg. The lighting of the hall was under the superintendence of Messrs. T. Tucker and Son, of the Arundel Works, Water Street, Arundel Street, London. Two tables extended the entire length of the hall, an arched cross table connecting them; and a magnificent service of plate, from the establishment of Mr. C. F. Hancock, of 39, Bruton Street, Bond Street, London, graced the tables. The appearance of the hall during the banquet was gorgeous and picturesque in the extreme; the beauty of the scene being much enhanced by the uniforms of the officers seated at the tables. The Duke of Somerset, K.G., presided, the French Minister of Marine being on his right, and Vice-Admiral Count Bouet Willaumez on his left. Several Lords of the Admiralty were present; and among the French officers were—Rear-Admiral Baron de la Rongiere, Rear-Admiral Fabre de la Maurelle, Rear-Admiral Saisset, Rear-Admiral Pothuan, Rear-Admiral Mêquet; Aumonier-en-chef, Monseigneur Coquerrau; Monsieur Dupuy de Lôme; Capitaine de vaisseau Chevalier; Capitaine de vaisseau Robinet de Plas; Capitaine de vaisseau Bourgois, chef d'état major; Capitaine de vaisseau Miguel de Ris; Capitaine de vaisseau De Surville; Capitaine de vaisseau Sagob Davanrouse; Capitaine de vaisseau Rosencoote; Capitaine de vaisseau Le Bris; Capitaine de vaisseau Bachme; Capitaine de frégate Grivel; Capitaine de frégate Charlemagne; Capitaine de vaisseau Perier d'Hauterive; Capitaine de frégate Pierre, chef d'état major, and Lieutenant de vaisseau Guys.*

* The following English officers and gentlemen were invited:—
Officers of the Navy.—Admiral of the Fleet, Sir Lucius Curtis, Bart., K.C.B., Admiral Sir T. J. Cochrane, G.C.B., Admiral Sir M. Seymour, G.C.B., Rear-Admiral Wellesley, Rear-Admiral Sir S. C. Dacres, K.C.B.,

The list of toasts was very short, four only being given. After dinner,

The noble Chairman rose and said—In rising to propose the first toast, I am desirous on behalf of the British Admiralty, and on behalf of the British squadron that accompanied us to Cherbourg and Brest, to tender our sincere thanks to the Minister of Marine, to the authorities of Cherbourg and Brest, and to the officers of the French navy, for the kindness and hospitality with which they received us. I may add that our feelings of pleasure were greatly increased by the kindness and good feeling which were manifested towards us not only by the inhabitants of those towns, but by the great number of persons who assembled there to witness the arrival of the fleet. I repeat that that added materially to the pleasure of our visit. I rejoice in these visits, because I feel that so much benefit will result from an intimate friendship between the two services. I trust that when the officers go into distant quarters of the globe—on the shores of the Pacific or on the coast of China—they will look back with pleasure to the friendly meetings of Brest and Portsmouth, that they will meet as old friends, and unite in unanimity and cordiality. By so doing, I believe they will best perform their duties to their respective governments and their respective countries. As time advances, I believe we must more and more become friends. That is the result to which the events of the world tend, and it would be foolish and unwise if we did not profit by it. But I will dwell on no other point but one. I wish to tender the special thanks of the Admiralty to the French squadron in the River Plate. It will be in the recollection of all of you that when the *Bombay* was burnt the officers and crew of that vessel were left destitute—without clothing, and in great distress; but the officers of the French navy came forward, contributed their own clothing, and assisted them in every way. They did, in fact, all they could to relieve the distress and mitigate the evil of that great disaster. When such events occur, then, it is impossible that the peoples should not be

Captains Scott, Hornby, Hillyar, Wilmshurst, Lord F. Kerr, Phillimore, Preedy, Villiers, Vansittart, Seccombe, Hire, Burgoyne, Commerill, V.C., Herbert; Commanders Jackson, Leach, Murray, Saumarez, Colombe, Thornton, Smythie, Wootton, Dent, Shears, Greville, Brett, Arthur, D'Arcy, Underwood; Staff-Commander Petley, Mr. W. D. Jeans, C.B., Mr. Love.

Officers of the Army.—Lieutenant-General Sir G. Buller, Colonels Longden, Murray, Paynter, Rennie, Elliott, Sir J. W. Gordon; Lieutenant-Colonels Hamilton, Alison, Vesey, Budd, Peel, Gordon, Major Mackenzie, Dr. James, C.B.

Civilians.—W. H. Stone, Esq., M.P., Mr. Serjeant Gaselee, M.P., the Mayor of Portsmouth (R. W. Ford, Esq.)

Portsmouth Dockyard.—Rev. E. S. Phelps, Mr. A. Murray, Mr. H. Cradock, and Commander T. Mamprise.

Clarence Victualling Yard.—Commander G. H. K. Bower and Mr. T. G. Grant.

Haslar.—Captain C. F. A. Shadwell, C.B., Dr. Deas, C.B., Mr. Burn, and Mr. Davidson.

Inspectors of Machinery.—Mr. G. Murdock and Mr. W. W. Williamson.

friends together, and that the two nations should not be bound in friendship together. Animated, then, by these feelings, I say no more than what I believe every Englishman must say, when I repeat that we bid the French fleet a hearty welcome. I rejoice they have visited us, and as a proof of that feeling I give you the first toast,—copying the courteous example set us at Cherbourg,—"The health of the Emperor, the Empress, and the Prince Imperial."

Three cheers were given for the Emperor, and the band played the French National Anthem.

The Minister of Marine rose and spoke as follows:—

Gentlemen,—It is a most happy day when the officers of the British and French navies can learn to appreciate each other. If the visits which you have made to the ports of Cherbourg and Brest, where we have had so much pleasure to receive you; if the eagerness we show in coming here to accept your gracious invitation, are proofs of the excellent relations that exist between our two countries, these cordial meetings are also a sure guarantee of their continuance, because they will give rise, I am certain, amongst so many brave and illustrious seamen who now listen to me, to a desire to meet again, and, in whatever part of the globe, and under whatever circumstances they may be placed, to grasp the hands they have cordially extended to each other in these holidays. Without reservation we show to each other the advances which on each side have taken place in our navy. We have organised this admirable construction of iron-clads—coated with thick armour—of which only a few years ago the boldest imagination could not have conceived. We have seen those formidable instruments of war—those instruments of destruction—at which the mind stops as if in consternation, and of which it is almost tempted to demand an explanation from the genius that has created them. But, gentlemen, the mind recovers itself in thinking that humanity has much less to fear on account of that strength, because the more disastrous the art becomes, it becomes, happily, the more scarce. The mind reassures itself, especially as it knows that with civilised nations their strength is in moderation and the respect of right. I thank the noble Duke of Somerset for what he has said of the assistance in the River Plate one of our divisions has been happy enough to give to the seamen of the *Bombay*. His words only are too flattering. What we did on that occasion, each of you does every day—each of you is ready to do it continually, because, permit me to tell you, though I have not the honour of wearing the epaulettes, what is most admirable in the seaman—that which places him so high in the esteem of peoples is the devotion, the self-abnegation which, even at the risk of his life, compels him always to help his comrades. This is where our navies are truly sisters, and as such they are about to drink the toast which, from the bottom of my heart, I propose to you, "The health of your gracious Sovereign Queen Victoria."

Le Vice Amiral Comte Bouet Willaumez, commandant en chef de l'escadre Française, then spoke as follows:—

Gentlemen,—It is with sincere pleasure I find myself again with old

and brave companions in arms—ranking either in your Admiralty, at your ports, or at the head of your Channel Squadron. But since we have known each other, death has thinned our ranks, has struck noble friends of whom the memory is dear to me as well as to you. With them I have always acted in perfect unanimity of opinion, and I venture to believe that this frank cordiality has not existed without bearing happy fruits. Nobody more than myself has more reason to appreciate the value of your noble navy, nobody is more happy with the friendship that unites it to ours. Finally, gentlemen, nobody proposes with more sincerity, "The British Navy."

The toast was drunk amidst loud cheers and cries of "Vive la Reine!"

Rear-Admiral Dacres—Three cheers for our Queen, gentlemen; three cheers for her Majesty!

Three hearty cheers having been given,

Admiral Sir Michael Seymour, G.C.B., rose and said:—Gentlemen, I have the honour and the great pleasure which my official position confers upon me of proposing to you—The health of the French navy,—(cheers),—represented, as it now is, in this port by officers highly distinguished by their eminent services, and by the magnificent fleet which now rides in our waters, exciting the admiration, and calling forth one universal voice of heartfelt welcome, not only by the officers of the British navy, but from the nation at large.—(Cheers.)—Gentlemen, it has been my good fortune to have the opportunity—and I may say few naval officers have had better opportunities—of appreciating the skill and gallantry of the French navy in various climes, and under circumstances of considerable danger, and the result of my observation has been my unqualified admiration, esteem, and regard.—(Cheers.)—It is on such an experience that I call on you to unite with me in drinking "The health of the French navy."—(Cheers.)

The Illumination of the Fleet.—The event of most interest to the multitude on Wednesday was the illumination of the fleet after the privileged few at the Admiralty banquet had done honour to the Queen and the Emperor by drinking their healths. Without doubt it was one of the greatest spectacles that the present generation has ever seen at Portsmouth or indeed at any other port in the United Kingdom. It seemed as if the whole population had turned out to witness it. Through all the great tributary thoroughfares leading to Southsea-common dense crowds of people continued to wend their way for some two or three hours before the signal rocket from the *Victory* gave the sign of preparation. The whole length of the Esplanade, from the promenade path to the very water's edge, was densely crowded. Portsmouth and Southsea piers were also filled with spectators, and every roof and every house-top,—and, indeed, every site from which a view of Spithead could be obtained was occupied. There was scarcely a breath of wind, and the sea was calm and beautiful, as it reflected the three-quarter moon on its bosom. The light was not sufficiently strong to enable the spectators on shore to distinguish the ships at anchor at Spithead, and of course this darkness was all the more favourable for the pyrotechnic

display. Just off Southsea-beach lay at anchor a crowd of yachts, all of which carried their masthead lanterns, and some of them were illuminated right fore and aft with very pretty effect. The vast concourse of people (numbered by tens of thousands) was, as is usually the case at Portsmouth, a most orderly one, although their patience was somewhat severely tested by the delay which occurred after the approximate time announced for this grand united demonstration. At last, however, some little time before ten o'clock, a rocket and a gun fired from the *Victory* gave the signal for preparation, and shortly afterward a second flight of rockets warned the ships to get their men ready with lighted matches. Then came the booming forth of the grand salute fired from the ships in harbour and from the whole of the combined fleets at Spithead, the *Royal Sovereign* and smaller ships of course excepted. The effect was grand in the extreme and was rendered completely overpowering when, immediately after the first gun had been fired, the blank darkness of the water was, as by some magic power, at once transformed into a flood of brilliant light, all the yard arms (royal yards being across) the boom ends and gaff ends being lighted with long lights, three being burnt in succession. Immediately after the last gun had been fired there was a second grand transformation, the ports of each ship being lit up with parti-coloured fire, so arranged as to form the red, white and blue of the French tri-colour, the long lights still continuing to burn at each yard-arm and boom-end. It is the easiest thing in the world to write these simple details of the programme, but it is utterly impossible to convey any adequate impression of the scene by means of a written description. The old *St. Vincent* appeared to the spectator from the Southsea beach the most beautiful of all, because, being nearer, her colours were more distinctly defined than those of the ships at Spithead. During the illuminations bouquets of rockets were fired at intervals, and although the colours were bright and beautiful, this part of the programme was scarcely so effective as the general illumination.

Thursday the 31st.—This was evidently *the* day of the week. During Monday, Tuesday, and Wednesday some 15,000 persons had arrived in the town by rail; but to-day the number was greater than on any previous day. The holiday was general. The streets were somewhat more than crowded—they were literally thronged; and many years have elapsed since a similar amount of enthusiasm prevailed. The reception given by the inhabitants to-day was most hearty, and if our gallant allies were as much gratified as our guests as the inhabitants were in entertaining them, there can be no doubt that the visit will be remembered for many years to come.

The Entertainment by the Mayor, Corporation, and Inhabitants.—As the day for the civic festivities approached the interest manifested by the public greatly increased, and the climax was reached on Thursday. The morning was delightful, though somewhat cloudy; and tens of thousands of people, many of whom were visitors, thronged the streets. The Mayor had very properly recommended a suspension of business during the afternoon—a suggestion with which nearly the

whole of the tradesmen of the borough gladly complied, and the result was a general half-holiday, and such a holiday as is rarely spent in Portsmouth. Flags and banners, on which were inscriptions of welcome to the French, were flying in all directions, while the floral arches extending across the streets were very numerous. The French rosettes, too, were generally worn, and by all classes. The Governor's Green was the spot to which attention was more particularly directed on Thursday. At all times a pleasant and picturesque spot, its appearance on Thursday was still more attractive. Passing through an avenue of flags, extending from the High-street along the Parade, the visitor came to the main entrance to the Green, where the rails had been removed, and a triumphal arch erected. It was a massive plastic structure, with three arches—the centre and largest being for carriages, the smaller, on either side, being for foot passengers. It consisted of sixteen detached columns, with moulded pedestals and an entablature breaking round each pair of columns, and surmounted by pilasters and a circular pediment, containing a transparency, illustrative of the French fleet at Spithead. This was a very creditable production by Mr. G. B. Wilson, decorative artist, of St. Mary's-street. The arch was hung with crimson drapery and yellow fringe, and was decorated with evergreens and flowers. The centre opening was about twelve feet wide by sixteen feet high, and the general structure about twenty five feet high; the arch was erected under the superintendence of Mr. Lawrence. Passing through the arch and along a gravel-drive the visitor reached the *porte cochère*, which was near the centre of the Governor's Green. This was decorated with the standard of England, the arms of the borough, Prince of Wales's feathers, &c. Having passed through the entrance-hall, in the centre of which was a fountain, with flowers, evergreens &c., and on each side of which there was a cloak-room, the visitor entered a large circular tent some eighty feet in diameter, lined with red and white drapery. At every section of the drapery there was a festoon of artificial flowers falling gracefully from the apex to the spring of the roof, and the tent was vandyked in a similar manner. In the centre of the tent was a large octagonal flower-stand, about twelve feet in diameter, on the successive tiers of which were a number of choice plants. Rockwood and moss formed the base of the stand, which was surrounded by a number of flags, the more prominent of which were the English union-jack, the French tri-colour, the Spanish, Danish, and Hesse-Darmstadt flags. Connecting this circular tent with the principal tent was a corridor, also of red and white bunting, about thirty feet square, and decorated with flowers. On the left side was the motto, worked in fern, "Peace and good-will," while on the opposite side was a similar motto in French "Paix et bonne volonté." At each corner of this tent was a large mirror and stand of flowers. On entering the long room the scene was most picturesque. The spacious rifle shed had been draped with red and white bunting to match the other rooms, and the roof was painted with a pale blue tint, and picked out with darker and brighter colour. Five rows of tables, with a cross table at the

north end, were loaded with the choicest viands and vases of flowers. At each corner of this magnificent room, which it was difficult to believe was nothing more than a drill shed, was a statue in the centre of a small bed of flowers, and in each window were parterres of flower-stands and other decorations. The front of the room was adorned with the arms of England and France, the borough arms, and a bust of Napoleon, and a number of crimson and blue rosettes on a white ground added much to the beauty of that portion of the room. Suspended from the iron-work of the roof, and over the tables, were about fifty baskets of flowers; and a more neatly decorated room we have seldom seen. Connected with the shed was a spacious tent, 138 feet by thirty-six feet, extending to the garrison chapel. This tent was also lined throughout with scarlet and white drapery, and was boarded and decorated with various floral devices. It was erected by Mr. B. Edgington, of 2, Duke-street, London-bridge. Among the more striking decorations was a very pretty imitation of a fairy's forest resort, which had been formed at the south end of the tent. In the centre was a cataract, and two handsome fountains, the water being broken by a quantity of rock-work. Ferns and flowers surrounded the water, near which were several statues. In the back-ground were large and handsome mirrors, and on either side were vases of flowers, &c. By the aid of the lime light some dozen different shades were thrown on the scene, the coloured lights and falling water having a very pretty effect. This ingenious representation was devised by Mr. Dillon, and the work was executed by Mr. Stanley, of the Sadler's Wells and Covent Garden Theatres, and Mr. Hepburn, of the Theatre Royal, Portsmouth, on whom the workmanship reflected much credit. At the point at which the tent joined the shed a dais had been erected, for the accomodation of the orchestra—a very convenient spot, the band being placed near the centre of the three tents. During the *déjeuner* the shed only was occupied, a crimson curtain disconnecting it from the tent. The gentlemen having the management of the decorations, to whom we have already alluded, are deserving of great credit for their admirable taste and judgment. The transformation of a drill shed (for which beauty is of course not required) to a handsome ball-room, and more especially within a very limited period, was no easy task; but we congratulate the gentlemen to whom we refer on their marked success, which was a matter of most favourable comment throughout the afternoon and evening. Cloak rooms, kitchens, &c., were also erected on the ground, and every accommodation was provided for the visitors.

An immense crowd of spectators assembled at the Governor's Green early in the afternoon to witness the arrival of the French officers. On either side of the avenue on the Parade, along the ramparts, in Green-row, and in every spot from which a view could be obtained, some thousands had congregated, and scarcely a foot of ground was unoccupied. Such an assembly in the vicinity of the green had been anticipated, and, by order of the authorities, King William Gate was closed to carriages, and open only to pedestrians. The enthusiasm

which prevailed has perhaps never been equalled in Portsmouth. Shortly after three o'clock the Minister of Marine, the Vice-Admiral and superior officers of the French fleet arrived on the Green, and were received by the Mayor, who wore his chain of office, being enthusiastically cheered *en route* by the thousands who lined the roadway and had crowded, tier upon tier, upon the ramparts. After a cordial greeting, the Mayor conducted his guests to the banquet-room. As each guest took his seat, the appearance of the room was gorgeous in the extreme, and presented a striking contrast to its aspect a week ago, or that it will present a few days hence. Indeed, it was surprising that so much work should have been done in so short a time, for those who had seen the building but a day before firmly believed that the decorations could not be completed, though—thanks to Mr. G. Rake, Mr. E. Galt, and Mr. L. Angell, who have been most energetic in their attention to this department—nothing more remained to be done when Thursday afternoon arrived. The Mayor of course presided; with the Minister of Marine and Admiral Sir Michael Seymour, G.C.B., on his right, and the Duke of Somerset, K.G., and Vice-Admiral Bouet Williaumez on his left. The vice-chairmen were the Town Clerk, (J. Howard, Esq.), W. Grant Chambers, Esq., J.P., Mr. Alderman Stigant, J.P., and Mr. Alderman Shepard. The room was filled with guests, upwards of 650 being present.

The gentlemen present sat in the following order:

Lieutenant-General Sir H. Buller, Rear-Admiral Baron de la Ronciere, Rear-Admiral Fabre de la Maurelle, Sir Lucius Curtis, the Earl of Cardigan, Rear-Admiral Laisset, Rear-Admiral Potherain, Sir F. T. Baring, Sir Frederick Grey, Monseigneur de Coqueran, Admiral de la Graviere, Lord Clarence Paget, Admiral Eden, Viscount de Virel, Admiral Drummond, Sir Sidney Dacres, the Marquis of Winchester, Baron Gudin, Sir James Scarlett, Admiral Boutakoff, Capt. Davaron, Mr. Serjeant Gaselee, M.P., Sir J. C. Jervoise, Dr. Miller, Mr. John Mc'Cheane, Col. Sir A. Horsford, Capt. Dangeville, Capt. Grivel, Admiral Hallowes, Capt. Charlemagne, Capt. Shadwell, Mr. Nance, Mr. W. Grant, Capt. Hayes, Capt. Phillimore, Col. Elliott, Lieut.-Col. Gordon, Capt. Evelegh, Mr. Baxendale, Mr. Humby, Capt. Key, F. S. Mackenzie, Esq., Mons. Dupuy de Lome, Mons. Duberquois, Chevalier Vandenbergh, Capt. Hire, Capt. Hall, Capt. Burrell, Commander Greville, Capt. Heard, Lieut. Seymour, Lieut.-Col. Richards, Mr. L. Baxendale, Mr. Dudell, French Officer, Mr. Redpath, Mr. Chaplin, Staff Commander Paul, Mr. A. L. Vandenbergh, jun., French officer, Mr. Norman, Mr. Angell, Capt. Brace, Mr. C. B. Smith, French officer, Capt. Rake, Mr. Gibbon, Mr. G. White, Mr. H. Snook, Sir Henry Chads, Rev. J. P. Mc'Ghie, Capt. de Serville, Capt. Chevalier, Hon. Ralph Dutton, Sir Fenwick Williams, Mr. Snell, Capt. Rosencote, Col. Sir W. Gordon, Capt. Scott, Capt. Geoffrey, Mr. Scale, Capt. Maitland, Capt. Hewitt, Capt. Caldwell, Col. Paynter, Mr. Biden, Capt. Pigeard, Col. Tate, Captain Vansittart, Capt. Pierre, Lieut.-Col. Allison, Capt. Seccombe, Capt. Cowper Coles, Rev. W. Saunders, Rev. E. B. Churchill, Col. Lowder, Lieut. Col. Baillie, Dr. Deas. Capt. Burgoyne, Mr. C. H. Kempe, Capt. Keogh, Mr. Edwin Jones, Mr. G. H. Harvey, Capt. Stewart, Lieut.-Com. Petley, Capt. Willes, Mr. Griffin, Capt. Commerell, French officer, Mr. Dorien, Mr. Henry Grant, French officer, Mr. A. Hellard, Dr. Sparrow, French officer, Mr. Binsteed, Mr. T. N. Blake, French officer,

Grace was said by the Vicar of Portsmouth (the Rev. J. P. Mc'Ghie).

The band of the Royal Artillery, from Woolwich, played a selection of music during the *déjeuner* in an admirable manner. The air—a great favourite amongst the French navy—"Away, away," from Auber's Massaniello," was so admirably played and sung by the band as to elicit an *encore*. The same compliment was also paid to a soldier in the Royal Artillery band, who sang in a very effective manner the well-known song, "Let me like a soldier fall." Mr. J. T. Loveday, toastmaster to the Worshipful Company of Grocers and other corporations of the City of London, officiated in that capacity on this occasion.

After the banquet,

The Mayor rose and said—Gentlemen: I rise to ask your kind attention while I give you the first toast—a toast which I shall have the honour of giving you for the first time in my life,—and I can say without any hesitation it affords me greater pleasure than any other I shall have the honour of giving you, for reasons I shall express to you in a few words. The toast is "The health of the Emperor of the French." (Loud and enthusiastic cheering) Gentlemen, I knew the enthusiasm and warmth with which the mention of that toast would be received, but before I give it to you in the usual terms I desire first to express to you the gratification with which we have received the visit

Mr. A Turner, Mr. Gibbins, French officer, Mr. J. Wyatt, French officer, Sir Thos. Cochrane, Capt. du Plas, Hon. Lucius Carey, Admiral Fanshawe, Capt. Le Pris, Sir William Knighton, Mr. B. W. Carter, Capt. D'Hauterive, Col. Renney, Mr. Edward Carter, Capt. Hillyar, Hon. Capt. Pakenham, Capt. Conway Gordon, Col. Shadwell, Rev. E. Burney, Mr. E. Hoskins, Capt. Bourgois, Capt. Lambert, Col. Murray, Mr. Schuster, Mons. Maurivault, Lieut. de Warne, Rev. J. Knapp, Rev. J. Wilder, Lieut.-Col. Peel, Col. Hamilton, Capt. Nangle, R.A., Mr. Romaine, Mr. J. C. Rowland, Alderman White, Dr. Elliott, Capt. Alexander, Major Mackenzie, Major Wood, Major Galt, G. R Reed, Esq., Com. D'Arcy, Capt. Compigne, Alderman Gauntlett, Mr. Jas. Hoskins, Com. Downes, French officer, Mr. Delme Ratcliffe, Mr. Paddon, French officer, Mr. Edgcombe, Dr. Jackson, French officer, Mr. Jas. Garratt, Mr. W. Martin, French officer, Mr. Payne, Mr. T. McCheane, French officer, Capt. Frost, French officer, General Sir R. England, Capt. de Rin, W. H. Stone, Esq., M.P., Major-Gen. Lord William Paulet, Capt. Bachime, Rear-Admiral Wellesley, Hon. Col. Fane, Capt. R. Mangles, Capt. Lord F. Kerr, Lieut.-Col. Benoit, Charles Sealey, Esq., M.P., Col. Budd, Col. March, Capt. Hornby, Capt. Von Wiplinger, Mr. Cunningham, Lieut. Tuys, Col. Longdon, Lieut.-Col. Meehan, Alderman Emanuel, Capt. Hoare, Mr. W. Jeans, Lieut.-Col. Ford, Capt. Glynne, Capt. Byrne, Major Webb, Dr. Parson, Com. Herbert, Mr. George Love, Alderman Wells, Capt. Wilmshurst, Com. Suttie, Capt. Purvis, Major Wingate, Lieut. J. W. York, Capt. Hallowes, Alderman Orange, French officer, Capt. Longcroft, Dr. Raper, Capt. McCoy, Mr. Charles Grant, French officer, Mr. Pinhorn, Mr. W. B. Morris, Mr. Lush, Mr. W. B. O'Reilly, French officer, Mr. W. O. Marshall, Mr. H. Turner, French officer, Mr. Absalom.

The *déjeuner* was supplied by Mr. Gunter, of London, whose name is so well known throughout the country that scarcely a word of comment is necessary. We may observe, however, that it was just such a *déjeuner* as Mr. Gunter might be *expected* to supply.

of the French fleet to these shores. Gentlemen, it marks an era in the history of our country, and I do not hesitate to say that those feelings have been gradually growing and increasing—have, by these mutual visits on both sides of the Channel, tended to strengthen them and cement that kindly and brotherly feeling which existed between us. It is not very long ago that the Emperor said at Bordeaux that "The empire is peace," and by permitting these interchanges of good feeling and these visits between the two fleets which have recently taken place, he has added to the many proofs we have received of his loyalty to the British nation. Gentlemen, that magnificent fleet we see assembled at Spithead indicates something more than an every-day occurrence; it indicates the warmth of that friendship which exists between the two countries; it shows that whereas in times past we were at enmity with each other, now we are in the warmest bonds of friendship. Gentlemen, when I passed through the fleet at Spithead the day before yesterday, and tendered my welcome on the part of the inhabitants of the port to the admirals and officers of the French fleet, I confess I was struck with the magnitude of the vessels and the immense power they possessed. That fleet has assembled there not in defence, and not even in defiance; but it is simply there, as I understand, to show to the world at large the united desire for peace. I feel I am not equal to the occasion; I feel that I cannot express, either on behalf of the inhabitants of the town or the people at large, the pleasure they feel at being honoured by the visit on this occasion. Gentlemen, we are bound to each other by ties of mutual interest—ties not to be forgotten as a matter of business; but we are bound together by the still stronger tie of common loyalty and brotherhood, and a desire to promote civilization and liberty throughout the world. Gentlemen, officers of the French fleet, I bid you welcome to Portsmouth—I bid you welcome to the shores of England, and I can only say that I am but feebly expressing the pleasure and joy with which we receive you on these shores. I dare not trust myself to say more on this occasion. We have not attempted to emulate the magnificent reception with which our officers and fleet were greeted at Cherbourg and Brest, but if we cannot give you the same magnificent reception we can offer you equally warm hearts, and as cordially wish you God speed. Long may this cordiality continue, and strong as our arms have been when at enmity with each other, surely they can be equally strong in the grasp of a true and lasting friendship. I am sorry I am not capable of expressing these sentiments in the French language, but I offer them from my heart, and on behalf of the English people. Gentlemen, I call on you to drink "The health of the Emperor, the Empress, and the Prince Imperial."

The toast was enthusiastically received, and during the cheers which prevailed the Mayor shook hands very heartily with the Minister of Marine and the Vice-Admiral. The band played "Partant pour la Syrie," all the company remaining standing, and a royal salute of twenty-one guns was fired from the garrison and the combined fleets at Spithead, as well as the ships in harbour, the French flag being at

the same time hoisted at the dockyard. At the conclusion of the music the Mayor led off another cheer, amid cries of "Vive l'Empereur!"

The Mayor rose and said—Gentlemen, I now have to give you a toast to which I am somewhat more accustomed, and the mere mention of which will, I am sure, be sufficient to raise not only in the hearts of all Englishmen, but of all Frenchmen, the utmost enthusiasm. I believe you will receive it with the same cordiality and the same warmth as you have received the last, because it relates to the sovereign of our country—Her Majesty the Queen. There cannot be a doubt that her most gracious Majesty views with the greatest pleasure these visits and intercommunications, and that she rejoices to see the subjects of her nation receive with friendship those of the Emperor. In England, the mere mention of the name of the Queen is sufficient to arouse our warmest enthusiasm. It is perfectly unnecessary, therefore, and superfluous to enlarge on the eminent advantages we enjoy as a people under the benign reign and influence of her to whom we are indebted for that noble example which she sets in every position that she fills, whether as Queen, a mother, or as a distinguished member of society. With Her Majesty's name I propose to couple "The health of the Prince and Princess of Wales, and the Royal family." May the day be far off when the Prince of Wales shall be called upon to reign as King of England; but when the day arrives, and he shall be called on to fill the position his mother now so magnificently fills, then may the hopes and prayers of England ascend to heaven that he may reign over us with the same purity and excellence, and set the same example as Her Majesty. This is a toast which I know will commend itself to your heartiest consideration. It needs no recommendation from me; the mere mention of it is sufficient. It is "The Queen, the Prince and Princess of Wales, and the Royal Family."

The toast having been drunk, the National Anthem was played by the band, all standing.

The Minister of Marine then rose and addressed the assembly in the following terms:—

Gentlemen,—It is with pleasure that I heard the Mayor unite our two Sovereigns in his wishes, and in noble accents propose the first toast to our Emperor, with a courtesy of which every Frenchman will be sensible. I thank him for the sentiments which he has expressed for all that can bring our two nations more and more closely together and tend to their mutual prosperity. These sentiments, believe it, are shared by my countrymen, and those of them who were able to proceed to Cherbourg and Brest, sought to give proofs of them to your brilliant navy. "Peace and Good Will." Such are the first words that met my eyes when I entered this enclosure. "*Paix et bonne volonté.*" I thank you for having inscribed them also in French, for I cherish the hope that they will henceforth be our common device. I thank Portsmouth for its splendid hospitality. The recollection of it will be always dear to us. But, gentlemen, what shall never pass from our memory, and what moves all our breasts, is that eagerness of

your population to anticipate our coming, those warm acclamations, which we accept with gladness—not for ourselves, but to carry them back to the Emperor—to France. Permit me, then, to see in you, Mr. Mayor, and in your municipality, not only the representatives of your handsome town, but in a still higher degree the exponents of the feeling of an entire nation, whose sympathetic reception touches us so deeply. At the same time, in offering this toast to the town of Portsmouth, I drink to the whole of your country.

The speech of the Minister of Marine, which was delivered with much energy, was received with the most enthusiastic cheering. The words "Peace and good-will," uttered in English, were, of course, understood by every person present, and produced a deep impression on the audience, who cheered the speaker for several seconds.

"Auld Lang Syne" was played by the band.

The Mayor said—I rise instantly to acknowledge the manner in which the last toast has been proposed, and I tender to you, Monsieur le Miuistre, my grateful thanks for the terms in which you have been so good as to acknowledge the hospitality of the people of Portsmouth. I can only say again we have tendered our hospitality, not perhaps in magnificence, but in the truest and warmest feelings of the heart, and we have rejoiced to see our French brethren among us. Peace is an accomplished thing among us now, and I pray, please God, it may last for ever. I will not touch even on those topics to which I have already ventured to allude, but I will offer to you, Monsieur le Ministre, and to you, gentlemen, officers of the French fleet, my most sincere thanks, and those of the inhabitants of the borough and neighbourhood, for the kind, warm, and enthusiastic reception you have given to the toast.

The Mayor then vacated the chair, and, preceded by the Mace, conducted his distinguished guests into the pavilion, where the Mayoress and her family and friends were in waiting to receive them.

The first item of the civic programme was thus disposed of. Never did an entertainment of this kind pass off more satisfactorily, and the French officers appeared to appreciate most warmly the hearty reception accorded to them. The arrangements throughout had been admirable. No confusion or crowding prevailed, each gentleman's seat was indicated by his card, and its position was soon ascertained by the aid of the committee to whom the arrangements had been entrusted. The toast-list had been wisely and judiciously prepared. No unnecessary toasts had been introduced, (the French are not favourable to garrulity at their festive gatherings, and no doubt this was a circumstance not forgotten); and they were proposed by the Mayor, and Minister of Marine, in brief, but singularly appropriate terms.

The Ball.—And what can we say of the ball? To say that it was a great and unequivocal success conveys a very inadequate notion of the results of an undertaking which had been brought to a successful issue after so much labour and anxiety. The fact is that it would be impossible for the success to be more real and manifest, and there cannot be two opinions about the matter. We know that the reception

which our allies received at the hands of the civic authorities was most gratifying to them, and that they were, to Anglacise the expression, which was a common utterance amongst them, "charmed and delighted." We are often told, and no doubt with some truth, that the French are far in advance of us in decorative art; but we think it would have puzzled the wits of the most artistic and skilful French to have made better use of the resources at the command of the committee and to have produced a more charming *tout ensemble* than was presented to view when the curtain separating the banquet room from the ball-room was withdrawn, and there was a clear view of the whole length of the main ball-room, with its many chandeliers and colours of various hue. The dining hall had, in the brief interval of time which elapsed between the close of the banquet and withdrawal of the curtain partition, been transformed into a sort of drawing-room, with a refreshment *buffet* at the end, forming three sides of a quadrangle, and the floor was covered with a handsome Brussels carpet. At the opposite side was the pretty fairy grotto, with its running water cooling the atmosphere, and giving a refreshing sound to the ear. In the centre was the orchestra, upon which was M. Julien's excellent band, united with the splendid band of the Royal Artillery from Woolwich, under the able direction of Mr. Smyth, these gentlemen conducting alternately, and the most fastidious ear could not desire better dance music, or to have it more charmingly played. We may here observe that the engagement of the band of the Royal Artillery was resolved upon almost at the last moment, for reasons into which it is not necessary to enter, but to prevent any disappointment to the visitors, which probably would have occurred had the matter been left in the hands of the bandmaster of the Royal Marines Light Infantry. As it was the musical arrangements were everything that could be desired, and the services of M. Julien and Mr. Smyth are deserving of this recognition.

The circular tent or reception room, with its corona of gas jets around the central support, presented a very charming appearance, and the effect was very materially enhanced by the fountain opposite the *porte cochère*. During the evening the fountain was illuminated by a peculiar process, and the effect was most beautiful, the jets of water presenting all the bright and varied colours of the rainbow. Altogether the internal transformation of the tents was most complete, and, irregular as was their external appearance, every arrangement which skill and foresight could suggest was carried out for the comfort, convenience, and pleasure of the visitors. The sentiment of admiration was by no means confined to the French. The universal feeling was that "the thing had been done well," and that neither Portsmouth nor indeed the country had any reason to be ashamed of the honour which had been paid to France and the French navy by the civic authorities and the inhabitants of this borough. The visitors were composed of persons of various classes,—professions and trades being fairly represented,—and although in a town like Portsmouth it is sometimes said to be a dangerous experiment to attempt a promiscuous

mixture of the various classes at a public ball, there can be no question of the success on this occasion. We have only to add that the ball was kept up until between two and three o'clock in the morning, and that the following was the programme:—Quadrille, "Semiramis," Jullien; Valse, "Mabel," Godfrey; Lanciers, "Les Nouveaux," d'Egville;" Galop, "Brighton Pavilion;" Quadrille, "l'Africaine;" Valse, "Rosita," Jullien; Lanciers, "Melée," Laurent; Quadrille, "Muette de Portici," Jullien; Valse, "Soldaten Lieder," Gung'l; Polka Mazourke, "Les Violettes," Gung'l; Lanciers, "Les Français," Jullien; Galop, "Et Bondebryllup," Calkin; Quadrille, "Turlurette," Jullien; Valse, "Il Bacio," Arditi; Polka Mazourke, "Les Camélias," Gung'l; Grand Quadrille, "Le Prince Alfred," Godfrey; Galop, "Vive l'Empereur," Jullien.

We cannot attempt to give any description of the ladies' toilettes; but we may remark that the prevailing colours were red, white, and blue, a compliment which was thoroughly appreciated by the French officers. There was, however, one special peculiarity in the way of trimming, which is, perhaps, entitled to notice. The dress we refer to was of white material, and the trimming was of brown silk ribbon fringed with lace, and so arranged as to form the motto "*L'Union fait la Force.*

It will be very gratifying to the inhabitants to know that the Minister of Marine and the Vice-Admiral intimated to the Mayor that what would be the most pleasing to the Emperor and the French nation would be the heartiness and enthusiasm with which they had been received by the English people, and the French officers also expressed themselves as being exceedingly gratified and, indeed, surprised at the cordiality of their reception.

The number of visitors at the ball was from 1,800 to 2,000.

The Concert gave way to the dance, the concert programme being brought to a premature conclusion with the first piece.

The Display of Fireworks on Southsea Common.—was altogether very far superior to any previous displays of the kind witnessed in Portsmouth for many years past. The spot selected—the open space in front of the King's Bastion—enabled the men to perform their allotted duties with precision. The whole was under the direction of Captain Twedie and Lieutenant Cruickshank, with some gentlemen from the manufactory, which, we are informed, is in connection with the arsenal at Woolwich. Immediately in front of the breastwork facing the Common some batteries of miniature mortars—similar in construction to those used in warfare—had been erected, and men, ready to load, sponge out, and fire, were stationed in front of each. Shortly after half-past eight—that being the hour named in bills circulated throughout the town announcing the display—Captain Twedie gave the word of command, and a salute of twenty-one marrous was fired from each battery. The effect of this was somewhat startling, being so unlike anything of the kind witnessed in Portsmouth, and the report made upon the discharge of each was so loud that a rumour soon gained circulation that the military were "storming the Castle!"

This report was not generally credited, and even if it had been the misconception must have been speedily removed by the appearance of the next feature in the programme. On the glacis facing the breast-work to which we previously referred preparations had been made for an illumination, the result of which was very effective, and of such grandeur as to call forth repeated cheers from the spectators. It consisted of three rows of coloured fires—namely, white, red, and blue—and was arranged in cases fixed to the ground, each being lighted in succession in the order named.

Scarcely had this exhausted itself ere the party commenced firing 5½ inch shells from each battery, which were repeated six times in succession. The peculiarity of this work is that a small ball of fire is propelled to a considerable height and with equal velocity, when it explodes and discharges a shower of variegated devices, which are extremely pretty, and produce effects which are really surprising—to those at least who have no previous knowledge of their peculiarities. At times there were complete showers of brilliant stars, extending a considerable distance beyond the circuit of the ascent, each being a complete and distinct colour in itself, and of such brilliancy as to illumine the whole place for a considerable distance. Occasionally these were relieved by others of a similar description, but of colours varied, and if possible more charming, whilst some descended in icicle form, with drooping tails of equal grandeur. The 5½ inch shells having been repeated six times from each battery, four batteries of marrous were fired, the preliminary part of the display being completed by a signal marrou.

This was followed by a repetition of the 5½ inch shell from two batteries, and 8 inch from one only, each being repeated with great rapidity. For the first time during the display two batteries of 10 inch shell were then fired, and these produced an effect apparently startling to the crowd who had occupied positions on the opposite side of the bastion, who repeatedly cheered as the display proceeded. The brilliancy of these shells was intense, and although of considerable height every object could be distinctly seen for a considerable distance. Two marrous having followed a variety of rockets and tourbillons were repeated in succession, the rockets being arranged so as to sustain the predominant colours of the occasion, and in this order the first part was brought to a close.

Salvos of batteries (principally of marrous) opened the second part, and produced, as may be imagined, a very pretty effect, this being followed by repeated firing of tricoloured rockets. Immediately upon the conclusion of the rocket firing a quanty of 5½ inch shells were displayed, following which were several of the same description but of different size, with a battery of the famous 10 inch, the second part being brought to a conclusion by the firing of eight tourbillons.

The third part consisted exclusively of twenty-one 5½ inch shells, and the effect of this was far more imposing than the previous salute of marrous, the former producing a body of variegated fire of varied form, for a period of several minutes, and of such magnitude and

grandeur as again to enable those in the enclosed space to view the closely packed crowd by whom it was surrounded.

Part four opened with two batteries of 5½ inch shell, and was followed by one battery of 8 inch, two batteries of 10 inch, two batteries of marrous, concluding with eight tourbillons.

Part five opened with a repetition of two batteries of 5½ inch shells, one battery of 8 inch ditto, two batteries of marrous, and a constant firing of coloured rockets and tourbillons. The opening display in the *finale* greatly relieved the previous arrangement. This consisted of rapid firing of 5½ inch and 8 inch shells, and the combination of such a sheet of variegated fire as was thus produced was a scene of grandeur seldom, if ever, equalled, and one not easily to be forgotten by those who witnessed it. Marrous, tourbillous, and rockets followed in quick succession, and the whole was brought to a conclusion by firing sixty of the latter in the same order with regard to colour as observed throughout. This concluded a display the like of which, both for grandeur and extent, seldom occurs; and the many thousands who had witnessed this, the concluding scene of a day of happy and peaceful festivity, began quietly to disperse.

The general Illuminations of the Town.—Portsmouth.—The appearance of Portsmouth throughout the week, and particularly on the eve of the civic entertainment (Thursday) was alike imposing and interesting. Apart from the decorations on and around the Governor's Green, there were several illuminations of a private character, and almost every street of note was completely spanned with bunting of various colours, conspicuous amongst which was that of the French. The Fountain Hotel, Messrs. E. and E. Emanuel's, Mr. Machin, Messrs. Vick and Galt, illuminated the front of their respective premises, and also several other tradesmen.

Mr. R. Poate, the artist, of Pembroke Street, exhibited an original drawing which was admired by all, and which called forth the admiration of the leading officers of both the French and English fleets, particularly the former. The device represents a winged figure of Concord, who is offering the hand of friendship to Britannia, and with the other hand directing attention to the combined fleets of both nations in the rear. Britannia stands, with the usual accessories, in a dignified yet graceful position, the British lion being crouched and asleep at her feet, whilst in the rear of the opposite figure is the French eagle, the position of which is also one of harmless submission. Around the top of the design are the words "Welcome to England," the initial "N" wreathed on either side immediately preceding the words "Unity, peace, and concord," which encircle the bottom of the picture. There is a charm about the whole production which is irresistible, and the happy idea which prompted it is just such as we might have expected from our talented townsman.

The Governor's Green.—In the evening the Green was illuminated, and although the work was not elaborate, the appearance was most pleasing. Twenty-nine poles had been placed round the Green, about 36 feet apart, which served the double purpose of flagstaffs and sup-

ports to the gas-pipes, forming festoons of jets, which encircled the Green. Around each pole were a large and small circle of gas-burners, the former consisting of ten and the latter of five burners; and on each pole was a bannerette. Along the whole were about 900 burners, on all of which globes had been placed, so that, although the illumination was simple, the effect was more attractive than might be imagined. In the centre of the Green were three poles, on each of which were three circles, the lights numbering about sixty. Opposite the principal entrance was a transparency, by Mr. Wilson, illustrative of the French and English alliance.

Portsea.—The inhabitants of the town of Portsea were equally desirous of rendering the appearance of the place attractive, the conspicuous parts being the Hard and Queen Street. The former was literally lined with flags and banners, whilst the decorations of most of the shop fronts produced altogether a very pretty effect.

The military Review.—Friday opened auspiciously, and throughout the day the town again wore a complete holiday aspect. Crowds of visitors arrived during the early part of the day, and Southsea Common and the Esplanade were, of course, the great centres of attraction. The whole line of the Esplanade was densely crowded, as well as the glacis in front of the fortifications, and even the ramparts as well. A platform or gallery was erected for the accommodation of the French officers, many of whom were present, including the Minister of Marine, and they again received a most enthusiastic reception from the multitude. Another was occupied by ladies and gentlemen privileged with tickets from the office of Lieutenant-General Sir George Buller. Shortly after eleven o'clock the troops of the garrison began to assemble, and when all told they numbered nearly 4,000 men, composed as follows:—

	Field Officers.	Captains.	Sub-altrns	Staff.	Sergeants	Drummers.	Rank and File.	Hrses.
Two batteries 9th Brigade R.A.	..	3	7	1	13	2	169	164
6th Brigade R.A.	2	5	14	1	25	12	310	
12th Brigade R.A.	2	2	7	4	15	5	246	
Royal Engineers	..	1	5	1	5	2	61	
1st battalion 14th Regiment	3	9	16	1	29	59	385	
Royal Marine Artillery	5	12	8	5	50	41	697	
Royal Marines L.I.	4	6	13	4	40	62	672	
52nd Regiment	3	9	15	2	37	52	250	
75th Regiment	2	4	11	1	19	12	359	
81st Regiment	1	6	7	2	24	23	270	
17th Regiment	3	8	15	1	42	43	461	
	25	65	118	23	289	313	3880	164

Friday, 1st September.—All things must have an end as well as a beginning, and these festivities were brought to a conclusion with a

banquet and ball, the former given by Admiral Sir Michael Seymour, G.C.B., the Commander-in-Chief of the port, and the latter by the Lords Commissioners of the Admiralty.

The Dinner.—This was served up in the dining-room of the Admiralty House, and it was attended by the following guests:—The Minister of Marine, the Duke of Somerset, Vice-Admiral Count Bouet Willaumez, Vice-Admiral Paris, Vice-Admiral Count de Gueydon, Vice-Admiral Jurien de la Graviere, Rear-Admiral Baron de la Roncière, Baron Gudin, Rear-Admiral Saisset, Rear-Admiral Pothuan, Vice-Admiral Page, Rear-Admiral Drummond, Rear-Admiral Eden, Sir Frederick Grey, Lord Clarence Paget, Rear-Admiral Sir Sydney Dacres, Rear-Admiral Fabre de la Maurelle, Rear-Admiral Boutakoff, Rear-Admiral Wellesley, Lieutenant-General Sir G. Buller, Mr. Childers, Captain Scott, Captain Hire, Captain Hall, M. Duphy de Lôme, Monseigneur Coquereau, Captain de frégate Charlemagne, Captain Pegeard, and Lieutenant de Warn. But we will leave the company at their wine and hasten to

The Ball at the Royal Naval College—which was carried out on a scale more elaborate than has ever been attempted in this establishment before, and there can be no question that it was a grand *finale* to the festivities of the week. It was quite clear that in the elaborate decorations of the ball-room and all its adjuncts, expense had been a secondary consideration, and that almost unlimited resources had been at the command of the decorators. What skill and taste suggested money provided, and the result was a spectacle of great brilliancy and beauty. The approaches to the Royal Naval College were ablaze with light, as well as the College itself, both within and without. The Dockyard gates were handsomely illuminated with devices in gas, and the large area of greensward in front of the Admiralty House and College, and the beds of flowers by which it is ornamented, were fringed with coloured oil lamps, which had a pretty effect without adding much, however, to the brilliancy of the scene. The fact is, that the flickering and tiny light of these parti-coloured lamps was dimmed by the brilliancy of the dazzling lime light which had been introduced into the external decorations of the College, and shed its lustre far and wide.

Then on the upper façade of the building the word "Welcome" stood out brightly, and it was flanked on the parapet by two exquisite shields composed of imitation brilliants, and supplied by the well known firm of Defries and Co. Every window of the College was also fringed with light, and the building, which has no pretensions to architectural beauty, presented an appearance which it has never presented before, and perhaps may never again. Every gallery of the Semaphore was also illuminated, and the great arch underneath the tower was clearly defined by the oil lamps with which it was fringed, so that the tower had something of the appearance of a Chinese Pagoda. Such is a brief and, we fear, inadequate description of the external decorations. It is still more difficult to pourtray upon paper anything like an accurate and faithful description of the internal arrangements.

The commodious entrance lobby of the College formed a reception-room, and it was decorated with various devices in small arms. Opposite the main entrance was the entrance to the quadrangle of the building, which had been enclosed with a canvas covering, but presented a spectacle gorgeous in the extreme when crowded as it was with ladies whose toilettes exhibited great richness and beauty, and gentlemen whose brilliant uniforms, naval, military, diplomatic, and consular, were but to a small extent relieved by the sombre black of civil evening dress.

The apartments of the College leading into the quadrangle on two sides were fitted up as refreshment rooms, and there was a third, improvised for the occasion, directly opposite the main entrance to the quadrangle, so that by this judicious arrangement everybody had a chance of being refreshed, which would not have been the case had this accommodation been restricted to one part of the building, seeing that when once you managed to get into the ball-room it was a difficult matter to get out again. It was, indeed, simply impossible for the whole of the guests to be in the quadrangle at one time, and it is not difficult to imagine, under these circumstances, that dancing was an exercise performed under almost insuperable difficulties. The crowding and crushing, and elbowing, were sufficient to vex the temper of more than ordinary mortals, and the good temper which seemed to prevail was, perhaps, the result of a reflection that, after all, it could not be helped.

On each side of the ball-room there were alcoves with seats, and one of these was specially fitted up for the accommodation of the Minister of Marine and the Duke of Somerset. This was on the right on entering from the vestibule, and on the opposite side were two orchestras, one occupied by the band of the Royal Marine Artillery, under the able direction of Mr. J. Smith, and the other by the band of the Royal Marine Light Infantry, which played alternately. Fountains of running water were fixed near the angles of the ball-room, but there was scarcely more than a gentle trickle from the figures by which the basements were surmounted, and they were not observable until you were close upon them. As to the lighting of the place that was intrusted by the Admiralty to Messrs. Thomas Tucker and Son, of the Arundel Lamp Works, London, and it was most effectively accomplished. Each wax light was enclosed in a glass shade, cut with "prismatic splits." In front of the alcove erected for the Duke of Somerset and the French Minister of Marine, was hung an ormolu candle chandelier, distinct in design from all the others, and fitted with the same prismatically cut shades. To prevent a recurrence of the damage done to the dresses of the dancers at Cherbourg, from the dropping of grease, each wax light (with a few unimportant exceptions in the two orchestras, &c.,) was protected by a glass shade and a pan beneath, the result of which precaution was that not a spot of grease fell from either of the candles (about 600), all of which were alight when the last dancer left the ball-room at six o'clock in the morning.

The refreshment buffets in the various annexes were thronged the whole of the night, and supper was served at the buffets about one o'clock. Of course there was everything inthe shape of refreshment, both of wine and the more substantial delicacies suitable to such an occasion, and the resources of Mr. Willis's establishment were fully equal to the demand which was made upon them. That is something to say when it is remembered that there were no less than 1,750 persons present, and very inadequate room in which to supply their wants.

The 1,750 visitors included not only the rank, fashion, and, let me add, beauty of the neighbourhood, but was drawn from a very large area; although the naval and military services were the most largely represented. M. de Chasseloup Laubat, the Minister of Marine, was of course present, and so was the First Lord of the British Admiralty. Then there was a large number of French officers of various rank, Lord Clarence Paget, Sir Frederick Grey, Rear-Admirals Drummond and Eden, Sir Michael Seymour, Rear-Admiral G. G. Wellesley, Admiral Sir Thomas Cochrane, Admiral Walcot, Sir Fenwick Williams (the hero of Kars), the Earl of Cardigan, Lieutenant-General Sir George Buller, and indeed a host of other distinguished persons connnected with the aristocracy and the two services. The corporation and magistracy of Portsmouth were also fairly represented.

The general appearance of the ball-room was, as we have said, imposing in the extreme, and there was no doubt, a distinguished assembly of persons of rank and fashion; but, without wishing to draw any invidious comparison, we may be permitted to remark that the civic festivities appeared to be enjoyed with greater zest, and were in no respect less pleasing and agreeable. Although there was not, we believe, much difference in the number of persons assembled in each place, there was a greater area of space on the Governor's Green, and, of course, less crowding than at the College. Everybody at the College, however, appeared to be gratified, and the event was in every respect worthy of the occasion and honourable alike to host and guest.

Saturday the 2nd.— The Departure of the French Fleet.—The departure of the fleet some two or three hours before the time announced in the official programme caused great disappointment, no doubt, to thousands who were desirous of witnessing it, but were ignorant of the new arrangement. Twelve o'clock was the time originally fixed; but on Friday evening an order was issued for the British fleet to man yards at eight o'clock to go through the formalities of bidding adieu to our allies. This alteration was made, we believe, in order that the squadron might arrive at Cherbourg before nightfall At half-past eight o'clock M. de Chasseloup Laubat paid a brief farewell visit to His Grace the Duke of Somerset. In a short time afterwards the Imperial yacht steamed out of Portsmouth harbour, and was followed by the *Enchantress*, steam yacht, Staff Commander J. E. Petley, with the Lords Commissioners of the Admiralty on board. As the French yacht left the harbour a salute of nineteen

guns was fired from Blockhouse Fort, and a similar salute was fired from the *Edgar*, flagship of Rear-Admiral Sir Sydney Colpoys Dacres, as the yacht approached Spithead. On arriving a little ahead of the *Solferino*, the easternmost ship of the squadron, the Imperial yacht shut off her steam, and the *Enchantress* steamed up abreast of her. The Minister of Marine and his suite were then standing upon the roof of the saloon, and the Commissioners of the Admiralty were upon the bridge of the *Enchantress*. The two ships exchanged the usual compliments by dipping their ensigns, there was profound bowing and raising of hats on board both vessels, and the meeting of the great naval forces of France and Great Britain was at an end. The *Enchantress*, after a few moments had been occupied in this final interchange of courtesy and good will, was put about, and steamed towards Portsmouth harbour. The *Reine Hortense* sped on her way to the Nab lightship, followed closely by the *Faon*, her tender, and by the other ships of the squadron in the following order:—*Solferino*, *Magenta*, *Couronne*, *Provence*, *Heroine*, *Normandie*, *Invincible*, *Flandre*, *and Gloire*, the two sloops *Caton* and *Ariel* steaming with the division, but not in line. By eleven o'clock the *Reine Hortense* had run considerably ahead of her consorts, and was at this time about three miles to the south of the Nab Light. She then dipped her ensign to the *Solferino* and took leave, the latter returning the compliment with a salute. The Minister of Marine proceeded to Havre, *en route* for Paris, and the fleet steamed into Cherbourg, where they arrived about six o'clock.

The *Sprightly*, steam-vessel, Master-Commander Allen, was kindly placed at the disposal of the Mayor by Admiral Sir Michael Seymour; and about half-past eight she embarked his worship, with the Town Clerk (J. Howard, Esq.), the French Vice-Consul (Chev. Vandenbergh), and several members of the Corporation, together with several ladies and gentlemen not connected with the Council. By the kindness and forethought of the Mayor the children of the Royal Seamen and Marines' Orphan School, and Female Orphan Home were also present. The flag bearing the crescent and star of the Corporation was hoisted at the fore, and the French tri-colour at the main. The *Sprightly* steamed out to Spithead and through the fleet, receiving from every ship a cordial reception, the bands on board several of them playing the English National Anthem, and the compliment of dipping the ensign as the Imperial yacht approached Spithead was promptly acknowledged by that vessel. The fleet was accompanied by the *Sprightly* as far as the Nab Light, and during the trip the numerous party on board were supplied with refreshments which had been kindly provided by the Mayor. On returning from the Nab the *Sprightly* steamed round the British squadron, and the *Edgar* was saluted with a hearty cheer, which was acknowledged by Rear-Admiral Dacres in person. The steamer then rounded the Austrian frigate *Freidrich*, and afterwards shaped her course towards Portsmouth. During her return Mr. Alderman Stigant addressed the Mayor in acknowledgment of his courtesy, stating that the party were greatly indebted to

his Worship for the kind manner in which he had received and provided for them, and they wished to express their gratification at being enabled to witness the departure of the French fleet on so important an occasion. The expression of their thanks then had only reference to the kindness of his worship on that occasion; and, of course, the acknowledgement of his services in connection with the general festivities of the week would be expressed in another form and upon another occasion. The Mayor briefly responded, and proposed a vote of thanks to Master-Commander Allen, for the kindness with which he received them on board. He (Mr. Allen) had placed the vessel so entirely in his (the Mayor's) hands that he tendered him his sincere thanks. Commander Allen briefly replied. The *Sprightly* then steamed into harbour, and the whole party landed at the Dockyard, and this was the *finale* of an event which we believe will occupy a conspicuous place not only in the history of Portsmouth, but of the country at large. The occasion was one of momentous importance, and the Corporation as well as the Admiralty has acted a part of which nobody can be ashamed. The special correspondent of the *Daily Telegraph*, whose first impressions of the place were not very favourable, we believe gives expression to the public sentiment generally when he says:—"Let us grant that it [Portsmouth] has done its duty."

That Portsmouth did her duty well no one ever doubted, and has occasion to rejoice that her chief magistrate, the Mayor, was endowed with the talent and good taste that enabled him to perform his so well. He was the man for his very conspicuous and onerous position, and right well did he perform its duties. In fact, who did not? The fête altogether was a great success because every one felt the importance of his own share of duty, and each was *pour faire plus que son possible* in order to secure that success.

And here we will pause and add our own congratulations at the successful issue of the event with the following remembrance to the ladies from the Paris press:—

The correspondendent of the Paris *International* says:—"I will not attempt to give you a description af the ball. You will be able to imagine its appearance if you call to mind every possible uniform, red, blue, green, grey, &c., covered with an immense number of orders and decorations. Place opposite to this male part of the assembly an equal number of fresh English ladies, with skin so white that it appears transparent, with such beautiful teeth that they need only smile to appear adorable, you will have a small idea of the enchanting picture which was presented to my view till half-past two in the morning. There is only one little detail that I cannot pass over in silence, it is that each of these charming ladies at the ball wore either a cockade or waist-ribbon of the tri-colour. Nor did they stand alone in paying us this compliment; the gentlemen adopted the fashion of replacing the ordinary hat-ribbon by a tri-colour band. Many also wore a piece at the button-hole." The same correspondent adds:—"I leave the ball with my brain full of melodies, my eyes full of beams. The radiant

toilets! The charming ladies! Do you know that charming means more than *pretty*, although pretty women abound here? What hearty hand shakes these amiable ladies give us, as if it were for a parting stirring-cup! Here, indeed, was a gathering which will be always remembered. In reconsidering all that has happened here in these four days, I say to myself 'At the instance of Napoleon I. France wished to expunge from the dictionary the word 'impossible.' England *has* done so.'"

The Royal Society and Iron Ships of the Merchant Navy,—

By S. M. Saxby, Esq., R.N.

Sir,—After having so recently troubled you with some remarks, it might have been well to maintain a silence, at least for a time, but circumstances over which I have no control call me again unwillingly forward. After seven years quiet on my part, as regards compasses and iron ships, the power of opinions which able men continued, and still continue to press upon me as to the public importance of what I have accomplished, seemed to require what I supposed to be a piece of self-sacrifice, as regards both time and money, but which has really resulted in placing on me a high responsibility. To come at once to close quarters with some of your readers, it would be false delicacy to allow any pecuniary interest I may have in the spherograph to be veiled under an affectation of indifference toward the wants of seamen, and the safety of all the enormous wealth entrusted to them.

The supposed self-sacrifice referred to was nothing less than the labour, self-denial, and expense of visiting the whole sea coast of England to satisfy myself as to the real state of the compass question in its reference to iron and composite ships, and to ascertain the actual needs of merchant captains, viewing their wants however in no other light than as conducive to public convenience and public security.

During my twenty-eight days leave, therefore, in the month of July last, I visited the principal seaports from London to Newcastle, and from Liverpool to Cardiff,—and the more eagerly as it gave me, what I had long wanted,—viz., a good opportunity of looking professionally into various engine-rooms of merchant vessels, and several large iron factories, &c. In what follows, therefore, I speak from that which I have seen and know to be fact.

On returning home, I found that the Royal Society had had its attention called to the subject of iron ships, and had issued in its *Transactions* for June last, certain opinions, and had offered specific suggestions to the Board of Trade, and had furnished the world with statements not to be overrated in importance as coming from so distinguished a body; and it is only with a view to assist by bringing

the declarations of so eminent an authority into comparison with totally independent deductions, derived by one who is not only intimately acquainted with the subject, but who is also largely cognizant of all the details of sea life, and its necessary demands on science, that the following hints are submitted; and, should I for one hesitate to accept the *Memorandum* of the Royal Society as a full statement of the case, or its suggestions as a full remedy for existing and increasing evils, I ask its forgiveness—we may have viewed the matter from different points.

Had I written to the Society itself, as I at first intended, offering merely personal opinions upon the *Memorandum*,—an unsupported statement by an individual would have only been received with well-understood, and, as the world goes, with perhaps justifiable suspicion; but it might further have been considered presumptuous. I prefer, therefore, going to the channel through which for so many years all these subjects have readily gained the ear of the seaman, whether Royal Naval or mercantile, and ask leave to trouble the *Nautical Magazine* with what I trust may lead to an ultimate gain to the shipping interests of this great country.

Now whatever diversity of interests or opinions may heretofore have existed as to the correction of compasses, the highest scientific authority in England has just officially declared to the Board of Trade its deliberate convictions. It tells us of—"*increased difficulty in applying to the deviation, either mechanical or tabular corrections.*" One cannot, therefore, over-estimate the serious danger which *more than ever* threatens ocean travellers; and each who has his mite to offer should fearlessly cast it into the treasury, in the cause of humanity; and the more especially as the Royal Society recognises in many of the recent losses of iron steamers the probability of such having been the result of compass error, and the "incompetency of persons not instructed in science to detect the same."

The Royal Society advocates the adjustment of compasses by laws which "leave numerical magnitudes of a certain small number of quantities to be (*yet*) determined by observation for *each ship separately*," and states "that numerical values are wanted which can only be derived from a *large number of observations*" *(yet to be)* "made and discussed;" that at present, "these numerical results have only been obtained from and are only applicable to the ships of the Royal Navy, and that without some systematic direction the mercantile marine can neither derive the full benefit of, nor contribute its due share to the advance of science." These are the precise words of the *Memorandum* of June last, yet it declares in the same page that the laws by which such adjustments are to be made, "are now thoroughly understood and reduced to simple formulæ."

Thus we have, apparently, a serious declaration and warning of increasing difficulty and danger, and, on the other hand, an assertion that although certain essentials have yet to be investigated in each merchant ship, the whole thing is simple; and the obvious inference would naturally be that the question of compass deviations is mastered.

But if so, whence the "increased difficulties," unless it be that having determined on a plan of "belling the cat" the difficulty is found in the execution of it.

The Royal Society in the same *Memorandum* invites the Board of Trade to consider certain suggestions comprised under the following heads, viz:—

1st.—The correction of the compass in particular ships.

2nd.—The advancement of the science of deviation of the compass.

3rd.—The education of masters and mates.

Now the first thing to which I would call attention is the extensive distrust in any mechanical correction of the compass whatever, which is beginning to be manifested by merchant captains, numbers of whom have confessed to me their having at sea been better satisfied to deal with the unadjusted compass than with the complication of correcting magnets, which (in the words of the Royal Society) "hold a compass in equilibrium by powerful antagonistic forces; and when changes take place, which it is known do take place in all new iron ships, or *when any change takes place in the correcting magnets themselves, introduce large errors* which are the more fatal because the captain is taught to believe that his compass is correct." This from so distinguished an authority fully justifies among captains the *distrust* referred to, and the plainness of the assertion will, it is hoped, prove beneficial to the sea service.

Now this teaching may be either direct or indirect. Lest it be doubted by some that there has been any teaching of captains in the matter, I will mention one fact out of numbers which have presented themselves to me in the past month.

The "manager" of an eminent firm at Newcastle when asked by me if in general much difficulty occurred in navigating the iron ships, replied,—"Oh, dear no! we are very liberal in our expenditure as regards compass fittings; we spare no expense, and have the costliest and most beautiful instruments that can be made." I could not help remarking, "So much the worse for your ships and captains." It really is so. Shipowners have generally been liberal in this respect, and one is only sorry to attribute evil consequences to such liberality. But it has certainly led to the "temptation" and "abuse of the method" which induces the Royal Society to insist so much on each ship having a navigating compass (or standard) in addition to the steering or binnacle compass. One is naturally apt to associate elegance in the appearence of an instrument with ideas of its efficiency; and, therefore, a captain is induced and finally taught to believe that such a beautiful instrument *must be* correct.

But it is really serious to find matters in this state; for what chance has a captain against such blinding influences—against a ship thus fitted or rather thus "managed?" For him to complain of compass difficulties would be to impugn first the judgment and skill of the adjustor, and then of the manager, and next the wisdom of the owners. But, worse than all, his own competency would certainly be arraigned, and his character

damaged by remonstrance. I have met with instances of this awkwardness of position of captains in some employs. But although things go wrong with compasses during a voyage, as declared and admitted by the Royal Society, and no one can predict the *how* and the *when* such derangements may happen—no one thinks of blaming the compass adjustor,—and, perhaps, consistently. The captain is the only sufferer.

It ought to be widely known that the Royal Society also decides that the goodness of the compass has nothing to do with the deviation; that the best compasses are affected by the deviation precisely in the same way, and to the same extent as the worst. "They also declare that if the compasses are corrected by magnets, a particular arrangement of needles is requisite, and that then compasses of superior power and delicacy are required." Now, it is no unusual thing for captains on getting to sea either to stow correcting magnets chock forward, or to pitch them overboard altogether. I know of at least three instances among North Sea navigators, which occurred in the past winter. But, perhaps, it scarcely comports with that deference which is due to so illustrious a body as the Royal Society, when communicating even indirectly with it, to deal in mere generalities. Permit me, then, to state the following tangible fact in corroboration of my statement.

On the 5th instant, a well-known nautical astronomer and London navigator received from Bombay a letter (from one who had been second and first mate with him in the Hudson's Bay service), of which the following is an abstract:—

"The compasses were all right until we got to the equator. But after crossing the equator they all went wrong, the steering compass differing from the bridge compass *seven points*. After getting to the southward, I took the magnets away from the steering compass, and found the error three or four times a day by Saxby's Spherograph, which is soon done."

Now Captain J. F. Trivett, R.N.R., who has himself used the spherograph at sea, kindly places this abstract at my service, and states that the Captain (Kingcome) of the *Sorabjee Jamsetjee Jejeebhoy* is a "thorough seaman," and that "a ship is perfectly safe in his hands;" *that he is an old Greenwich boy*, and well-knows the value of sidereal observations, for he has had occasion to make use of the stars more frequently than most men; for, says Captain Trivett, upon one occasion we did not see the sun for fourteen days; but from observations of the stars which were never omitted, we made the Diego Ramirez islets (off Cape Horn) to a mile.

Now, as a sample of the many similar and independent but valuable communications which occasionally reach me from both Royal Naval and mercantile navigators, I beg leave to call the attention of the Royal Society to the above, as showing in a few words the *disease*, and *next*, the *simple and effectual remedy*.

In the opinion of the Royal Society every iron ship should have its compasses adjusted. It states that although "two totally different modes of

adjustment have been practised, each of which has its advantages and disadvantages, it would not be right, considering the weight of authority on each side, to prononuce any decided opinion against either of these modes when properly used. That the one system recommended by a committee of men of science, and naval officers, appointed by the Admiralty in 1837, and which recommends that each ship have a standard compass, distinct from the steering compass, fixed in a position selected, not for the convenience of the steersman, but for the moderate and uniform amount of the deviation at and around it, has proved in the Royal Navy to be one which can be used without danger. But the *same cannot be said of the second*, which is a system of correcting magnets and soft iron, proposed by the astronomer royal in 1839, and which is the method now generally followed in the mercantile marine.

In my recent visit to the coast I found both the separate standard compass and Professor Airy's adjustments by magnets, to be almost the rule of fitment for each large iron ship. But in my last letter to the *Nautical* was instanced a splendid ship in the Mersey, which being thus fitted had, when at sea, an accidental error (from casual displacement of a correcting magnet) of two and a half points in her steering compass. And such is not by any means uncommon, even in European waters. (This is of course no argument against the *method* of adjusting, it is merely evidence of an *additional chance of danger*, viz., that from oversight in an adjustor.)

Let us bear all this in mind as we turn to the remaining suggestions of the Royal Society.

With very sincere deference, I cannot see that merchant captains are in a position to afford assistance towards "the advancement of the science of deviation of the compass." If the condition of individual ships be interesting to men of science, *why not demand particulars of it from the compass adjustor?* I would say, leave the commander of a merchant ship to the safe navigation of her, impose no other duties on him for the love of all that is precious of life and commerce! For if a merchant captain has a required duty to "contribute his due share to the advance of science," he must neglect at times his more pressing duties, especially in passenger-carrying ships. There are the officers of H.M. Navy, a highly trained class of able men, doubtless ready, and even desirous of contributing their utmost to the needs of science; but, considering that, as the *Memorandum* says, "entire ignorance on the part of merchant masters and mates is the rule," that "the subject has not hitherto been recognised as a branch of the education of seamen," and that "the most skilful seamen frequently either ignore it altogether, or look upon it as a mystery not capable of comprehension," a great deal of circumspection is called for in dealing with such ignorance—in recommending examinations as to compass correction; and the Royal Society seem to fully understand it when they exempt those at present holding certificates from passing in a new subject. I am afraid, however, that the moment we attempt to encourage "voluntary examination" among present captains we thus depreciate by invidious

comparisons some of our ablest men who do not approve of compass adjustments in any shape. For, after all, theirs is *ignorance of what?*

If there actually be "*increased difficulty* in applying to the deviation either mechanical or tabular corrections," and "if," as the Royal Society say, "it would not be right, considering the weight of authority on each side, to pronounce *either for or against*" the two modes of correction in common use, (viz., the one having a standard compass, and the other being correction by magnets and soft iron,) I submit, that as yet the ignorance referred to is only such as affects the ablest philosophers themselves! and it is a question whether it would not be better to postpone examinations altogether until the information yet to be desired shall have been obtained (in perhaps the manner to be suggested in this letter.)

The utmost we could do would be to encourage the acquirement of a knowledge of the elegant system of coefficients as given us by the joint efforts of Mr. Archibald Smith and Staff-Commander Evans; but even this is far above the intelligence of those generally in command of iron ships.

But let us, for sake of illustration suppose, that a merchant captain had acquired a thorough knowledge of the principles of quadrantal, semicircular, and horizontal, and octantal, &c., deviations. Would it assist him materially in the actual navigation of his ship? It would assist in the selection of the best place in which to put his standard compass, but would it protect it from chances of error from change of condition of the ship? It would afford information as to the best direction in which to build a ship; and in a very beautiful manner afford the man of science and observation much which might lead to future benefit. But would it give him any means by which a knowledge of coming changes could be ensured? It furnishes the most accurate of correcting cards, but, after all, *what is a correcting card?* It is merely a document prepared at a certain place under certain circumstances, shewing at a certain time the condition of a ship's magnetism. It is prepared with great labour and skill and expense, costing, in H.M. ships, from £10 to £50 or £60 for each operation, sometimes being the work of two or three days. *The value of this card may cease before the ship gets ten miles from the port* at which she was swung; or, as in the case of some ships, it may be available for years. It is at best an uncertainty! But there is this one conclusion to be drawn, *it is dangerous* to depend on a correcting card and the adjustments from which it is derived, because the Royal Society have just announced to us the "increasing difficulty" already quoted.

If any additional examination be imposed on those aspiring to the command of merchant vessels, it should have more direct reference to their first needs; and what these are can be easily illustrated by a fact. A fortnight since, I was at a large Welsh port, standing on the deck of a fine iron sailing ship, fitted with standard compass half-way up her mizen-mast, and Professor Airy's system of correcting magnets at her steering compass near the wheel. Her captain was describing to me the dangers of her steering compass, saying, that at sea, "without

any warning, and *especially in a breeze*," it would vary so much as to be useless, while his standard compass would be much less disturbed. On shewing him the importance of the spherograph as a perfect and simple remedy on such occasions, and on his perceiving the ease and readiness with which I at once detected the range of the then existing error, he remarked, "Well, Sir, it's simple enough, but I've bother enough with what I've got already, and wish there was only one compass in a ship. You may have all your correcting magnets for me! But if one could only trust to the accuracy of the principle of your instrument it might, perhaps, be worth a trial!—But how am I to tell? No, no! I managed to get home safe last voyage, and with log, lead, and look-out, I will try it again."

Now here was a fine ship commanded by a man who, whatever his qualifications as a seaman may be, is, in point of education, far below the requisite standard. For, considering that the spherograph is only a card, having thereon nothing but the common lines of the sphere, (hour circles, parallels of declination and azimuth circles), this captain could have known nothing whatever of spheric projection, and was with his crew and passengers and cargo at the mercy of the first fog that beset him. There are hundreds in command of as fine ships fully as ignorant! Let us not, then, wonder at the general desire of the Royal Society to increase the education of merchant captains.

It would have been charitable in me to have presented the captain with a spherograph, as his first lesson in the study of spherics (as I have done to many), but it would be unjust that my pocket should longer be taxed from the defects of a system

Depend on it, Sir, additional subjects in the education of seamen must be legislated upon with extreme caution, nay, even with tenderness. It was a wise and useful law that compelled them before command to pass through some systematic test; but we must not blink the fact that, even as yet our seamen officers in the merchant service are only trained by unwholesome cramming of their subjects; and whatever may be the ability and honesty of the examiners the remedy scarcely rests with them. Are not books published for the sole purpose of assisting to cram candidates for their examinations? Students are, under our new system, not yet trained upon the good old method of our forefathers, that appealed to the understanding rather than trusted to the memory, and imparted a solidity to the foundation on which future intelligence and industry could build. As one of the oldest tutors in the kingdom I would ask if, as things are, the recently passed nautical candidate is not far better up in his theory than he will be with all the additional advantages of twenty years' practice? Yes, Sir, it is this which presents itself as an obstacle to the laudable wishes of the Royal Society. Among the evils there is this that, as it were, "men who have learned to swim without going into the water, and to sail on a slate and paper only," are too often the only teachers; and old Joshua Kelly (mate, master, regular sworn and warranted teacher of the mathematicks to the gentlemen volunteers in his Majesty's Royal Navy, in 1733,) complained in the same words of the same thing.

I hold, and respectfully submit to the Board of Trade, that under any circumstances, if additional examinations be placed upon officers of the mercantile marine, the first thing to be remedied is the want of a competent knowledge of *practical* plane trigonometry, and, *at least*, spherical geometry. I know no reason why captains should not have these at their finger's ends, and no extra time would be demanded for the acquirement. With men so trained, legislation might with advantage to the merchant service and the public, lead, or rather, entice men safely onward. And as Captain Trivett's remark (he is a great authority) bears on the suggestion of the Royal Society, as regards additional education for masters and mates, permit me to notice his significant reference to Captain Kingcome's being an "old Greenwich boy." Captain Kingcome is totally unknown to me, I never saw him, but his Greenwich training in plane and spherical trigonometry in connection with his declared competence as a thorough seaman, shows that there exists at least one admirable school in the kingdom available for merchant seamen; and it is still further significant that the better the training of the captain the more readily and the more eagerly will he grasp the principle of the powers which the spherograph affords him, when tricks are played by his compass; and no want of knowledge of the principles which enter into the complicated theory of compass deviation need trouble him, since the possession of a spherograph appears, by the ease with which it was used in the *Sorabjee*, to have been a complete substitute for, and to have *abolished all need of magnetic adjustment. And this is all that merchant seamen want.* Had Captain Kingcome even passed the proposed examination in the principle of compass corrections, I question whether he would not have reasoned thus with himself.—"I can find my compass error as often as I need it by the simplest and most scientific and most infallible of all methods, and the less I have to do with intricate theories as to local attraction the better for me and for my owners too!"

With regard, therefore, to the proposed additional examination of captains, and as a parallel case, may I ask, do we expect them to comprehend the principles of mechanics and horology, because they use a sometimes erring instrument called a chronometer? Or must they pass examination in meteorology and pneumatics because they use a barometer and thermometer? A captain receives a barometer as giving an index of certain surrounding circumstances, and he is furnished with a compass for similar reasons. Now great things are hinging upon this question of scientific education in seamen, and I trust to be forgiven if I feel a considerable professional anxiety hereupon, and still more if I express my plain convictions. Let us consider, for a moment, that part of a captain's duty which is implied in his required use of a barometer.

Like the science of compass deviations that of meteorology is also in a very crude state of developement. We know that the barometer, like the magnet, can by its indications both lead and mislead; each will, at times, perplex us. Now, what should we say if the merchant captain were to be tied down to an obedience to custom and printed rules concerning coming weather, as deduced from the really vague theories of

atmospheric disturbances? Much more then should we regret to see a knowledge of principles involved in such theories required as a part of his examinations. And yet, on comparison of the two subjects in their relationship to the actual needs of the shipowner and the public, it would be less dangerous to fetter the judgment of the captain in all that appertains to the barometer than to the compass. For the Royal Society has just told us that in using correcting magnets we multiply errors. Its words, which I again quote, are "and when the changes take place, which it is known *do* take place in all new iron ships, or when any changes take place in the magnets, *large errors are introduced* which are the more fatal, &c., &c."

I shrink from the prospect of expecting one who at best could only be a crammed smatterer in science, tampering with complicated adjustments of an instrument, the management of which, from its vital importance, ought to be a man's sole professional study,—the lesser evil is certainly to abolish such adjustment altogether as did Captain Kingcome. The present difficulties of even the compass adjustor have not escaped the vigilance of the Royal Society,—which says the adjustor *fears* that any objection on his part (no matter on what branch of his duty) would be by owners and constructors considered a confession of incompetence, and that some less scrupulous adjustor would not hesitate to undertake the correction. Now although I am under the misfortune of differing on some points from the Royal Society, I beg to say that the thanks of the whole mercantile marine are due to them for the manner in which they seem to have probed the subject; and strong convictions would alone justify any individual in presuming to raise a question on some of their suggestions: but I think the perfect remedy in the case of compass adjusting by magnets (supposing it to be still practised) is at hand, as I will show onward:—nor need we sacrifice a captain's or officer's efficiency in seamanship to a very doubtful equivalent.

How do shipowners and the ocean travelling public feel upon the question? "Give us (they would say) beyond all other qualifications the careful and experienced *seamen* as commanders. Give us men who, if compasses deceive and drive them into dangers, *know how to extricate their ships*." Shall we then draw their attention too far from their necessary acquirements in seamanship and substitute for a love of it and the practice of it, months of study of what is yet unsatisfactory and, as the Royal Society declare, of questionable use?

Even supposing the change proposed by the Royal Society were to be perfected, much time must elapse before its completion: there is, however, a gleam of hope perceptible in the not very far future,—and I think we may be content for a little longer time to watch patiently the growth of events: for what may not such institutions as the "Conway" and the "Worcester" accomplish! Well may the venerable sailor whose family are now (while I write) celebrating the eightieth anniversary of his birth, rejoice as he sees the progress of the institution on the Mersey, that had its origin on the very bosom of that estuary! for I remember that some few years since Mr. John

Clint having read my writings as to the necessity of better education of sailors, asked in detail, once when crossing the Mersey with him, my opinion as to the formation of a floating school for young sea officers, and my reply, he says, so thoroughly confirmed him in his desires to bring the matter forward that, seconded as he was by the spirited aid of the Liverpool men, there arose on the Mersey what I believe is destined in its results and example to provide in due time all that we can wish for in the way of educational training for future merchant captains. Well may the veteran captain rejoice, I say, since our beloved Sovereign, and the Lords and noble Secretary of the Admiralty so warmly encourage the institution due to his patriotism and perseverance!

The Royal Society feels that the Mercantile navy ought to enjoy at least the advantages which the ability and industry of the head of the compass department have conferred on her Majesty's ships. In my very humble opinion advantages may, with very little effort, be equally spread over all ships that float.

But we must not lose sight of a growing difficulty which threatens to still further complicate, for a time, and as things now are, the question of compass correction, and for which I can see no chance of remedy by mechanical adjustments. I allude to what are called composite ships,—ships built of wood and iron. In my tour of the coast last month I was confirmed in my belief that such ships are often more difficult to deal with than iron ships. But let the *Times* of Saturday 27th July last speak hereupon. It says that a hired *sailing transport*, the "*Dilawur*, of 1,305 tons, was swung in the Thames before leaving, to ascertain the deviation of her compass, and it is somewhat remarkable that the disturbance was found to be greater than it would otherwise have been had the ship been wholy built of iron." That the ship "has been constructed on the composite system—an iron frame with an outer wooden skin,—having the lower masts with the three lower and six topsail-yards built of *steel!*" Enough then to justify the deepest anxiety as to our merchant shipping, and to warrant any respectful intrusion by individuals, upon the functions of those who as the heads of science are thus far responsible, especially if such functionaries are not in a position to view the matter from every possible point of view.

It seems very remarkable (and the omission was doubtless accidental) that in the memorandum of the Royal Society no allusion whatever was made to the power possessed by navigators to *convert when practicable the heavenly bodies into standards of comparison for the correction of compasses*. Was it that they so suspected the general deficiency of merchant captains as nautical astronomers that they despaired of their ability to avail themselves of such aids as the heavens (with a few occasional and exceptional periods at certain seasons and certain localities) *almost always* offer them?

In any case my firm belief is that, while we may safely leave to the royal navy and the compass department such useful investigations as may lead to advance in science, *the mercantile marine are in such a*

position as to require most prompt assistance. And in order that such may at once be afforded, I beg leave to suggest the following:—admitting that adjustments by magnets will either be continued or discontinued.

1. *If continued,*—let the class of persons hitherto designated "adjustors" undergo a systematic training and examination (in subjects to be embodied in the book which was intended by the Royal Society for captains and mates). After passing, let them be certificated as, say, "Inspectors of compass arrangements on board ship."

2. It might be advisable to issue an authoritative caution to merchant captains against too implicit a reliance being placed on any mechanical or magnetic adjustment whatever.

3. Encourage the use of the heavenly bodies for compass correction *as the only reliable source of accuracy.*

The adoption of No. 1 would at once obviate the necessity for making captains and mates professional compass adjustors; as a few practical hints from an inspector to a commander on leaving port as to a ship's peculiarities, would enable him, if for instance he had Professor Airy's correcting arrangement on board, to readjust it, as occasion might require in the prolonged intervals of absence of some visible heavenly body. By thus instituting round the coast a class of men scientifically acquainted with the principles of compass deviation, we could at least do for merchant ships what is done for ships of war; we should secure the best position being selected in every ship in which to place the standard compass; and from the intimate knowledge these inspectors would gradually acquire as to the magnetic condition of each ship, they would soon be in a position to furnish the head of the compass department of the two services with all the necessary particulars, and thus contribute towards that advance in science which the Royal Society thinks desirable in the question of compass deviations.

The adoption of No. 2 seems called for as the class of merchant captains in general do not read the *Transactions of the Royal Society.*

The adoption of No. 3 would prove an advantage which none but the ignorant and half educated or self interested could dispute. I should suspect that man as devoid of common feeling and principle who would attribute to me, after so many years of public life, a predominating bias towards private interest alone, when I point out the spherograph as the best means (so far as I know) of encouraging the study of spherics, which it greatly facilitates, while it is the simplest, and the readiest and most accurate means by which to use any visible heavenly body whatever as a check on any compass.

If it be true that a large majority of merchant captains are at present unable to use the stars, planets, &c., with facility (or even at all) (?) from defects in their training, what can be more advantageous to them than the invention and perfection and offer of an instrument which enables them to use these bodies or the moon, with much greater ease than they can without it use the sun?—and with a rapidity and confidence which the working of three or four examples, and without any calculation, will in a few minutes certainly establish! I have

never met with a well trained navigator who did not at once highly appreciate the spherograph when its use was fairly inquired into.

Let us now suppose we are in a ship having no correcting magnets but an erring compass, what should be our practice? Simply this,—If on the ocean I should three or four times a day or night check my compass, as did Captain Kingcome. If no star, &c., were visible, I would steer by the most recent correction. If I expected that in three or four days I should have to vary my course, I would previously, as opportunity offered by the visibility of a heavenly body, *put my ship's head upon the intended course*, and then in readiness check the compass for the thus soon to be new course. I would do the same when approaching land, and when expecting thick or bad weather, I would *try my ship's head on the points likely to be soon wanted.* Now this would give a sort of correcting card, *so much more recent* than the one furnished by the adjustor at the outset of the voyage, that its value admits of no dispute. It was by this means that Captain Kingcome, as hundreds of others are doing, sailed his ship in safety *without any correcting magnets whatsoever!* Hence, I submit, that the spherograph does what nothing else can do so rapidly and so completely, and without any altitude or calculation whatever being called for.

I am only saying what I placed directly before a large meeting of shipowners and captains on the 20th of Juy last, in my lecture at the rooms of the Mercantile Marine Service Association at Liverpool. Nor did the experienced practical men then present separate without a most unanimous appreciation of the value of the spherograph; many being present who had used it at sea. *Hence my responsibility.* (The majority of these gentlemen will read these remarks and of course weigh my assertions.)

It becomes then even a serious consideration *whether it be right to use correcting magnets at all*, except that from the magnitude of the *range* of compass errors, it may seem right to take all precautions possible.

If, sir, in conclusion, I manifest more interest in the advancement of compass corrections than would seem to befit one who has a prescribed sphere of duty in her Majesty's service, I beg leave to explain that for very many years I have studied the subject, as your back volumes of the *Nautical* will attest; and that a conviction (corroborated by the ablest navigators of the day) as to the undoubted importance of the spherograph is my powerful motive. I worked hard for many years to assist the compass, and at last succeeded. With such firm convictions on a subject which involves the very safety of officers of the royal navy who honour my instructions in a pretty wide range of science with their earnest attention, silence in me would neither be consistent with feelings, principles, nor duty:—nor would it be considerate towards members generally of that noble profession the pursuits of which necessarily place their lives at the mercy of an erring and deceitful compass in an iron or composite ship.

I have, &c.,

S. M. S.

The Merchant Seaman's Want.

As a quiet admirer of a service in which I have spent my youth and manhood, and for which I shall ever entertain feelings of admiration, notwithstanding the ill success which has attended a long and active servitude, I take up my pen in its favour, and to point out one or two of the most prominent deformities in the sister service. We cannot all be fortunate, and even in my time grey hairs were not uncommon in a midshipman's berth. Those days, however, are gone by for ever; changes for the improvement of all classes have taken place with a rapidity that astonishes the few veterans of the old war, who would bring the days of Benbow back, did they not lack the power.

This last session has sealed the fate of a class of officers whose origin is coeval with that of the royal navy. Successive generations have bravely and unostentatiously shared the dangers, but not the glory of the brilliant victories of our nation; but the cause which called that class into existence has passed away, and like the knights of old they are no longer required, their work is done.

Had they been consulted no better time could have been chosen for this act. They may retire with honour, and it will be long before a nation of seamen will train their superiors in handling our ships and successfully navigating them. Let it not be supposed that the requirement of good seamanship has been lessened by the introduction of iron-clads. I believe that the man who coolly and ably manages his ship in future battles will, as of old, obtain the advantage. Good manœuvring simply means to quickly place a ship in a desired position, and whether this be done by steam or sail the result will be the same.

From this epitaph on the abolition of the rank of masters, R.N., let me turn to my assertions that in my young days there were grey hairs in the midshipman's berth. Since that time wonderful improvements have taken place in the position of officers and men. Each may now with a reasonable degree of certainty aspire to attain the head of their respective branches. It is, therefore, tiresome to read the scores of complaining letters from our seamen which are now published in naval papers, and not a little amusing to see the comparisons which are made between the royal and merchant navies, to the detriment of the former. To those who have calmly looked on the advantages and disadvantages of both services such letters would be ludicrous were they not calculated to do harm by leading astray the judgment of the numerous boys who annually enter the royal navy. Trained as they now are in the rudimentary branches of an ordinary education, they just learn enough to make the ill-disposed and mischievous. It must be understood that I am not complaining because they are educated, but of the dangerous use to which their education is sometimes applied in reading and discussing the lucubrations of the discontented. Some of these are so contemptible that it is surprising how men who profess to lead public opinion can give publicity to them.

We all know the care with which the seamen of the royal navy are treated, from the day of their first entry into Her Majesty's service until death, or an honourable retirement as pensioners releases them from their contract. They are well-fed, well-clothed, well-lodged, and, in the majority of ships, treated with all the indulgence that can be desired or expected in a military service. It appears to me that men born in their station of life, who bring such little talent to the labour market, cannot expect more. Under any circumstances they would not obtain more in the merchant service!

The difference of the position and training of the two classes of seamen is visible to any person who studies their traits. One straight and athletic in figure with an erect carriage, in defiance of the habitual roll which all sailors acquire; the other, worn and slouching, and frequently bent, even in youth.

It is a common remark how superior in bearing are the seamen of the royal naval reserve, in comparison with their shipmates. The money spent in training these men is well laid out. In an incredible short space of time a large body of the best sailors in the world could be collected; for a maritime war would throw thousands of seamen out of employment. It is worthy of remark here, that the order in council granting permission to lieutenants of the royal naval reserve to fly the blue ensign, is hedged about with so many forms that it is almost an impossibility to comply with them. Our ocean steamers are seldom over a few days in port, and invariably sail on the second or third, after signing articles, before which time no one can be answerable that the number of seamen required to be on board to comply with the circular will be found in the ship. Again, the necessity of returning the warrant on the completion of every voyage gives so much trouble to the holder that the blue ensign has all but disappeared from the mercantile marine, and with it a great part of that feeling towards the navy which induced the officers of the reserve to wish to fly it.

When a concession is made it should be done liberally and gracefully; so that those who are intended to be benefitted by it should at once see the sincerity of the power that grants it. When this is not the case, sensitive men especially, not only doubt the sincerity of the act, but infer more. Now the officers of the merchant service are as sensitive to slights from naval men as the Yankees are to those of the *Times;* and, it should be remembered that youngsters of good family are now crowding the ranks of their merchants' shipping, who, if treated and acknowledged as they ought to be by the superior service, would look on it with respect, in lieu of anger and envy.

It appears almost superfluous to sketch the life of a merchant seaman. It is always such a hard one that none but those who are intimately acquainted with more than one species of voyage can form any idea of its toil and endurance. Within the tropics, under a blazing sun, exposed to its fiercest rays, the merchant seaman works at the tackle fall on deck, or otherwise in the hold, from daylight till dark. On the swamp-bound rivers of India, Africa, or Mexico, in the middle of the rainy season tormented with swarms of venomous insects, there is still the same "work, work, work!"

On the rivers of British North America he may be seen up to his waist in water, or hoisting timber in through the raft ports of the leaky ships which are employed in that severely perilous trade. Sickness frequently follows such exposure, especially within the tropics, so that the number of men who die annually from fever is positively startling, while rheumatism, dysentery, and a host of minor diseases swell the list of sickness. Only the larger classes of ships carry surgeons, and the medicine chests of the smaller are so ill-supplied with a stock of necessary drugs that a sick man has but little chance beyond the natural strength of his constitution to pull him safely through.

A sick man meets with no sympathy in the merchant service. When all are in health there are barely sufficient hands to keep things up to the mark, therefore additional work falls on his shipmates. When a man gives in there is no one to take his place at the wheel, or look out; and, not unfrequently, bitter words are lavished on his head from officers, or even messmates, if they have the slightest suspicion that he is really not so ill as he feels himself. I have known men to fall down, from sheer weakness while bravely attempting to resume duty too early. Let not those who never were placed in such circumstances judge the officers of this service harshly for this seeming inhumanity. It is frequently a question of life and death that efforts should be made to obtain some desired end in these cases. Owing to men giving way in times of fever, I have known whole crews swept away, a state of things that would not have occurred had those in power possessed sufficient influence to induce those under them to make an effort to save themselves. It is sickening to know that in many parts of the world no care will wholly ward off this danger of fever, since the competition of the nineteenth century sends the seamen of this generation to the most pestilential corners of the earth in order to gain a livelihood. The angel—Hope—cheers each individual on in the path he has chosen, and whispers that he, at least, will escape the scourge; for no man would go voluntarily to death on a foreign shore.

Now, Mr. Editor, in all these trials it does appear almost incredible that nothing has yet been done towards furnishing a retreat in old age for the merchant seaman. After a life of bitter endurance and hardship he generally resorts to a pauper's home, and, at his death, fills a pauper's grave. In none of our great towns is he admitted into their hospitals; from abroad he comes home ill, but to be refused this comfort. I read, not long ago, in a Liverpool paper, that a gentleman, after driving with sick men to every hospital in the town, all of which refused to take them in, he was ultimately compelled to lodge them in the workhouse, which with more humanity opened its doors to them. Two of the number died shortly afterwards, a tolerable proof of their cases being urgent.

The wealth of England has, undoubtedly, been accumulated by her merchant seamen, but their share of it bears no larger proportion to the quantity collected by them than that of the humble gleaner does to the share of the squire. Such is the law of nature, and none but a chartist would attempt to alter it. Still, surely those on whom Providence

showers more than ample gifts, by the toils of their fellow men, should not allow them in old age to starve in the streets, or die in a workhouse! I am not an advocate for an indiscriminate system of charity. Those who reap the benefit should aid in founding and supporting an institution which should be the Greenwich of the merchant service. A very small sum, stopped monthly from each man, would be ample, but will the state step in and render this contribution compulsory?—for no class is more improvident than that of our seamen; and, without this all-powerful aid, the attempt to establish one would be useless.

ARGUS.

THE COMPASS AND ITS DIFFICULTIES.

Sir,—When a man rushes into print he has an object in view. He wishes to benefit his fellows, to increase his balance at his bankers, or to gain notoriety advances some wild theory which he knows to be uncertain, but experiences a certain pleasure in battling with the opposition he feels sure will follow on its publication. For either of these, when brought forward in a manly straightforward way, we have a certain amount of sympathy, or admiration. But when a man openly launches his invention on a sea of puffing he must be prepared to meet that criticism which is sure to follow on such a course.

I now allude to a species of inspection table for shortening the calculation of azimuths and amplitudes, without which the inventor would fain persuade us no iron ship is safe. Indeed, what Parr's life pills are said to be to the human frame a new instrument is to be to the navigator. "Now, gentlemen, send your orders, I am on the first come first served principle.—The commander may place his compass near an upright stanchion, or on the shank of the anchor, since he only requires to know the error.—Send quickly, to prevent disappointment." Such is a sample of the language used in the endeavour to extend the sale of this invention.

From the day that the first iron ship was launched to the present time practical men have been aware that ascertaining the error of the compass was the grand problem to be solved, but I cannot perceive how this method has solved it, neither do I perceive the name of any great authority attached to the advertisement as a guarantee for its usefulness.

The decision of the magnates of the Jerusalem Coffee House must have highly amused the inventor. Had it been hostile to his views he would have said, with a show of reason, "They are ignorant of the utility of my method, it requires a man with some degree of nautical knowledge to understand it." The merchants of England have but little leisure to devote to the study of the compass, they look on the unaccountable errors to which it is liable with distrust, and gladly grasp at anything which promises to lessen the risk to which property

on the ocean is subjected from this cause. Not two years have elapsed since the great town of Liverpool was thrown into a perfect *furore* of delight by the announcement that a compass had been invented which pointed correctly in any part of an iron ship.

Professor Airy was wrong. "No more compensation required," said the many. "Hurrah! give us something now to prevent the bottom from fouling, and we have nothing further to ask for?" Scientific men shook their heads, and pronounced the invention a fallacy; but they were jealous of the fame which the inventor would gain, and an enthusiastic gentleman gave £2,000 for a share of the patent compass which, alas! is now never heard of.

Speaking of using a new instrument in a gale of wind reminds me of a death-bed repentance. The man who waits until such an hour has but little to hope for. With a compass frequently vibrating over an arc of several points, so that the helmsman has to steer by the "feel of the wind," what reliance can be placed on an observation. No, Sir; they who wait till such an hour arrives to put their house in order must trust to a higher power for deliverance from the danger into which their folly has plunged them.

Only one opinion can be entertained of the man who contrived to make the land twenty miles in error. He was totally unfitted for his position; and I feel assured that the best of instruments would be useless in such hands. I presume that the inventor of the new instrument requires a good observation to obtain good results; practically, therefore, I see no advantage beyond a small saving of time.

No advertisement would require to be repeated to ensure the speedy sale of an invention of acknowledged utility in correcting compasses; seamen of all nations would eagerly grasp at it, however high the price. Probably, at this day, no other would so much excite the gratitude and admiration of men of all nations, aye, and women to, for many now dress in widows weeds because the compass of an iron ship has fatally misled those who trusted to its correctness.

MERCATOR.

THE WRECK REGISTER AND CHART FOR 1864.

We have said so much about "wrecks" in this journal that we are glad to endorse our opinions about their causes, (among the principal of which are our insurance laws), with the following from the *Daily News*. But we require something more than the Wreck Register to cure the evil. We want the axe at the root of the tree of wrecks:—

In the face of the gratifying fact that our commerce is year by year expanding itself by many thousands of tons of shipping, it is a lamentable and mortifying truth that the advance of our science and skill does not keep pace with this expansion, in diminishing the number of wrecks that every year play out their tragedy on our shores. With

unfailing progression the wrecks and casualties during the past year have moved on from month to month until the aggregate number amounts to 1,741. So great is the number of our losses in shipping, that the admirable document of the Board of Trade, the Wreck Register, has at last become a publication of great importance and interest, chronicling, as it does every year, with unfailing accuracy, not only the loss or disaster to every vessel in our seas and on our shores, but also the number, so for as can be ascertained, of the precious lives lost therefrom. It may be argued that this loss of life and destruction of property are the natural consequences of our immense and increasing commerce, representing probably seventy millions of tons of shipping, and of the value of 500 millions of pounds sterling. In commenting on the facts detailed in the register, it is not our province to dwell minutely on the destruction of property, as that is a matter which concerns shipowners, underwriters, and others, but our observations will bear more particularly on the lamentable loss of life, although it is an encouragement to know that we are making great and rapid progress by our lifeboats and other means to lessen such loss. Our lifeboats and rocket apparatus have multiplied amazingly on the coast, and in lieu of having to lament, as in past years, the loss of 800 or 1,000 lives during the last twelve months, the number who perished on our shores during that period amounted to 516 only, amongst 4,000 or 5,000 persons placed in imminent peril by shipwrecks, the number lost in 1863 being 620. Still, this is a large number; and it is to be hoped that the public will continue to support the National Lifeboat Institution, that it may unceasingly use every effort to reduce even that number. It appears from the returns that 30,261 lives have been saved by lifeboats, the rocket apparatus, shore boats, ship's boats, and other means, from 1855 to 1864 inclusive—a fact which is without a parallel in philanthrophic efforts—and that 3,619 lives were thus saved last year alone.

During the past few years this country has been visited by terrific gales of wind; and there is no question that the increase of our shipping casualties has occurred in particular gales of remarkable violence. For instance, in 1859 our shores were visited (among other gales) with the storm which proved fatal to the *Royal Charter*, and 446 lives; in 1860 there was a succession of gales throughout the year; in January, February, and November, 1861, there were fatal gales from the north to the east and south-east, which alone added upwards of 460 to the number of casualties in that year; in 1862, the westerly gales of January, October, and December, added upwards of 540 to the number of casualties; in 1863, the westerly gales of January, March, September, October, November, and December added upwards of 930 to the number of casualties; and in 1864 the easterly and westerly gales of January, February, March, October, and November added upwards of 400 to the number of casualties.

Of the 1,741 vessels which met with disasters in 1864, 1,434 are known to have been British ships, and 246 foreign ships, while the country and employment of 61 are unknown. Of the British ships,

454 only were foreign going; and of the foreign ships 179 were making voyages to or from the United Kingdom, and 13 were employed in the British coasting trade. The remaining 1,095 ships were employed in the coasting trade, with the exception of a few foreign ships which were passing the coasts of the United Kingdom on foreign voyages, and those whose country and employment are unknown. Of the total number of casualties reported in 1864, 351 were casualties arising by collision, and 1,039 were casualties from causes other than collisions. Of these 1,390 casualties, 467 resulted in total losses, and 923 in damage more or less serious. Of the 386 total losses from causes other than collision, 163 only were caused by stress of weather; 89 were caused by carelessness, incompetency, and neglect; 39 from unseaworthiness, or defects in the ship or her equipments; and 95 from various accidental causes. As usual, the number of ships of the collier class meeting with accidents is nearly half of the whole number of ships to which casualties happened during the year, amounting to no less than 844; and this notwithstanding the loss of 74 fishing vessels during the various gales of 1864. It is to the unseaworthy and ill-found vessels of the collier class that the great number of casualties on our coasts is due. It is worthy of notice that of the 1,741 ships to which accidents happened in 1864, only 136 were steamships; only 91 exceeded 600 tons burthen, and only 328 exceeded 300 tons burthen.

The tonnage of the ships is given as follows:—

Vessels	under	50	tons				323
,,	,,	51	,,	and under	100		432
,,	,,	101	,,	,,	300		658
,,	,,	301	,,	,,	600		237
,,	,,	601	,,	,,	900		41
,,	,,	901	,,	,,	1200		31
,,	,,	1201	,,	and upwards			19
				Total			1,741

The age of the vessels is also given, as before, in the register. During the six years ending 1864, 757 casualties happened to nearly new ships, *i. e.*, ships under three years of age; 3,152 to ships from three years to fourteen years of age; 3,894 to ships from fourteen to fifty years of age; 300 to ships from fifty to eighty years of age; nine to ships between eighty and ninety years of age; five to ships between ninety and a hundred years of age; and three to ships of above a hundred years of age.

The greatest number of casualties, as usual, happened on the east coast; but the disasters attended with the greatest loss of life on the coasts, during the six years ending 1864, occurred on the Irish sea, between England and Ireland. These shipwrecks are clearly defined on the wreck chart which accompanies the Wreck Register. On it is faintly represented the fearful scenes which play out their tragedy on our shores every winter. We observe that at the entrance of our great trading ports all over the kingdom the black dots on the wreck

chart are very numerous; and while they indicate doleful shipwrecks, they also tell of noble deeds performed by our lifeboat crews, in the face of death, in snatching many a life from a watery grave.

The cargoes of the vessels to which casualties happened in 1864 are given as follows:—

Colliers laden	523
Colliers light	99
Iron and copper ore, &c.	126
Stone, &c.	96
Timber	83
Fishing smacks	74
Other laden vessels	557
Vessels in ballast (not colliers)	134
Passengers and general cargo	49
Total ships	1,741

The winds that have been most disastrous to shipping during the six years ending 1864 are here given; the westerly winds, it will be observed, being by far the most fatal; N., 272; N.N.E., 250; N.E., 386; E.N.E., 322; E, 303; E.S.E., 331; S.E., 434; S.S.E., 306; S., 346; S.S.W., 586; S.W., 943; W.S.W., 639; W., 556; W.N.W., 648; N.W., 653; N.N.W., 315.

As regards the force of the wind, out of the whole number of actual casualties in 1864, 794 happened when the wind was at force eight or under, *i. e.*, when a ship, if properly found, manned, and navigated, would keep the sea and make the voyage in safety; and 514 happened whilst the wind was blowing from a strong gale to a hurricane; nine occurred with a variable wind; and 73 with a wind the force and direction of which is not known. Happily casualties from collisions are not on the increase, either absolutely or proportionally with other casualties. The annual average per cent. of all collisions reported as compared with the total number of disasters reported during the four years ending 1860, is 23.98; and during the four years ending 1864, is 22.24. But if only collisions properly so called, *i. e.*, collisions between two ships both of which are under way, be taken, then the result will be as stated below: for the four years ending 1860, 17.18 per cent; and for the four years ending 1864, 15.12 per cent. The numbers for the last three years are as follows:—1862, 247; 1863, 197; and 1864, 243. The main causes of the collisions during 1864 are reported as being bad look out, neglect, and misapplication of the rule of road at sea, negligence, parting cables, and dragging anchors. Only seven total losses by collision, and 31 partial losses by collision can, from the facts as reported, be attributed to inevitable accident.

The number of collisions reported in 1864, as happening in weather described as dark, very dark, hazy, or thick and foggy, is 101; whilst the number happening in weather described as cloudy, dark and clear, or clear and fine, was 190. Cases of collision have been reported in which no look-out whatever has been kept, or in which the deck of

the ship has been left without any person in charge, and the helm has been lashed down, although the ship may have been sailing at full speed, and in a much frequented part of our narrow seas. In cases of this description the master of the vessel ought undoubtedly to be prosecuted. The enactments in the Merchant Shipping Amendment Act of 1862, on the subject of collisions, and the rules adopted by her Majesty's government, and by the government of the Emperor of the French, and accepted by all maritime nations, have now become better known, and will, it is hoped, lead to a diminution in the number of collisions.

We have thus attempted to analyse briefly this important Wreck Register, and we have seen that death levies a heavy toll on our journeys on the sea. We pay dearly and suffer much. Every one is now familiar with what is done by our noble fleet of lifeboats, the life-preserving apparatus of the Board of Trade, and various other means to break the tyranny of the stormy waves, and to give safety to the 4,000 or 5,000 poor creatures who suffer shipwreck every year on our coasts. It is true that no man can contend with the elements. It is inevitable that shipwrecks will occur from various causes in our seas and on our coasts; but we nevertheless maintain firmly that skill and precaution can successfully battle with the most fearful storms to a large extent. Sailors are a careless race, and indeed they must always be so, for a calculating youth would hardly select a sailor's life for his profession in the absence of the noble instinct which impels our young men to make that choice.

As we have often said before, those saved by lifeboats would probably perish in their absence in ninety-nine cases out of every hundred. The following cases, which amongst scores of others occurred last winter, will show clearly the character of these lifeboat services:— On the 20th of February last the Blakeney lifeboat went out and rescued a crew of thirteen men from the barque *Amuna*, of Sunderland, which was totally wrecked, during thick weather, about three miles east of Blakeney Harbour. The lifeboat also brought ashore five men who had previously boarded the vessel in their own boat, and were unable to reach the land again in her. About 9h. 30m. p.m., on the 7th of December, the St. Nicholas light-ship was observed throwing up rockets, and a light was seen as if from a vessel in distress on the Scroby Sands. The Yarmouth large lifeboat was immediately launched, and proceeded in the direction of the signals of distress, which were found to proceed from the Austrian brig *Zorniza*, of Lucine, which had stranded on the Scroby Sands. Every exertion was made by the lifeboat's crew to save the vessel, and they ultimately succeeded in getting her off the sand; but having previously lost her rudder she was quite unmanageable, and again got on the sand. The crew, consisting of twelve men and a pilot, were then taken on board the lifeboat with great difficulty, and afterwards brought safely ashore. The sea was very heavy, and one of the beachmen's yawls, the *Bravo*, was damaged to such an extent in en-

deavouring to assist the vessel, that her crew of seven men left her and gladly got into the lifeboat, fearing their own boat would sink.

About 3h. a.m., on the 25th of November, the *Mary Hartley* lifeboat was launched, and proceeded in tow of a steam-tug, down the river to Buddonness, near Dundee, to the rescue of the crew of a vessel reported to be in distress. At daylight the schooner *David and John*, of Montrose, was seen amongst the broken water, near No. 2 Gaa Buoy, in a dangerous position. The lifeboat immediately pulled to her, and with considerable difficulty got alongside, and took off the crew of four men, and afterwards landed them in safety. The weather was very stormy. The schooner was left at anchor, but sank soon after the crew had been taken off.

On the 7th of December signals of distress were observed on a vessel near the Little Orme's Head. The Sisters' Memorial lifeboat was launched, and found a vessel at anchor, with her mast carried away. She proved to be the flat *Morning Star* of Carnarvon. With the assistance of the lifeboat, the vessel and her crew of three men were brought safely into Llandudno. It blew very hard from S.S.W. at the time.

There are at present 150 lifeboats on the coasts of the United kingdom belonging to the Royal National Lifeboat Institution, and 35 to local boards. The mortar and rocket apparatus stations now number 243, and are under the management of the coast guard and the Board of Trade. During the year 1864 and the first eight months of 1865, 627 lives (besides 28 vessels) were saved by the lifeboats of the National Institution alone, and 395 by shore boats and other means, for which it granted rewards. A sum of £2,297 was expended by the institution in the same period in rewards; and £34,128 on its various establishments round the coasts of the British isles.

In the presence of facts like these, the Lifeboat Institution need have no misgiving in respect to pecuniary support, whilst it pursues vigorously and successfully the great and national objects for the promotion of which it was established more than forty years ago.

It is gratifying and encouraging to find that in proportion as the sphere of the operations of the institution increases, its committee of management and officers become deeply sensible of their great and responsible duties, and of the high trust which the British public has reposed in them. Its local branches, and the sailors who are ever ready to man the lifeboats, fully participate in this feeling of responsibility; and so long as this mutual feeling is maintained and strengthened, the cause of suffering humanity must be the gainer.

In conclusion, we may ask, who can read the account of the lifeboat services without endorsing the eloquent words of Miss Florence Nightingale, when she recently said, in sending her £20 to the Lifeboat Institution. "I can never see the accounts of the heroic deeds constantly performed in this cause without feeling that the age of heroes has not passsed away; and may God bless, as he has so manifestly blessed, the valiant National Lifeboat Institution."

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

Particulars of Lights Recently Established.

(Continued from page 499.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
48. Corton Gatway	England East coast	Upp near Hopn Low Churh	F. F.	87 37	.. ..	Est. 1st October, 1865. *Red* lights. (*a.*)
River Humber Entrance		.....	..	..	..	Est. 1st September, 1865. Vertical lights. (*b.*)
49. Gryto Island	Norway	67° 23·2′ N., 15° 52·7′ E.	F.	106	18	Est. 11th September, 1865.
Vaago	Ditto	.....	F.	..	..	Est. 11th September, 1865. Altered to a *red* light.
50. Egg Island	Nova Scotia, S.E. coast	44° 39·9′ N., 62° 51·5′ W.	R.	86	15	Est. 5th November, 1865. Once a minute, showing *white* and *red* alternately.
Little Hope Isles	Ditto	43° 48·5′ N., 64° 47·2′ W.	R.	40	11	Est. 15th November, 1865. Once a minute.
Green Island	Cape Breton Island	45° 28·9′ N. 60° 53·7′ E.	R.	70	14	Est. 25th November, 1865.

F. Fixed. Fl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a) 48.—The upper light will be at one third of a mile northward of Hopton Church.

The lower light will be half a mile distant from the upper light, with Corton Church bearing S.S.W.½W., distant 1·1 miles.

The two lights in line bearing N.W.b.N. will lead through the Gatway in the deepest water.

(b.) 48.—*Entering the Humber.*—On the 1st of September a floating light-vessel, carrying two lights (vertical, upper white, lower red, 3 feet apart), was placed at the N.E. end of the sand forming the "*pitch*" of Whitton Ness on the South shore of the Humber. Vessels entering must therefore pass round North of this floating light.

Antipodes Islands *and Merchant Ships' Charts.*

Our attention has been called to an allusion in our July number to the inaccuracies of merchant ships' charts, in reference to the position of Antipodes Islands, as determined by Captain Barwood, the commander of the barque *Fugitive.* With the statement of Captain W. P. Stevenson, commanding the ship *Maidstone*, which appeared in page 334 of our volume for 1859, who also alluded to Horsburgh's chart as differing then, according to that statement, as much as fifty miles from the correct position of those islands. And we cautioned our mercantile commanders against using such incorrect documents. We do not remember referring to Horsburgh's chart in 1859 in confirmation of that statement, and it would now be obsolete. But our remark in the July number alluded to the then reported condition of the chart, which, as well as the "Directory," we are glad to find is free from this

egregious error, and is kept in that improved and healthy condition, which recognizes the most recent discoveries of the day, and which, with the *Directory*, reflects much credit on the care and pains bestowed on them by the Editor. If we could say the same of others there would have been no occasion for the disparaging remarks of Captain Barwood.

Ports and Harbours on the N.E. Coast of Queensland.

(Continued from page 498.)

Pioneer River.

Vessels on nearing the Pioneer River can always recognise its position by its proximity to two islands, lying N.W. and S.E., one mile apart: that to the S.E. being round topped and moderately high, while that to the N.W., although about the same height, is flat topped.

The entrance to the Pioneer is about one and a half S.W. of the flat topped island. A bar extends across the mouth of the river, which nearly dries at low water springs, and from thence the depth of the channel, which has an average width of one cable, varies from one foot to seven feet at low water, until within about three quarters of a mile of the settlement. It again almost dries across, and from thence the depth gradually increases until abreast the settlement, which is about four miles from the bar, and where there is about six feet at low water in the centre of the channel.

There is a rise and fall on the bar from 10½ feet to 16 feet, and at the settlement, of from 9 feet to 13 feet, so that most of the vessels trading on the coast can enter the port without difficulty.

The Directions for Entering are as follow:—To cross the bar, keep a double hummock, which is about eight miles inland, just to the southward of some low sand hills on the beach. Pass on either side close to the Fairway Buoy, which is laid in three fathoms at low water, and is chequered black and white. A vessel may haul up when the island to the S.E. of Slade Point is well shut in with the trees on the extreme East point, and when two red buoys have been passed on the starboard hand; the first of which is placed on the bar, and the second off the spit round which a vessel must haul up to the northward. When approaching the bar, two white beacons will be seen on the beach, which give the best line for crossing the bar. On standing in shore care should be taken not to shut in L Island with East point. After hauling up to the northward, two more red buoys will be passed on the starboard hand within a ship's length, when steer for the steep shore on the West side of East point. As that point is neared, the edge of the banks become more clearly defined; they are steep to, and may be approached within a reasonable distance. Thence the channel runs along the starboard shore, until just before reaching a sandy cliffy point, when the township will be opened out to the westward, for which a vessel may then haul up and steer until nearly abreast the first point on the port hand, when it will be necessary to keep a good look out for the buoys which are placed in this portion of the channel,

as the banks are here liable to shift. On entering, the red buoys are to be left on the starboard and the black buoys on the port hand. A berth may be taken up, as convenient, abreast the township, in from five to seven feet at low water.

Vessels intending to enter the Pioneer River should not run down on the lee shore when it is blowing hard from the East or S.E., but should anchor under some of the islands off the coast until the weather moderates. In moderate south-easterly weather a vessel would find sufficient shelter under the lee of the flat topped island, being careful to avoid a sandspit running off the South extreme of that island, toward the East point at the entrance of the river. There is a good passage, about half a mile wide, between this spit and the shoal water off the main land. When in mid-channel the island to the S.E. of Slade Point is on with the peak of M Island. The entrance of the river is sheltered by the islands during north-easterly winds.

Vessels should carefully avoid the dangerous reef to the northward of the two islands off the Pioneer, and lying nearly midway between those islands and the island to the S.E. of Slado Point. There is, however, a clear passage between this reef and the main land, and also between Slade Point and the small island lying off the shore. There is also a passage between the round and flat topped islands.

The tides in the Pioneer River run from three to upwards of four knots. High water, full and change, 11h. 8m.

Vessels, if drawing more than six feet, may lay aground, at low water, abreast the settlement in safety, on soft sandy bottom; the river at that time of tide forming a perfectly sheltered basin there.

On entering the river while any tide is running, the banks are generally visible, and there is little difficulty in navigating the river if proper attention is paid and the lead kept going. From the narrowness of the channel the port is not well suited for vessels of any great length.

Royal National Life-Boat Institution.

A meeting of this institution was held on the 3rd of August at its house, John Street, Adelphi, Thomas Chapman, Esq., F.R.S., V.P., in the chair. Mr. Lewis, the Secretary, having read the minutes of the previous meeting, a reward of £7 10s. was voted to the crew of the lifeboat of the institution at North Deal, for putting off during a strong N.W. wind, in reply to signals of distress from the Gull Lightship, to the assistance of a collier brig which had struck on the Brake Sand, off Deal, on the 22nd of July. As the tide rose the vessel fortunately succeeded in getting off the sand.

Various other rewards were also granted to the crews of shore-boats and others, for saving life from wrecks on the coasts of the United Kingdom.

Payments amounting to £1,675 were ordered to be made on various lifeboat establishments

The institution decided to station the Duchess of Northumberland's lifeboat at Hauxley, on the Northumberland coast, and to place new lifeboats at the following places:—Kingsdown, near Deal; Whitehaven, Cumberland; Wicklow; and at Courtown, Cahore, and Rosslare, on the coast of Wexford.

It was reported that Messrs. Forrests and Son, of Limehouse, had just sent three additional lifeboats to the French Shipwreck Society. They were built under the superintendence of the institution. The Count de Bastard and Captain Albert, of the French imperial navy, had, on behalf of the French Society, visited one of the lifeboat stations of the institution, to see the system of management, and had also seen the rocket life-saving apparatus in operation. They expressed themselves highly gratified with the completeness of the same. They ordered three more lifeboats for their society.

During the past month the institution had sent new lifeboats to Maryport, on the Cumberland coast, and to Peterhead, N.B., and demonstrations had taken place at both places on the arrival of the lifeboats. The several railway companies had, as usual, readily given the lifeboats a free conveyance to their respective stations.

A public launch had also taken place of the Commercial Travellers' lifeboat stationed at Piel, on the coast of Lancashire, and had excited much attention.

A report was read from Captain Ward, R.N., the inspector of lifeboats to the institution, on his recent visit to the lifeboat stations on the Irish coast, and to some of the English lifeboat establishments. With few exceptions all the lifeboats were in excellent order.

It was stated that the late Mrs. Warner, of Widcombe, Somerset, had bequeathed a legacy to the institution for the purchase of a lifeboat. The members of the Ancient Order of Foresters had transmitted an additional liberal contribution of £90 1s. in aid of the Forester lifeboat, stationed at Newquay, Cardiganshire.

The proceedings then terminated.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, *in September*, 1865.—*Sold by the Agent, J. D. Potter*, 31, *Poultry, and* 11, *King Street, Tower Hill, London.*

725.—Spain, North coast, Guetaria Bay, Rivadesella, &c., Harbours, Spanish survey, 1860, (1s. 6d.)

403.—Australia, South coast, Woods Point to Lowly Point, including Port Augusta entrance, Commander Hutchison, R.N., 1863, (5s.)

1,171, *a,b.*—Australia, South coast, Port Phillip, 2 sheets, Commander H. L. Cox, R.N., 1864, (5s.)

1,917.—America, N.W. coast, Vancouver Island, Captain G. H. Richards, R.N., 1859 to 1864, (3s. 6d.)

South American Pilot, part 2, sixth edition, Staff-Commander J. W. King, R.N., 1865, 5s.

EDWARD DUNSTERVILLE, *Commander, R.N.*

Admiralty, Hdrographic Office, 20th September, 1865

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

NOVEMBER, 1865.

Remarks on a Passage through the Straits of Magellan and Smyth Channel.—*By Commander E. A. Porcher, H.M.S. "Sparrowhawk,"—June and July*, 1865.

Since the days of the celebrated navigator Magellan, who discovered and first passed through these straits in 1519, vessels have seldom made use of them on account of the constant westerly gales that blow through them the whole year round. And although they have many dangerous anchorages, sailing ships have naturally preferred to them even the more boisterous passage round Cape Horn. This probably will always be the case. Yet now that all men-of-war and many other vessels that pass into the Pacific are aided by steam power, the question remains for decision which is the most preferable way for these of making the passage.

The weather in this part of the world varies so much at different seasons of the year, that an account of a single passage is worth very little, and as Captain Conolly, of H.M.S. *Sutlej*, has lately published in the *Nautical* an account of his difficulties in getting through them in February, 1863, during the middle of the summer, it might be interesting to have also a short account of what a ship can do during the short days in the middle of the winter.

The greatest difficulty of the passage lies in first making the Straits and getting through the First and Second Narrows, where the tides run, in the former between 6 and 7 knots, and rise during the springs as much as 42 feet. For two days before making the land we had

thick and gloomy weather, which prevented us from having any sights, and we had to run in for the land without knowing our true position on the 27th of June during a thick fog, trusting to our soundings. This can be done with comparative safety, as the shore is steep close to, and there are no outlying dangers any distance from it.

About 11h. a.m. we observed the cliffs about nine miles to the northward of Cape Virgins, which we easily distinguished by the accurate view of them given in the Admiralty chart, and the perfect outline of the cape itself. This point we rounded close to, and it being at the time high water, we ran over the Sarmiento Bank, and steered up for the Great Orange Bank, where we anchored at 5h. 30m. p.m. in 17 fathoms, as it was then getting quite dark. This seems a good anchorage with the wind from the S.W., as it is sheltered by the large bank that is dry in some places at low water, and extends off the shore as far as eleven miles.

June 28th.—Away at daylight, and steamed past Possession Bay, through the First Narrows, across St. Jago Bay, and anchored as the sun was going down at 3h. 30h. p.m. off Cape Gregory in 10 fathoms. The distance we ran over to-day was fifty-five miles, having had a moderate breeze against us from the S.W.; but the whole of the flood tide was in our favour, sweeping us through the First Narrows very rapidly. The difficulty of finding the ship's position at the eastern entrance of the Straits, and particularly after passing the First Narrows, where the Barranca Bank and the Triton Shoal have to be avoided, arises from the great similarity of the land, and the great want of a few distinguishing marks. If the Straits of Magellan ever become a highway for steamers, which it probably will in a few years, this might be easily remedied by having a few landmarks built on the most prominent points, and then the only difficulty left will be the violent westerly gales that blow the whole year round, but with their greatest force during the summer.

29th.—Steamed to-day through the Second Narrows, passed Elizabeth Island, and anchored off the small Chilian settlement at Sandy Point at 3h. p.m. in 10 fathoms. There was very little wind the whole day, and the atmosphere beautifully clear, so that we easily made out Mount Sarmiento at the distance of ninety-six miles. This is the highest land in Terra del Fuego, and rises to the height of 6,800 feet in a remarkable peak, covered with perpetual snow. After dropping the anchor, the acting Governor came on board and offered his services in any way he could be useful. Before it became dark, Dr. Comrie accompanied me on shore to see the settlement. This consisted of a number of irregularly built wooden houses, with verandahs round them, the best of which seemed to be the governor's house, barracks, and wooden fort. By the account I could gather from the inhabitants, the history of this little place seems to be that, in 1851, 300 convicts were sent to it from Valparaiso for political offences, under a guard of sixty soldiers. After being here only three months they mutinied, killed the governor and the greater part of the

garrison, set fire to the barracks and hospital, and then took possession of a trading vessel that was at anchor off the place. They afterwards quarrelled amongst themselves in sharing the plunder on board the vessel, by which means a great many of their lives were lost, and the tragedy only ended by their being captured by an English man of-war, from which the surviving convicts were transferred to the Chilian government, by which they were put to death. Since this rather abrupt termination of the attempt to plant a convict establishment on these shores, it has been purely a military settlement, more for the purpose of keeping possession of the most southern part of Patagonia than for any real good.

During the time of our visit the settlement consisted of 110 souls, viz., fifty soldiers, two officers, six sailors, four carpenters, two blacksmiths, one storekeeper, one priest, forty-four women, and a number of children. This appears to be passing a kind of miserable existence, only having communication with Valparaiso once in six months, when a sailing vessel arrives with a fresh supply of provisions and stores. In fact, all the news they get is obtained from the few vessels that stop here on their way through the Straits.

The following information about the coal in this locality I received through Captain Caldbeck from Senor Don G. Schythe, who has been for the last ten years governor of the settlement, and only retired from it a few weeks before our arrival.

"There has been some coal discovered in the neighbourhood, but as yet it has never been worked. It crops out from the side of a range of hills about 800 or 1,000 feet above the level of the sea, and eight miles distant from the settlement. The seams show about 200 feet below the summit of the hill, and are overlaid by sand and earth, so loose as to make the approach rather dangerous. This debris continually slipping away, takes with it masses of coal into a mountain rivulet, and which in time of winter floods rolls them down to the sea, there strewing the beach in lumps, which suggest to strangers the idea of large supplies being close by. The dip of the seam is from N.W. to S.E., and the inclination about 30° in the latter direction. The thickness of some of the seams is stated to be nearly three feet. It is nine years since the exploration was made, at which Mr. Schythe was present, and the coal examined by two geologists and surveyors in the government service, Senor Don Ignacio Domeyko and Senor Pissio. The coal is of tertiary formation, as well as the shells and fossils found there, and is of the same description as the Chilian coal of Coronil and Lota, and requires furnaces of a peculiar construction for its combustion. Mr. Schythe thinks that great inducement in the shape of very high wages would be needed to secure labour, owing to the rigour of the climate and the isolated position of Sandy Point. Then the construction of a wharf, eight miles of tramway, the requisite buildings, plant, and lighters, together with the expense of roofing in, so as to make the working free of danger, might probably make coaling in the Straits more expensive than in other places."

A few Patagonians come to the settlement occasionally to sell their guanacoe skins and ostrich feathers; but the only specimens we saw were two men that had taken up their abode here for some time past, and met us on our landing. They were tall, and wrapped round with their guanacoe skins. Later in the evening we saw a daughter of one of them, being rather a good looking girl. She treated us with a real Patagonian song as well as her father. In an enclosure adjoining the governor's house there were five guanacoes, which were kept for the purpose of breeding. They were fine looking animals and very tame.

Great quantities of drift wood have been washed up along the shores round the settlement, that would be useful to any vessel requiring a supply to assist in steaming. As there was supposed to be abundance of fish, we sent a seining party away, but they only returned with ten mullet. The governor was very generous in giving us as many vegetables, milk, butter, eggs, &c., as could be spared.

30*th*.—The Chilian officers came on board early to leave their letters for Valparaiso, after which we left for Port Famine, where we arrived before noon. There was a Chilian settlement here in 1843, called San Felipe, but it was abandoned in 1849, as they found the land too steep and inconvenient, and not suited for agricultural purposes. Some of the frameworks of the houses are still standing, and can be clearly made out before entering the harbour, and several pieces of material that formed the sides of the houses are still in their places.

On a rising formed on the western side of the harbour we came on the tomb of a seaman who had finished his days in this lonely spot. It had a wooden head board and railing. There had been a copper plate on the board, which had not escaped the thievish hands of the natives, and the particulars of the inscription have been lost, but on the opposite side was written in pencil, Henry Lighte, H.M.S. *Calypso*. The shores of the whole harbour were heaped up with drift wood, being mostly cedar and beech, and well suited for steaming purposes, as well as for carpenter's work. A party was employed cutting it up during the day and a half we remained here, and sent on board a considerable quantity.

A seining party were also sent away to the West side of the harbour, near the mouth of the river, but only succeeded in getting four mullets after several hauls. The summer seems to be the best time for visiting these places, as the birds and fish are then more abundant, and the country has then quite a different aspect, the trees being out in leaf, and the ground covered with flowers. At the time we visited it, everything was saturated with moisture, with great quantities of ice, which made the walking very disagreeable.

The evening before we left a Fuegian canoe made its appearance round the point of the harbour just as it was getting dark. Instead of coming on board, they paddled up to the wooding party, who had a fire burning on the beach. Two of the men landed and obtained some tobacco from our men, keeping a woman and some children in the

canoe. Their fire was seen in the morning in a cove near the ship, and the canoe was coming off to us as we were steaming out of the harbour.

July 2nd.—Left Port Famine at daylight, and rounded Cape Froward, the most southern point of the main land of America, and anchored in the small harbour of Borja Bay in 17 fathoms, an hour after sunset, having run sevety-five miles. The weather was very fine the greater part of the day, at one time quite calm, which made the bold scenery on both sides of the Straits appear very picturesque. The land rose in some parts to a height of 2,000 or 4,000 feet, being well wooded, and having numerous waterfalls to improve the scenery, but the hills were covered with snow about half way down, which gave them a wintry and desolate appearance. Borja Bay is very small, being not more than a quarter of a mile wide, and is surrounded by rocky hills, those on the North side being 1,800 feet in height.

3rd.—Left Borja Bay and steamed through the Long Reach, and anchored in Port Tamar, having run a distance of 60 miles. The breadth of the Straits for the greater part of the day was about two miles, and the scenery was much wilder than that which we saw yesterday: the verdure having to a great extent disappeared, and the few trees that were seen grew close down to the water. At Glacier Bay we saw a very fine glacier that extended down to the water line, and on the opposite side of the Straits, but a little more to the eastward, were two others that did not seem to be quite so large. Till about 2h. p.m. we had had a calm, then a fresh breeze sprung up from the S.E., which took us into Port Tamar, apparently a very safe anchorage with any wind but that which was blowing. This blew right in, leaving us without any more shelter than that from a shoal patch of 4½ fathoms. We therefore let go both anchors, the first in 13 fathoms, and the second in 24 fathoms. The water seemed to be much deeper than that which appears in the charts, as where we had 20 and 23 fathoms there was only marked down 12 and 13 fathoms.

4th.—Left Port Tamar, crossed the Straits of Magellan, and entered Smyth Channel during the forenoon, where we threaded our way up amongst the numerous small islands till we arrived at Fortune Bay, where we moored at 2h. p.m.

The breadth of the Channel to-day was in some places not more than three quarters of a mile, and therefore well sheltered from the wind, which was blowing hard from the westward. Fortune Bay is a very secure and land-locked harbour, but the depth in the middle is 15 fathoms, and being only two and a quarter cables' length across, there would not be room for a vessel to swing at single anchor. Sent a wooding party on shore, but did not succeed in finding any drift wood; the only kind worth taking being the remains of some trees that had been felled by some former vessel.

5th.—Left Fortune Bay and steamed through the Victory Pass; passed the Cloyne Reef, which is just awash and dangerous in thick weather. Anchored in Relief Harbour at 5h. p.m.

During the greater part of the day it was blowing hard through the Channel from N.W., with drizzling rain, which prevented us from having a good view of the different mountains, particularly the Cordillera of Sarmiento, which is snow-capped and has extensive glaciers; these we only partially saw. The *Sparrowhawk* steamed well with two boilers against these strong breezes, going between five and six knots. Relief Harbour is a convenient stopping place, as there is no anchorage to be had within thirty miles of it North or South. It is, however, quite open to southerly winds, and would be unsafe with the ocean swell rolling as it does through Nelson Straits.

6th.—Left Relief Harbour and steamed through the Sarmiento Channel against a strong breeze, and moored in the excellent harbour of Puerto Bueno in 8 fathoms at 1h. p.m., having run to-day a distance of thirty miles. Continued rain fell the whole day, throwing a gloom over the fine scenery in the Channel, which in some places is not more than a mile wide. On pulling round the harbour in the afternoon, we found that the outline of the bay in the chart had been but roughly sketched in; for although it was quite sufficient to guide a vessel safely into it, (a remark applying to the whole of the Admiralty charts of the Straits, evidently requiring infinite labour in that stormy latitude,) I think it would be well worth while to send a surveying vessel down here for a few months to complete what has only been partially done.

We observed two boards nailed up to a tree on the North side of the entrance to the inner harbour, with the following writing on them:—

+P.M.S.S.+
Colorado,
G. H. Bradbury,
Commander,
May 23rd, 1865, 36 days from N. Y.
All well.

P.R.R. Co. Str. *Parkinsburgh*.
Jan. 2nd, New York, 1865,
Capt. W. Rathburn.

7th.—Left Puerto Bueno and steamed through the Guia Narrows, which in one place are only 400 yards across in the Concepcion Channel, and at sunset tried to get an anchorage at Small Craft Bight, but did not succeed in getting any soundings except very close to the shore. All day we had a fair wind from the southward that went down after sunset; and being full moon and in a wide part of the Channel, there was no difficulty in keeping under way for the night. Therefore we steamed slowly ahead until midnight, and then stopped in mid-channel until near daylight.

8th.—This morning in a thick fog we rounded Saumarez Island, which has high bluff cliffs, through the Indian Reach and the English Narrows, which is the most intricate part of the Straits. The passage is contracted so much by the numerous islands, that in some places it is not more than 400 yards wide. Anchored in Halt Bay in 25 fathoms in the afternoon, having steamed since daylight sixty miles.

In coming up the Indian Reach we saw some smoke amongst the

trees, which was the first indication of any inhabitants we had seen in Smyth Channel. A great many seal had been observed in the course of the day, jumping and frollicking in the water, and it appears to be the most favourite part of the Straits for their rookeries.

The soundings in Halt Bay seem to be also inaccurate; for in coming into the harbour we found 42 fathoms where 28 were marked in the chart. It is also stated that the cedar cut in this place is well adapted for steaming purposes, burning easily, and giving out good heat, and not requiring to be freshened with coals. However, as there was no drift wood of any kind lying on the shore, and any we might get had to be cut down, I did not think it would be such a good place for us to stop at, as our means were limited in the way of saws and axes.

The harbour is half a mile wide and very picturesque, as it appears surrounded by high steep hills covered with trees, with waterfalls dashing down in every direction.

9th.—Left Holt Bay and steamed to the northward in a more open part of the Straits, and anchored in the small land-locked port of Island Harbour in the afternoon. This secure place is less than two cables' length in width, and finding that we had not many yards to spare in swinging round, we secured a hauser to some trees on the weather shore, to prevent swinging round in the same direction again.

At the end of the harbour a large cascade falls into it, and as it can be seen from a distance, it forms a good landmark for making the place. The hills around are high, and well wooded up to their summits. It is conveniently situated for vessels entering or leaving the Channel, and as another recommendation it is mentioned in the Sailing Directions that the shores are lined with drift wood. But on pulling round the harbour I certainly did not see a single piece, and it was only on leaving that I saw at a solitary spot near the entrance a little washed up, so that vessels coming here for the purpose of procuring drift wood will probably be disappointed.

10th.—Left this our last anchorage at daylight, and on nearing the entrance of the Straits met three canoes full of natives, the largest having twelve in her. They had fires burning in the middle of the boats, as is the custom amongst the Fuegians, and they were all naked with the exception of a fur cloak thrown across their shoulders. The women looked very fat and plump, and not at all in a starving condition, with their faces *smeared over* with red earth and all kinds of dirt. They came close alongside, making a great deal of noise, but did not seem very anxious to board us, although we were stopped, and moving ahead very little. About three hours after leaving we fairly cleared Smyth Channel, and then steered to the westward to get a good offing.

Having thus passed through the Straits with so little trouble, we had good reason for considering that steaming through them was far preferable to going round Cape Horne, where vessels are kept continually in the same position for days together in endeavouring to get to windward against heavy westerly gales.

We certainly had the fine season, and, moreover, beautiful weather to assist us, which must account in a great measure for our prosperous passage; nor were we detained a single day from stress of weather.

With the very short days in the middle of winter, it only took us thirteen days from the day we entered the Straits of Magellan to the time we cleared Smyth Channel, including one day we stopped at Port Famine.

The *Sutlej* seems to have been the largest ship that attempted the route by the Straits of Magellan, and she had to force her way through them during the summer, when the gales are more frequent and boisterous. By their account, also, it certainly seems that it would have been far better if they had gone round the Cape, as they were ten days in the Straits, during which time they lost two anchors, and were once driven on shore.

Anchorages in the Straits of Magellan.

June 27.—Great Orange Bank, from Cape Virgins.	28	miles.
28.—Cape Gregory, distance run	51	,,
29.—Sandy Point	44	,,
30.—Port Famine	28	,,
July 2.—Borja Bay	75	,,
3.—Port Tamar	61	,,
4.—Entrance of Smyth Channel	15	,,
	302	miles.

Smyth Channel.

4.—Fortune Bay	35	,,
5.—Relief Harbour	60	,,
6.—Puerto Bueno	30	,,
7.—Remained under way	85	,,
8.—Halt Bay	60	,,
9.—Island Harbour	51	,,
10.—Cleared Smyth Channel in	35	,,
	356	miles.

[The paper of Captain Conolly on these Straits appears in our July number of 1863, p. 337. Further valuable information appears in vol. for 1861, p. 313, by Mr. Reid, Master, R.N., especially on using the Strait. Also on using, vol. 1860, p. 146; also 1858, p. 544; and an important paper in our number for September, 1856, by Commander Trollope, of the *Rattlesnake*, with numerous passages through. An interesting and useful account also appeared in our volume for 1854, by Commander F. L. Barnard, of the *Vixen*, p. 298 *et seq.*; and in that of 1853, Mr. G. H. Inskip, Master of the *Virago*, gave some useful information on these Straits. And further will be found on referring to the Index of the first twenty volumes of this work.]

A Foreigner's Account of Us:—*The Trinity House.*

There is something salutary in looking at our public institutions concerning seamen with the eye of a foreigner. The result may be more methodical; perhaps more impartial for good and evil report than that which we might scrape together ourselves; besides which it is likely to be somewhat more searching than would be produced by a native! The following remarks on our Trinity House system abound with good feeling, and are the production of a seaman; but he was not aware that that corporation is dependent on the government for the surveys of those shores, a part of which only falls under its surveillance in buoying and lighting. This duty, however, of providing correct charts led to the establishment of our Hydrographic Office at the Admiralty. The buoying of shoals to mark channels was instituted, as we shall see, in our early days of navigation, at a time when charts were less thought of and perhaps less wanted than they are now. And had the offices for these different branches of navigation to be established now, viz., the buoying and lighting, the piloting, and the constructing of charts and sailing directions, so essential to safe navigation, as well as the keeping of all these branches in a healthy condition according to the current information of the day, perhaps we should have seen them located in one office of the State instead of two or three. But such a state of things would not suggest itself to our Foreigner,—whose object was simply to describe these as he found them,—with circumstances of our character for nautical affairs, the effect of our insulated condition, with which remark he opens his subject.

Nothing that can possibly interest the seaman is foreign to a maritime nation. England, for instance, with her ingenuity and liberal views in respect of the means of saving lives from shipwreck, is no less attentive to preventing shipwreck itself by the establishment of her lighthouses. Hence the construction of lighthouses, which she encourages with so much care, merits the attention of any one who would consider the various aspects of life among the English.

Lighthouses were known in England from the time of the ancients. The Romans even had constructed towers on the shores of Great Britain which appear to have served not only as light-towers but as marks for observing the movements of enemies' vessels. Near Dover are still to be seen these last few years an old ruin, lately fallen, called the Devil's Drop of Mortar. This forms the remains of an ancient Roman lighthouse, intended to guide vessels into the harbour. There was, however, a period when even the sea shore was ceased to be lighted. In the middle ages much less care was taken to protect the interests of navigation and commerce than to defend the shores against a surprise or sudden landing. Of what use were lights in those days? but to guide pirates to their prey, to show the enemies of England how to find her shores. Great Britain in those days resembled the cuttle fish, which to escape a danger casts a black fluid around it to

darken the water near it. Prudence at that period required that after the sun had set the shores of Albion should be wrapped in darkness. The narrow passes of the sea, the rocks and shoals, and a thousand perils by which her shores are surrounded, made her a sort of natural fortress, which no one dared encounter. One consequence of this system was that ships in those days did not navigate by night at all. Such was the case in the reign of Elizabeth, when towards the end of the sixteenth century, to satisfy the wishes of certain people, a person named Bushell erected two lighthouses at Caistor, which were very soon followed by two more at Lowestoft. Such an innovation of custom could not but meet with resistance, and it is curious that this resistance came principally from maritime persons, who were obliged to work later hours to look after these same sea lights.

In these days the question of the lighting of the British shores is entirely disposed of. In all localities there are but two proceedings to choose from, entirely distinct from each other,—the light must either be on shore or afloat. If the latter, a lightvessel is adopted, and if the former, a light-tower. Before looking into the two methods it may be as well to consider the system of management of these lights intended to apprize the mariner of the line of shore, or to show him the position of some danger. The lights of Great Britain are not, like those of France, entirely in the hands of the government. Some of them belong to local authorities; but they originate in general from ancient and venerable maritime societies, who have held a long standing in the political economy of the country.

Opposite to the Tower of London, or rather on the precincts of the fortifications of that ancient edifice, is a large open space affording a most pleasant walk through a garden of shrubbery, where stands a building separate and designedly retired from the passing throng, and called the Trinity House. The site of this ancient and important maritime establishment was formerly in Water Lane, from whence it was in a manner driven by two fires. Well for it too,—for could a better place than this be found for such a building in the whole vicinity of the Thames with its docks, the river, and their forest of masts, which thus, like the parks of London with their trees form a suitable distant view for the English aristocracy.

The principal features of the edifice, built in 1793 by Wyatt, consist of a massive basement surmounted by a single story, ornamented with columns of the Doric order, and pilastres, all of Portland stone. The façade displays figures of a good comely habit holding anchors, ships' compasses, and marine charts, all of which are in good keeping with the character of the institution. The ground floor of the building is occupied by offices, and the floor over it contains handsome rooms, not for the reception of the public, but to which I was conducted. A noble vestibule leads to a double stone staircase, which separating to each side, reunites at a central landing, ornamented with sculpture. To the right of a semicircular wall is a large oil painting by Gainsborough, representing the ancient elder brethren (the name by which the principal officers are distinguished) in their uniform at table. The

Secretary, who has passed fifty years in the Trinity House, and who has been in company with the majority of these persons, declares that they still live on the canvas; without having known them they resemble each other from their accoutrements. On the left the names of the benefactors of the establishment and the sums of money left by them as donations, are preserved under glass. By two massive folding doors the visitor is introduced to the board room, the ceiling of which, painted in 1796 by a French artist named Rigaud, represents the prosperity of England in encouraging navigation and commerce by a happy mixture of allegorical figures. The British Neptune appears drawn by sea horses and accompanied by Tritons; in one hand he holds the trident, and with the other displays the shield of the arms of the United Kingdom. His progress is guarded by cannon and other utensils of war, while the standard of Great Britain waves over them in the charge of several genii. All very well of the standard of Britain; but the cannon! do not they point to an anachronism even in painting? On another side is Britannia seated on a rock, receiving the produce of distant lands. Sea nymphs are there from all parts of the world with their riches, and English seamen are displaying the productions of commerce. Little cherubs bearing torches represent the several light houses and vessels which surround the coasts of the British Isles for the benefit of navigation. The walls of this room are also ornamented with portraits of George the Third and William the Fourth, with their Queens, for Royalty itself belongs to the annals of the Trinity House, and Sovereigns themselves fail not to honour the fraternity of which they are members as well as patrons. The portrait of the Duke of Wellington, by Lucas, passes for the best of the hero of Waterloo: the busts of Queen Victoria and Prince Albert in marble, by Noble, one of the most celebrated living artists, ornament each side of the mantlepiece. Twenty-four arm-chairs, ranged round a large table shaped as a half moon and covered by a green cloth, mark the seats of the different members of the council when forming the Board. But the Brethren of the Trinity House agree with Ben Jonson that good living is a part of their duties. Their dining room, lighted by what is called a sun light in the ceiling, is a great luxury. Here is seen the bust of William Pitt, by Chantrey, the portraits of Lord Sandwich, the Duke of Bedford, Sir Francis Drake, and that of Kenelm Digby, by Vandyck. Here lately there was a grand dinner in honour of the Prince of Wales. Here and there are some excellent models of lighthouses, preserved in glass, reminding the visitor of the important object of the society, which was founded by Henry the Eighth.

The history of the Trinity House is but little known even to the English themselves. A portion of its ancient documents was destroyed by fire in 1744, and, perhaps, like other ancient corporations, little enough is left for communicating to the world its real history. All that is known of it is that it owes its existence to a charter of Henry the Eighth, dated at Canterbury the 12th of March, 1512, and not as hitherto supposed at Westminster on the 20th of May,

1514. Even the original of this document is lost; but were it not so, an authenticated copy being preserved of it throws as much light as that would on the actual date of the society. The date of the act of incorporation sufficiently proves that of its origin. The greater part of these ancient associations spring from a community of interests. Men drawn together by mutual interests unite by common accord to form rules and carry out certain measures from which they would derive advantages. And afterwards, when they have gained some influence by the utility of their measures being generally acknowledged, they apply to the government for public sanction. The royal charter does no more than recognise and sanction the right of certain dues and privileges, and thus there is ample reason for believing that this society of seamen had long existed before the confirmation of it by royal authority: it may indeed date as far back as the commencement of navigation on the shores of Britain. But whence, it may be asked, is the name of Trinity House? Is it from the circumstance of the first brethren meeting on certain days in a chapel dedicated to the Trinity? Or is it because Henry the Eighth chartered three maritime societies at the same time,—those of Deptford, Newcastle, and Hull? These three societies have great privileges; but those of Newcastle and Hull only include the seamen of those two places, while the Trinity House of Deptford is formed of old officers of the whole country. The subject is however open to conjecture. But the opinion most generally entertained is, that the corporation is called the Trinity House in consequence of the terms of the charter of Henry the Eighth commencing with the words,—"In the name of the most glorious and undivided Trinity," &c. Later in another charter of this King the invocation of St. Clement is used, and this last name is employed also more than once to designate a corporation or guild. It must not be lost sight of that this brotherhood was founded at the time of the inspiration of religious ideas, perhaps even of monastic institutions. The duty of members of the institution was to pray for the souls of sailors drowned at sea, and for the lives of those who are battling with the storm.

Henry the Eighth at first retains this character, and constrains the brethren and sisterhood to certain devotional practices. A chaplain had to be elected and payed by the association for celebrating masses. But in the latter half of the reign of Henry the Eighth the movement of the Reformation did not fail to remove the remains of Popery from their charter; and for the religious sentiment which had at first been its foundation, was now substituted that of charity for the observance of the fraternity of seamen. A school for their children was instituted, and a house of refuge or almshouses were established for old worn out commanders. Under the modifications of Protestantism this ancient Roman Catholic society threw off the forms of the middle ages, and separated its civil duties from those of that religion. But after all what was its object? To encourage the scientific attainments of the seaman, and to develope the navigation of the coasts.

The place of residence of the Brethren was originally Deptford, an ancient village of fishermen, situated on a deep water creek tributary to

the Thames near London. Henry the Eighth, considering the position favourable, formed a dock there in 1513, and also built an arsenal. The dock soon became one of the most important in the kingdom. It was here that Peter the Great resided during his stay in England when he was studying the art of shipbuilding. He lodged in Sayes Court, at the house of John Evelyn, the author of several memoirs, and a little work entitled *Sylvia*, or a discourse on trees, and it was the resort of savans and men of refinement. The Czar of all the Russias, not content with sailing about the river every day in his yacht, and working in the dockyard, was fond of being drawn in a kind of double wheelbarrow in the avenues of the celebrated gardens which surrounded Sayes Court. He destroyed all the hedges in his rambles with the exception of those of holly, which, says Evelyn, had the good fortune to protect themselves. These gardens, however, have entirely disappeared, and their site is now occupied by the storehouses of the victualling yard.

Often have I searched in the village of Deptford for traces of the old company from which the Trinity House sprung. There was an old house, built in 1787, at which the Brethren held their meetings, and it was here that their bye laws were framed, and it is in memory no doubt of the birthplace of the society that the members of the Trinity House annually visit Deptford. Two hospitals which belong to the association still remain. One of them dates from Henry the Eighth, although rebuilt in 1788; the other was built towards the end of the last century. The church of St. Nicholas, in the same burgage seems to throw some light on the origin of the society. In this church, which has doubtless served as a nucleus to it for several years, the principal members have met on Trinity Monday, and the people of Deptford remember to have seen with them the Duke of Wellington in his quality as master of the Trinity House. Near to Deptford, but on the opposite side of the Thames, is the ancient village of Stepney, at present forming one of the suburbs of London. In Stepney church may be seen a monument on which is the following inscription:—"Sir Thomas Spert, Comptroller of the Navy to Henry the Eighth, the founder and master of the worthy corporation of the Trinity House." This monument was erected by the said corporation in 1622, twenty-four years after the death of Sir Thomas, who was a great favourite of Henry the Eighth, and it was by his advice that the Trinity House was established.

In the reign of Elizabeth the charter of the institution was confirmed by an Act of Parliament, and successively afterwards by James I, Charles II, and James II. In the office of the institution I have seen these venerable documents, religiously preserved in an old box of gloomy macaw wood. These contain the particulars of the liberties, rights, and privileges of the society, which were but vaguely defined in the original document of Henry the Eighth. Far from extending the jurisdiction of the brethren, they merely explain the limits of it. The society exercised a privilege over the merchant shipping, and also over that of the State. But this last was even but limited by the

charter of Henry the Eighth, when this monarch appointed commissioners to inspect his ships of war. But the Trinity House nevertheless preserved under his reign, and even in the following reigns, some duties of maritime police that have gradually passed into other hands. The terms of their charter were also frequently amended. The society at present consists of Elder and Younger Brethren, a distinction which did not appear in the original document. According to the act of the foundation, all the mariners of England were called on to take a part in its duties; they were all represented in it, and contributed to the formation of its laws. The charter of Henry the Eighth was considered entirely democratic in character, which gradually vanished from those that followed.

It was in the reign of James the First that the difference of Elder and Younger Brethren was introduced. The master, directors, and assistants of the Trinity House were authorized by this monarch to choose from among the association eighteen officers, who should have the title of Elder Brethren, thus showing the origin of the present order. This charter also interdicted for the first time the liberty of the younger brethren from any voice in framing the rules and regulations of the affairs of the society; it authorized the elder brethren at any of their meetings to elect their own master and directors; and later still, the charters of James the Second and Charles the Second left them only the right of naming and not that of dismissing the members of the council. Those who attended in right of these elections received half a crown to pay for their dinners. After a time this privilege, the right of electing, was taken from them.

The reason assigned for not allowing the younger brethren the right of voting in the elections and the affairs of the society, was that they were too boisterous at the meetings. At present the younger brethren are elected by the council on being proposed by one of the elder brethren, and without, as in former times, being subject to the formality of scrutiny. The ceremony of election, which is very simple, consists in administering the oath of fealty and shaking hands with each of the elder brethren, who bid the elected brother welcome. This done, he receives a *branch*, as it is called, being a paper containing the certificate of the society, and an extract from the statutes, for which he pays a fee of one pound, which goes to the charitable fund.

The number of younger brethren is unlimited: it cannot be too large, says the old charter, because seamen represent the strength of the nation. At present, however, they do not exceed 360. Is there not some reason for regretting that with the lapse of time the Trinity House has admitted into its constitution the purely British principle of primogeniture? The elder brethren are gifted with power, the honour, and profits of the institution, leaving to the younger the empty name and the withered branch too often found among certain English families.

The elder brethren, to the number of thirty-one, are selected from among the younger. And in virtue of this principle, whenever the society desires to elect a member who is of necessity first a younger

brother, then (as often happens in the same day) he may be raised to the station of an elder. The younger brethren are thus candidates for the higher stations of the fraternity; but in the Trinity House, as in other places, many are called but few are chosen, and by far the greater number of them remain perpetually in that condition. According to a law established in 1835 all younger brethren aspiring to become elder, must undergo a certain examination to qualify them for the position. No one is admitted for examination who has not served the State four years in command in the royal navy or the merchant service. On the day of election a list of all the approved candidates is presented by the secretary to the members of the council who are present, when each one, beginning with the youngest, marks with a pen the names of three persons whom he considers as eligible for elder brethren. This done, the three names which have obtained the greatest number of marks, are then subjected to scrutiny, and he who has obtained most is elected. The newly elected elder brother then pays £30 for the charitable fund and as much for the dinner of reception, making in all £60 (1,500 francs). At one of the following meetings he takes the oath and then becomes one of the Board of the Trinity House.

The elder brothers are divided into honorary and active members. From ancient times the society has enjoyed the advantage of enrolling in its brotherhood names of men unknown to navigation, but who are celebrated either from their birth, their social position, or from some great service rendered to the State. In 1673 a Bishop of Rochester having preached before the corporation of the Trinity House on Trinity Monday, was made an honorary member of the body. William Pitt had the honour of being deputy master for seventeen years: William the Fourth filled the same position before he ascended the throne. Wellington and Prince Albert are at present succeeded by Lord Palmerston* and the Prince of Wales. The corporation, in fact, without regard to political matters, enters on its rolls of honorary

* The loss to the country of this great statesman, on the 18th of October, is thus gracefully recorded by one of our leading journals, the *Daily News*:—

A ripe statesman, a veteran diplomist, the most experienced of party leaders, the link of two periods of history, and of the old and new habits of thought, was yesterday taken from among us. Europe will listen no more to the sound of a name which has so often caused it to startle, if not to tremble. The Parliament, which in the full tide of his undiminished power Lord Palmerston summoned to approve and continue his policy, will never see the Chief who guided so many of its predecessors. Its party conflicts, its clashing of principles, will rage unappeased by the great master who has stilled so often the murmur of opposition and the anger of discontented supporters. Better, perhaps, that it should be so. The future will be less acquiescent than the past, and better that a life prolonged so far beyond the usual term should sink calmly into the grave than that it should wear itself out amid the storms of impending conflict. Better that the sere leaf that has dallied in the long summer sunshine should flutter gently to the ground in the autumn stillness, than that it should still adhere to the topmost bough, to be tost and torn in the wild gusts of a rude coming winter.

members, Lord John Russell and Lord Derby. A figurative expression in which the English delight, "the vessel of the State," for instance, serves to enroll men of opposite views to this maritime association. These honorary members to the number of eleven, receive no emolument: they are not troubled with the affairs of the corporation, but they impart to it the advantage of their countenance and position. In cases of death, their places are filled by others with a majority of votes from the same places in the government or in the national honour by successors. The twenty active members by which the real business of the society is carried on, are old captains of ships of the State, or retired from merchant ships.

The council of the Trinity House is formed of a deputy master, four directors or wardens, eight assistants, and seven elder brethren. These twenty members are redivided into six committees, which manage all the business of the corporation. The first, called the committee of wardens, is formed of the deputy master and directors, whose business it is to manage the financial matters and exercise a general control over the proceedings of the society. The five other committees, according to their functions, choose the pilots, and according to their fitness award them branches; manage the subject of ballast of ships in the Thames; have the care of sea marks and establishing new ones; examine the boys of Christ's Hospital destined for the sea; look after the revenue of the society, or rather, have the care of pensioners in the houses of refuge belonging to it. The charter confers on them besides, the right of punishing refractory seamen or those who may have deserted their ships.

The royal navy, like the commercial marine, is perhaps of all professions in Great Britain that which most rewards personal merit. Many of the officers who have risen to the higher ranks of the royal navy have commenced their career before the mast. Captain Cook himself was a cabin-boy in a collier ship on its coasts. Among the old captains of the Trinity House there are those who may be considered the fathers of their own fortunes. Such is always the case with practical men whose nautical experience is combined with an energetic resolution to forward the interests of commerce.

Among the various and extensive functions of this society, let us dwell a little on that which concerns the lighting of the British coasts. For the first time in the reign of James the First it was questioned whether the privileges granted to the Trinity House by Henry the Eighth and in the reign of Elizabeth, accorded to that body the power of erecting lighthouses. There was a person who was especially interested in a decision against this power, and that was the King himself. The concession of the power of building a lighthouse was a source of profit, and consequently one of the means of enlarging the prerogatives of the crown. So thought James the First, and his ministers were of the same opinion. Hence there was not a rocky point exposed and desolate on the sea coast that was not converted by speculators into the projected site of a lighthouse. An old minister of state, who stood well at court, Lord Grenville, entered in his diary the memorandum, "To

watch the moment the King is in a good humour and obtain permission for a lighthouse." These lighthouses, in fact, carried the right of levying a considerable sum in the way of duty on all vessels passing within sight of their rays.

The pretensions of James the First occasioned considerable embarrassment to the judges, who concluded by dividing the power between the two parties; and it was decided that the elder brethren were authorized to build the lighthouses, but that the crown enjoyed the same privilege in virtue of common law. From that time in place of remaining, as had been decided by Elizabeth, the right of the Trinity House, the *bail* and the exclusive right of lighting the coast was granted or sold by the crown to favoured individuals. The consequences of this perverted system were deplorable. Some lighthouses were badly lighted, others scarcely lighted at all, and in every case ships had to pay a heavy tax. In fact, in the reign of William the Fourth, a certain uniformity was introduced into the lighthouse administration, by which the tolls *(peage)* were reduced. It was decided by Act of Parliament that the whole interest of the crown in the subject of lights should pass into the hands of the Trinity House for a sum of £300,000 being paid to the crown to clear them. It authorised also the Trinity House to redeem those lights which were the property of certain persons, and that the sum for that purpose should be fixed by a jury.

Then it was that the abuse of this system of the ancient order of things was publicly exposed. One of the proprietors did not scruple to demand for a sterile rock in the ocean and covered by masonry, the astounding sum of £550,000 sterling, but finally accepted £400,000. The source of such immense profits was evidently the imposts levied on navigation. Certain lighthouses established on that system exacted from ships a rate of two pence per ton. But since these have passed to the Trinity House, the levies on them have been reduced from one penny to an eighth part of it: and even the expense of lighting them from this being done properly has been much increased under the new system. The light of the Smalls Rock, at the entrance of the Bristol Channel only consumed 200 gallons of oil every year when in private hands, but now uses 1,500. So much for the good service rendered to navigation by the Trinity House.

The tolls paid for the lights, however, form a very important branch of the revenue of the Trinity House. It is by means of this revenue as well as the sale of ballast for shipping and the produce of land, some of which has been purchased and some bequeathed as legacy, that the establishment is enabled to meet all its expenses. One of its principal expenses is the construction and maintenance of lighthouses for the benefit of navigation. Some of its funds are also devoted to charitable purposes, and such establishments, as well as hospitals, are exempt in England from taxation. In a civil point of view, the Trinity House forms the connecting link between the Admiralty and the mercantile marine. Independent of the State, and yet having belonging to it the leading statesmen and the countenance of the govern-

ment, besides being backed by its charters, from which it derives a legitimate authority sufficiently extended, it is the type of those truly English institutions, the power of which so to speak, constitutes liberty.

Such as the Trinity House is to England (a brotherhood of seamen regulating the coast navigation, so are the Northern Commissioners to Scotland, and the Ballast Board to Ireland. These three societies, in 1854, were placed under the control of the Board of Trade, the office of which is in London in the same building as that of the Treasury, a branch of the government, a committee of the privy council, having a president, vice-president, and two secretaries. The business of the board is tolerably comprehensive. The various measures relating to commerce, those concerning the several branches of manufactures, the regulation of customs duties and such matters, &c., from the business of the office along with that of the woods and forests. It is easy to perceive the object of the authorities in uniting the three principal maritime corporations with the Board of Trade; it was to bring all their proceedings under one official seal. However, the ultimate object of the English government must not thence be judged, nor especially should we measure British institutious by our French ideas! Wtth us a central power is, in fact, the all in all; it directs, regulates, and ordains, and interferes with individual liberty to any extent short of breaking the law. But such is by no means the nature of state intervention, with our neighbours. The board of trade exercises an authority in the affairs of the Trinity only in the question of expenditure. Still it is something to keep the purse strings, and in questions of finance the board of trade has a direct control over the administration of their affairs. For instance:—Previous to 1854, on proposing to build a lighthouse at any point of the sea coast, the merchants and shipowners interested in it and approving of it would agree to pay a reasonable toll for its expense. If the utility of the light was really evident, the corporation would apply to the government for permission to levy the required dues on shipping using it. At present the Board of Trade before sanctioning the application of the Trinity House funds to the construction of the lighthouse, determine for themselves whether it is really required! Whatever it may be, this control on the part of the State is really verifying the ancient service of the corporation,—*Trinitas in unitate.*

(To be continued.)

Our Sailors' Wants, and how to meet them.

"Our Sailors' Wants, and how to meet them"! Such is the title of a little brochure from the pen of a gallant seaman whom the royal navy might be proud of did that service enrol his name among its

officers,—but which belongs to the sister mercantile marine of our country, and we will say for it what we believe to be acknowledged where that name is known, that it is an honour to the merchant seaman's quarter deck. Captain Toynbee is no less the seaman's friend than he is his leader in the important paths of nautical astronomy and that part of meteorology which affects the navigator,—Captain Toynbee can turn his attention not only to the morality of the sailor, but also to his general wants, and here discusses the mode in which they are to be met. Those wants appear, in Captain Toynbee's mind, to consist in married sailors' *homes*, *schools*, *innocent amusements*, *pension funds*, &c., and having shown how they are to be attained, he dedicates the result of his labours to his partner in life, a sailor's daughter, too, for her father is an admiral, while she, he says, has "faced the dangers of the sea and the cyclone with Christian coolness worthy of an English woman." We may be wrong, but we cannot help thinking that Mrs. Toynbee will find the last to be the easier task of the two. She will find it harder to penetrate the apathy, the carelessness towards the future touching these very important subjects on the part of her countrymen than she ever did to meet the dangers abovementioned, not excepting those of the cyclone!

But we do not say this and make it an excuse to forsake the subject. Already has the *Nautical* devoted many of its pages to it, and we shall again do so in endeavouring to follow Captain Toynbee in his ideas as to the necessary steps to secure those "wants" of the mercantile mariner.

Let us then begin with him at the beginning, for we thoroughly agree with him in his views. The subject is of a national cast,—one that should be taken up in earnest. The government has legislated largely for the merchant seaman's benefit, but has left untouched these important subjects that Captain Toynbee has taken up. They have cared for him when afloat, but those he leaves behind him in his absence or what becomes of him during the later days of his life are subjects as yet neglected by the government. And yet the merchant seaman undergoes as many and much harder trials in advancing the commercial interests of his country than he of the State does who has Greenwich before him. We shall now follow Captain Toynbee.

The British sailor is allowed by all to be of great importance to the prosperity and protection of his country. There is a kind of floating sympathy for him, which, in connexion with the peculiarities of his character, caused by the circumstances of his profession, makes him a favourite with his shore-going countrymen.

It is very common to hear, "I do like sailors, they are such warm-hearted fellows; what a pity it is that they are so wild and reckless; I wish something could be done for them." Others, who know their privations and hardships, are led to exclaim, "How can they be so foolish as to go to sea; we would rather do anything on shore;" while we have also heard of those who think that they gain by the sailor's recklessness, and we can quite suppose them to say, "If we increase

their shore comforts and teach them steadiness and self-respect, we shall never get our ships manned; it is their wasting their money, and being obliged to go off at once to sea without inquiring anything about the ship or seeing her accommodation that enables us to lodge and feed them at such a cheap rate." Others will tell you that it is useless to give them more money, for they only waste it in vice, and they look upon Jack as a necessary evil, a sort of useful simpleton, whose circumstances and character are such that it is useless attempting to do him any good, though they may make much out of his labours.

The result of long inquiry and observation is, that in spite of the general good feeling which our nation bears towards her sailors, very little has been done to meet their wants.

This seems to arise chiefly from the difficulties of the case. Their friends are willing to help them, but do not know how to begin, and too many of the shipowners, who ought to know more about them, are *too busy* to give one hour's reflection to their interests. Pushing and struggling, and shouldering their way through the great world of competition they have raised around them, these look suspiciously on each other, and cannot combine for the general good;—so close are their calculations, which turn on such niceties, that the seamen must be screwed in to the smallest possible space in the worst part of the ship for supporting human life, where dry goods could not be stowed, and fed on the cheapest possible food, at a time when science has so far improved the preserving of provisions that soldiers and emigrants have very liberal rations while at sea, including beer, fresh meat, preserved potatoes, pickles, butter, suet, compressed vegetables, &c., and this in the same ship where sailors are kept on the old food—pork and pea soup one day and beef and dough the next, and often that dough mixed with salt beef fat instead of suet. Rum, too, is given instead of beer or coffee, because it is cheaper and takes less room, while, if the choice is left to the men themselves, about half a ship's crew will generally prefer coffee to spirits.

Here we must add that there are several honourable exceptions to this niggardly economy, though as those shipowners who wish to improve the condition of their men have to compete with those who do not, they work at a disadvantage, at least for a time, for no one can doubt that they must eventually succeed. Mr. Green's "Sailors' Home" is a case in point. Homes for single sailors are increasing in number much through Admiral Hall's exertions; but only in some few instances are they the work of shipowners, who really would in every way be gainers by a careful study of the subject, and a comprehensive provision for their rightful comforts, which would chiefly result in their enabling and encouraging sailors to be steady, and to spend their own hard-earned money well, instead of devoting it to the support of vicious houses of all kinds, and thus turning our seaports into nuisances.

What are the most favourable circumstances to enable men to lead a happy and useful life? Surely all will agree that although they

need a full amount of useful employment, they also require time and means for self-improvement and recreation, together with wholesome food, a comfortable home, and every encouragement to be cleanly. As they advance in years they should have the prospect of a sufficient maintenance for themselves and for a wife and family, in case they should marry. And—beyond and above all—they should study the Christian religion, and make use of its all-powerful but simple means for enabling them to practise it, to love God with all their hearts and their neighbours as themselves, and to look upon death as only the opening to a surer life beyond.

If the forecastles of our ships and the lodging-houses of our sea-port towns offer no such favouring circumstances, (and assuredly they do not,) then it is the duty of all interested in sailors to give them a helping hand in the right direction, and prove the truth of the old saying, "Where there is a will there always is a way."

The "way" may be considered under four heads:—

1st.—What improvements can be brought about by government.

2nd.—Those which naturally belong to shipowners.

3rd.—The help which commanders and officers of ships can give.

Lastly.—What sailors can do to help themselves.

1st.—What can government do?

It is but fair to commence by saying that government has done good service for sailors by establishing well-managed shipping-offices and savings-banks. The shipping-masters will also remit a sailor's pay to any part of the United Kingdom. But there is more to be done. For instance, our government has found it requisite to inspect emigrant and troop ships both as to ventilation, space, fittings, and dietary scale; each year they are introducing additional improvements for the comfort of these people, and rightly, too: but it is, moreover, quite time that they revised the law on these subjects for merchant seamen. So far as I can call to mind, our sailors have few advantages that they did not enjoy thirty years ago. As things are at present, unless government does advance with the times, sailors would be better without any Act of Parliament to protect them, if that can be called protection which leaves it possible for the shipowner to fix their scale of diet lower than that of the soldier, emigrant, and even that of a convict. It is very easy for the shipowner to say, "I feed my men according to the articles of agreement. Here they are, signed by a government shipping-master," who is supposed to see fair play; so that Jack might well exclaim, "Preserve me from my friends." The Act really protects the shipowner, for a cheaper dietary scale could not be invented for human beings at sea. It is a difficult question to decide how far government should interfere between the employer and the employed; but when, as in the case of sailors, they decide (and most wisely) to take a class of men under their protection, they are bound to see fair play, for they have relieved the shipowner of some of his responsibility.

Why should not sailors be sometimes allowed preserved potatoes, preserved meat, suet instead of salt beef fat, pickles, butter, coffee or cocoa instead of rum, a shaft for ventilation, some contrivance to prevent their being washed out of a top-gallant fore-castle when the cables are bent, &c., &c.? We are aware that some few shipowners do give a few of these advantages to their men; and it is probable that separate cases might be pointed out where most of them have been granted to sailors; but there are many thousands who do not get them, and the system acts unfavourably on the best disposed shipowners. The following letter from Mr. Mackay, one of our largest shipowners, who has carefully considered the subject, shows that an Act for the improvement of the condition of our merchant seamen would not be unpopular; the letter was addressed to a gentleman occupying an influential official position:—

"Although you are well known to me from public reputation, I must be all but unknown to you; and only that the cause I espouse is well worthy of your support, I should scarcely venture to enlist your sympathies. It is to better the condition of the places where we berth our seamen. I often feel ashamed at the wretched accommodation which is usually given; and it is hopeless to elevate the sailor as long as we house him where no man with any self-respect could exist in comfort. Now, as a Merchant Shipping Amendment Bill has been introduced, I would invite your assistance in committee in favour of two additional clauses, of which no shipowner could complain, for I am quite aware that in the competitive struggle we have now to encounter there must be no trammels, fairly so called.

"My proposals are to increase the space for the men to fifteen feet, the same as is given to emigrants; and also to have chain-pipes through the top-gallant forecastle to the windlass, thereby preventing the hawse-holes being open, as they always are until a ship is out of soundings. At present, unless under the most favourable circumstances, the forecastle, until the chains are unbent, is invariably wet. Nay, if I said that the men had sometimes to wade to their bunks, it would be scarcely an exaggeration. Surely this is utterly indefensible. And ship after ship goes in this way—no doubt my own among the rest—merely because it might be more troublesome to work the chains as proposed, and involve an outlay of £15 to £20. I am disposed even to go further, and let the agents of the Emigration Board control the amount of light and ventilation they deem necessary; for at present the fore-castles in flush-decked ships have neither the one nor the other, while top-gallant forecastles are generally so much exposed as to set even decency at defiance.

"I am quite aware that the present race of seamen, as a rule, have done everything to extinguish sympathy in the hearts of shipowners, and nobody has suffered more than I have—from our ships usually trading to the gold-producing colonies, where desertion, and, latterly, incendiarism, are the order of the day; but, notwithstanding, we

have a right to see them lodged at least as well as our dogs and pigs, and then we may probably hope to see them more under the influence of sober reason than the recklessness of wicked instincts."

If these regulations were enforced by Act of Parliament, and carried out by inspectors, shipowners would not suffer. For all being obliged to go to the same expense, it would enter into their original calculations, and they could not be affected by competition except with other nations, which need not be a cause for anxiety, as improving the treatment of their men would more than repay them by their increased steadiness.

Another important point is the building of Sailors' Homes. This hardly seems to be the duty of government for merchant seamen, but it might encourage them by all means; and as many sailors will marry, and the state in which a man finds his family on his return home has immense influence on his character, every wholesome protection and encouragement should be thrown around the family of the sailor, whose profession robs them of their natural protector, and interferes with his acquiring the experience which teaches those who always live on shore to make the best use of their money. Our government would gain by encouraging the building of "Married Sailors' Homes," where sailors could get every modern convenience for their wives and families, such as good lighting, ventilation, drainage, baths, washhouses, means for cooking, &c., and all this for the same money which they now pay for them to be left in the lowest lodging-houses. These houses should have able superintendence, and good schools, with a playground for the children; and government might grant them an old ship, in which the boys might be initiated in the first principles of a sailor's life, which latter is now being done by the shipowners of Liverpool.

We have heard it objected that such houses would not be of much use, as sailors first go to one port and then to another. But we consider this to be one of the greatest arguments for them. We wish to see a good block of these buildings in each of our seaports, so that wherever the married sailor arrives he may find the best accommodation for his family which the money he can afford will produce; and if he wishes to remain there, his family may come to him, and be sure at once of suitable accommodation.

Another objection is brought forward by those who, indeed, take too much upon themselves in saying that it would be ruinous to encourage sailors to marry, and who would have them lead an unsettled, vicious life, contrary to the dictates of reason and Christianity, because of the probability of having their widows and orphans thrown upon the country in case of their death. To such objectors we would answer, *Fiat justitia ruat cœlum*, and further ask, "Is it better for a nation that its young women should be prepared for and look forward to honourable marriage, or that they should become an eyesore and nuisance and deadly temptation to all around them? If a large class

of our men are to live unmarried, then the women who would naturally be their wives must be left unmarried also;" this great social difficulty needs the deepest consideration. For the women's sake, as much as for the men's, something should be done. Even *as things now are*, our best and steadies men are those who are married.

During my last voyage I talked over this subject with eight married men in the crew, and found that their own wives were favourably circumstanced, earning something for themselves, and most of them living with their friends. But they could all tell a sad tale of widely different cases: of sailors' wives at public-houses all day long; of wives left without half pay; of one even forced to pawn her wedding-ring, yet keeping respectable; and, most numerous of all, of women going utterly wrong during the absence of their husbands. Now, this was mainly caused by the *helpless state* in which they were left, not by the fact of the husband being absent ten months out of the year, for this latter happened to the wives of the eight to whom I spoke, yet they, in their happier situations, continued faithful to their husbands. Therefore, if we improve their circumstances, we may save many a man and woman from leading a miserable and vicious life, and at the same time increase the number of steady seamen.

Is it not true that sailors spend more money in supporting ginshops and houses of bad fame than would support all their widows and orphans, and pension old and worn out seamen into the bargain! If this be a fact, and we have no doubt it is, then what sailors chiefly want is, that head and heart work which will sympathise with them, consider their great difficulties and influence them for good, until they take to better ways for employing money. If, moreover, it be a fact that honourable marriage and sober habits would work a marvellous change for good in the sailors of our country, this is sufficient to induce real Christians to leave no stone unturned, and, above all, to pray for wisdom to know how they can best help so good a cause. The labours of such ladies as Mrs. Bayly and Miss Marsh are intensely encouraging, in proving how much more power there is in the heart-work of deep sympathy than in the head-work of a mere political economist; and yet, such labours are often "sore let and hindered" by obstacles which it is surely not beyond the province of government to remove.

We are well aware how useless it is to attempt to stop vice by Act of Parliament, and that if all gin-shops and houses of bad fame were closed to-morrow, the demand for them would still exist in the evil heart, which is common to fallen man, and that the heart must be changed before the evil is really eradicated. Still a government may do much by checks or encouragements. We have read somewhere that at one time in St. Petersburgh it was only legal to sell spirits in cellars underground, with no additional temptations, such as lights, music, &c.; a contrast, indeed, to the bare-faced attractions of our gin-palaces, which might well lead a heathen into mistaking them for our temples, and a Cowper into exclaiming,—

"Vain the attempt
To advertise in verse a public pest,
That like the filth with which the peasant feeds
His hungry acres, stinks, and is of use.
The excise is fatten'd with the rich result
Of all this riot; and ten thousand casks,
For ever dribbling out their base contents,
Touch'd by the Midas finger of the state,
Bleed gold for ministers to sport away.
Drink and be mad then; 'tis your country bids!
Gloriously drink, obey the important call!
Her cause demands the assistance of your throats;—
Ye all can swallow, and she asks no more."

When a young man sees that little or no check is put on these flaunting evils, or on the profligacy openly displaying itself after dark in our streets, may he not be led to suppose that he is thus silently but forcibly told that these temptations are too strong for him to resist, and this, too, in a country professing to believe that we can do "*all* things through Christ who strengtheneth us?" Such an institution as the Workman's Hall at Notting Hill,* proves that very little encouragement is needed to induce our artisans to avail themselves of innocent and rational relaxation; and the multiplication of these, and grounds for athelic sports, would soon help to lower our poor-rates, and place our working men in that independent position which their many fine qualities well deserve.

Are such results beneath the notice, or foreign to the province of a Christian government?

So far the merchant service; but, perhaps, I shall be pardoned for suggesting that government may well carefully consider the present state of their sailors and soldiers also, for their condition needs the deepest thought of feeling and experienced men. It is an ordinance taught by the Bible that men and women should marry, and it is also taught by world-wide experience that any restraint upon a wholesome prospect for marriage injures both men and women, by depriving them of one of the greatest safeguards to the youth of both sexes.

In whatever light we look upon the monster evil of an army and navy, whose members are in the unnatural state of an enforced celibacy, it demands our closest attention; to a Christian it is simply appalling, and even to a mere political economist the question of expense, and the great and increasing physical deterioration of those to whom we look for defence, call loudly for a change. Much experience in bringing home invalid soldiers from India has shown me, that the vices of fornication and drunkenness are the chief causes of sickness and death in the army; while doctors, moreover, say that, of those who remain behind, death is very common from these causes, and that the

* This "public-house without the drink" is the work of Mrs. Bayly, who has cleverly copied all the attractive and harmless points of the gin-shop, and employed them to make this place of rational amusement, refreshment, and recreation, more agreeable to the tastes of our working men.

rest are not half the men they would be but for this *ever-growing* evil. We feel sure that government would gain by allowing every soldier to marry if he wished, after serving a certain number of years, provided he should select a respectable woman for a wife. This would give the young soldier the much-desired prospect of marriage. As things now are, £30 to £40 per head are paid annually for several thousands of soldiers sent home from India for avoidable diseases.

With regard to the navy, the great obstacle to marriage is the long absence from home, which leaves the wife and family in a most trying position. In these days, when our navy consists chiefly of steamers, and communication with home is so much easier, some plan might be devised to meet this difficulty, and "Married Sailors' Homes," giving them all the advantages that their money would purchase, might be established.

It will be universally allowed that the *prospect* of a happy marriage is the best state for all young men and women, preventing much vice, even if they do not marry in the end; and, in spite of all difficulties, sailors, and I believe soldiers also, who are married, are the steadiest men. It therefore becomes the duty of every Christian, and the interest of our nation, to do all in their power to improve the position of the army and navy in this respect, for no other earthly means can help them out of their almost insuperable moral difficulties.

No doubt the long continuance of the present bad system has done much to demoralise both the men and women for whom we are pleading, just as long slavery makes a nation almost unfit for freedom, and time will be required to raise them to a higher moral standard. But a judicious encouragement of the well-conducted, by giving them privileges, and a firm but kind putting down of the vicious, would soon increase the number of the respectably married.

A *direct* act of government, likely to be of the greatest value, would be the establishing of a simple Pension Fund and Life Insurance for sailors, which might be managed by our shipping offices, and offer every inducement to young men to subscribe towards their support in old age. Seamen are made peculiar by their circumstances, and a pension fund and life assurance adapted to them requires much consideration, especially as their confidence in such things has been much shaken by the great mismanagement (by local committees) of the old Merchant Seamen's Fund, which broke down, and gave nothing to many thousands of sailors who had been compelled to subscribe a shilling a month to it for years, and is now being wound up at a loss to the nation. This is very hard on the subscribers, especially as they were also obliged for eighty or a hundred years to give sixpence a month towards the support of Greenwich Hospital. The failure of this fund has stood in the way of government establishing a better one; but we hope it is not to be much longer neglected.

(To be continued.)

THE ORB OF DAY:—*A few words of dissertation on the Sun.*

Perhaps there is no wider field in which theory has wandered, or one capable of yielding more extraordinary results, than that which is supplied by the starry heavens; and, perhaps, there never was a period when, what might be called astronomical theorizing, was more prolific than the present. The curious decisions at which modern astronomers have arrived on the component parts of the planets prove this. We are told by them, after they have been busy in analizing their light by the application of the prism, that certain earths and such materials are found in some that are not in others! We are told this with all the gravity and assurance of truth, as if the person who repeats it had been there to see! And, whether true or not, the judgment is passed; the conclusion is received from finding in analyzing their light that certain colours indicate the presence of certain materials. Such, we say, is deduced from actual observation; and although the theory built on such observation cannot be confirmed with the same marvellous precision which can calculate the orbits of the same heavenly bodies, and can fortell the occurrence of eclipses with certainty, eclipses that are verified by fact. Still, if we can do all this and discuss the weight of the heavenly bodies of the solar system, we now also can pretend, at least, to know something of their component parts.

Among the various inquiries which have been made of late in astronomical subjects much attention has been devoted to the constitution and powers of the sun itself, along with its means of reproducing or perpetuating those powers! Now the sun, that wonderful orb of day, as he is sometimes called, forming as he does the centre of that system of worlds to which our planet, the earth, belongs, such an inquiry cannot but interest us. The general reader would, perhaps, at first, turn aside from it as from an object so common to our daily observation. But the usual inquisitiveness of man's nature leads him on to follow, step by step, inquiries of this kind; and, certainly, if his patience be tried in the process there is ample reward in the stupendous results of some of those inquiries. The poet, in imagination, wanders through starry space, and speculates on what he pictures before him. He enjoys the sublimity of the scene, and the astronomer, whom he has pronounced a madman, unless he be devout, when actually contemplating the Creator's works, he, no doubt, amidst the wonders which he beholds, can say am I not destined in another world than this, to behold more wonders than are here before me?

We behold the sun in our childhood in our manhood, and the same has been done in ages past as now, from generation to generation, back to the days of creation when God made two great lights, "the greater light to rule the day, and the lesser light to rule the night." Assuming the greater light to mean the sun, that wondrous body continues the same that it ever was. For thousands of years it has been the same ever constant source of bright light and heat to that system of worlds which move round it as a centre. Has the question ever

occurred to any of us in contemplating it, "What is the composition of this wondrous orb of light?" We know that any incandescent substance will consume itself, that substance is, therefore, finite. But the sun remains the same as it ever was—the veriest example of regularity and activity to man—ever at his post at his duty daily. We feel his heat, we know his light. How is all this? Whence is the source from which the sun derives his perpetual supply of heat, the constant renewing of fuel to make good the loss he is as constantly sustaining, keeping him in the same condition to fulfil his duties as he was, we may say, thousands of years ago? Why is the sun not exhausted? How does he recover his lost power? How does he regain his energies?

In taking these questions as our theme we shall endeavonr to do justice to those philosophers who have given us the benefit of their inquiries into the subject of the sun and the sources of his energies. Undoubtedly, of all the heavenly bodies, wonderful as they are in any point of view, the most wonderful of them is the sun. To our common gaze the sun is perpetually following his daily course, dividing night from day, light from darkness, giving us the changes of the seasons, and alternately warming up the opposite ends of our globe, first bestowing his cheering beams on one hemisphere and then on another. Such are the impressions on our senses till science teaches us that although the sun does all this and is the principal arbiter and regulator of our time, all these attributes are but the effect of the daily revolution of our planet on its axis along with its progress in that orbit which it annually describes around him, those daily revolutions being made on its axis inclined at a certain angle to the plane of that orbit. The first impressions are but the effect of appearances on our perception produced by the latter state of reality.

Before proceeding further with our subject let us take a glance at what we call our "solar system." There are vast and wonderful distances in it, but these are reduced to proportions within the mind's grasp that facilitate comparison. The mind is unable to appreciate such enormous distances as millions of miles between the different bodies of our system of worlds. But when Sir John Herschel considerately reduces these millions of miles to barley corns, or something less, we have a better chance of picturing to ourselves the relative proportions of that enormous amount of space stated by astronomers as being occupied even by our own system of worlds. With this miniature view of the solar system we shall be better capable of looking beyond it and comprehending that undefinable and endless extent of space surrounding it on all sides, occupied as it is by other systems of worlds besides our own, which worlds fall under our observation in those crowds of stars that present themselves to our wondering gaze.

Let the reader then imagine a large plain extended before him as smooth as a bowling-green, but, we may add, that it must be a mile or two across. Then we will take a common globe, but it must be *two feet* in diameter, and placing it in the middle of the plain, let us call that globe the sun. Then taking the planets of our solar system in their order of proximity to it we shall have

Mercury, not larger than a grain of mustard-seed, eighty-two feet distant from it, as the radius of a circle which he describes round the orb that we call the sun, the diameter of which circle would be 164 feet. Then next in order comes the planet

Venus, which would be represented by a *pea*, distant 142 feet from the globe, the circle of her orbit being therefore 284 feet in diameter. Next to Venus is

The Earth, to be represented by another pea, but further from the globe than Venus, being 215 feet from it, the circle of our orbit being 430 feet across. Next to the Earth comes

Mars; but Mars is small and would be represented only by the head of a good-sized pin, on a circle for his orbit 654 feet across, making Mars 327 feet from the central globe.

Then there are certain comparatively little bodies called asteroids which would have orbits varying from one thousand to twelve hundred feet across placing these bodies at 500 and 600 feet from the globe. We then come to

Jupiter, at a distance of about 1,500 feet from the globe, and to be represented by a moderate-sized orange. And, lastly, we have

Saturn, which may be represented by another small orange, at the distance of 2,400 from the central globe, on a circle of 4,800 feet diameter.

But there are still two more distant and smaller bodies, one called

Uranus, to be represented by a full-sized cherry or a small plum, at the distance of 4,500 feet from the globe, and the diameter of the circle representing the orbit of Uranus, being therefore 9,000 feet, or about one and a half geographical miles. And lastly, there is

Neptune, which would be represented by a good-sized plum on a circle of about two miles and a half in diameter, which would place it between seven and eight thousand feet from the central globe.

After giving us the foregoing comparative proportional scale of the places occupied by the various bodies of our solar system, Sir John Herschel cautions us against "those very childish toys called orreries," and tells us that to imitate the motions of the planets in the above-mentioned orbits Mercury should describe its orbit in forty-one seconds, Venus in four minutes eighteen seconds, the Earth in seven minutes, Mars in four minutes forty-eight seconds, Jupiter in one minute fifty-six seconds, Saturn in three minutes thirteen seconds, Uranus in two minutes sixteen seconds, and Neptune three minutes thirty seconds. And, as a finish to the above picture, the reader has yet to be informed that the actual distance of Neptune, the most remote body of our system to the nearest of the fixed stars beyond it, even on the scale adopted for our bowling-green, will be more than 5,000 miles.

Thus we obtain an appreciable idea of the relative proportions of our solar system of worlds—one of those numerous systems which we behold on a clear night—but the central bodies of which we can only discover, owing to the enormous distances which separate us from them.

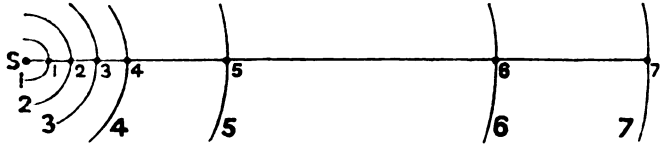
We thus have before us the means of comprehending at once the

relative proportions of the several planets of our system to each other, and cannot fail to be surprised at the enormous size of the sun in comparison with them when we view them as peas, a pin's head, a cherry, and an orange, in comparison with a globe two feet in diameter which represents the sun, the centre of our solar system. But we have yet to remember in turning our attention to the several bodies themselves that the sun is ever giving forth, or radiating perpetually light and heat. Lavish of lustre, he throws his beams around him, proceeding from a luminous covering formed of eternal fire! And as all incandescent matter, or any substance undergoing the consumption of fire becomes, in process of time, consumed, the question before us is, whence does the sun renew his perpetually exhausting energies, that radiation of heat which he is ever sending forth to light his system of worlds? It is one that has long since met the attention of philosophers. The great Newton was, perhaps, among the first to propose and answer it. But until of late years it lay dormant, and the man who has taken it up with most success, and has instructed us in our views on it, is one Julius Robert Mayer, lately of Heilbronn, in Germany, no celebrated individual, and said to be scarcely known to science. He alludes to Newton's treatment of the subject, and tells us that in order to complete the above illustration of the solar system in miniature by Sir John Herschel, "it is necessary to imagine *finely divided* matter, grouped in a diversified manner, moving slowly and gradually towards the central globe, the sun, (while it is moving round it with great velocity in gradually lessening circles) and on its arrival attaching itself thereto. This nebulous matter, when favourably illuminated by the sun, represents itself to us by the zodiacal light," and, he then says, "forms also an important part of a creation, in which nothing is by chance, but wherein all is arranged with Divine forethought and wisdom."

Having mentioned here the zodiacal light, we have started another subject which is so intimately connected with that before us that we must be allowed to add a word about it on our way in reply to so natural a question as—What is this zodiacal light, and how is it produced? Sir John Herschel answers us in allusion to nebulæ. He says distinctly, in reference to it,—"We shall conclude by the mention of two phenomena, which seem to indicate the existence of some slight degree of nebulosity about the sun itself, and even to place it in the list of nebulous stars. The first is called the zodiacal light which may be seen any very clear evening, soon after sunset, about the months of March, April, and May, or at the opposite seasons before sunrise, as a cone or lenticularly-shaped light, extending from the horizon obliquely upwards, and following generally the course of the ecliptic, or rather that of the sun's equator. The apparent angular distance of its vertex from the sun varies according to circumstances, from 40° to 90°, and the breadth of its base perpendicular to its axis from 8° to 30°. It is extremely faint and ill-defined, at least in this climate, though better seen in tropical regions, but cannot be mistaken for any atmospheric meteor or aurora borealis."

We have here an admission by Sir John Herschel of nebulous matter about the sun, extending, as he says, around it, beyond the orbits of Mercury and Venus, and nearly, perhaps quite, attaining that of the earth, since its vertex has been seen fully 90° from the sun's place in a great circle.

We have already given the reader Sir John Herschel's miniature proportions of the solar system. But, suppose we take them and reduce them still more. Here is a line across our page, at the left hand end of which let S be the sun, that line extending from thence to Saturn. Then on our reduced scale, the dots on it, against which we have placed figures, will represent the several planets in the proportion of their relative distances from the sun as far as Saturn, which distances are the radii of the several circles they describe around it.



S The Sun. 2 Venus. 4 Mars. 6 Jupiter.
1 Mercury. 3 The Earth. 5 Asteroids. 7 Saturn.

With this minute representation of the comparative distances of the several bodies of our system of worlds from the sun, we perceive at once that this nebulous "finely divided matter," to which Sir John Herschel, as well as Julius Mayer, alludes, keeps comparatively in the neighbourhood of the sun. It moves round it in gradually lessening circles within the orbits of Mercury and Venus, and even that of the Earth, thus accounting for the visitation that we have of aerolites, or what are called shooting stars, at certain times of the year.

Sir John Herschel further observes that "these particles cannot belong to an atmosphere of the sun, but if they have inertia they must necessarily stand with respect to the sun in the relation of separate and independent minute planets, each having its own orbit, plane of motion, and periodic time. The total mass being almost nothing, compared to that of the sun, mutual *perturbation* is out of the question, though collisions among such as may cross each other's paths may operate in course of indefinite ages to effect a subsidence of at least some portion of it into the body of the sun or those of the planets; and the earth being one of these comes in for a small share, her orbit being as we have seen probably within the limits of their several paths round the sun. Sir John then enumerates several of these bodies, adding that "nothing prevents that some of these particles may have some tangible size, and be at very great distances from each other. Compared with planets visible in our most powerful telescopes, rocks and stoney masses of great size and weight would be but as the impalpable dust which a sunbeam renders visible as a sheet of light when streaming through a narrow chink into a dark chamber." Then enumerating instances of their falling, he adds, "these, and innumerable other

instances, fully establish the general fact; and after vain attempts to account for it by volcanic projection, either from the earth or the moon, the planetary nature of these bodies seems at length to be almost generally admitted. The heat which they possess when fallen, the igneous phenomena which accompany them, their explosion when arriving within the denser regions of our atmosphere, &c., are all sufficiently accounted for on physical principles by the condensation of the air before them in consequence of their enormous velocity, and by the relations of air in a highly attenuated state to heat."

We gather then from the foregoing that the phenomenon called the zodiacal light is produced by the sun's light being reflected from a multitude of minute particles of matter in motion about the sun, extending across the orbits of Mercury and Venus, and reaching even within that of our own earth at a particular time of the year. That these particles even come in contact with the earth when it is in that part of her orbit, and appear as meteoric phenomena, and at night as falling stars, that they reflect the sun's light which produces the phenomenon called the zodiacal light, and that they are in rapid motion round the sun in orbits of their own similar to those of the planets.

The American astronomer, Professor Silliman, has alluded to the phenomena of these nebulous stars in the following, published in the San Francisco papers. He says:—

"Astronomers anticipate a recurrence this year of the November meteoric shower of 1833*. The mornings from the 11th to the 15th are all likely to show an unusual number of meteors, specially the 12th and the 14th. The best time of observation is from 1h. 30m., a.m., onward. The radiant point is the constellation Leo.

There are many, no doubt, who still remember the grand meteoric displays on the 18th of November, 1833, and such can appreciate the magnificence of these heavenly wonders. Though occurring generally once in thirty-two years, or thereabouts, history fails to record any disaster occasioned by these phenomena. The settled conviction of scientific writers is that they are quite as harmless as the wind that blows.

These periodic showers have been remarked for the last 960 years, viz.: in October, 902; October 19th, 1202; October 21st, 1306, (O.S.) Within the last hundred years these showers of falling stars have occurred generally between the 10th and 15th of November. On the night of November 12-13th, 1831, 1832, and 1833, these exhibitions were noticed. But that of the latter date was the most remarkable for the brilliancy of the display, the length of time during which it lasted—from midnight until daylight—and for the countless numbers of small and large bodies, which came and went streaming through space, flashing and glowing along from the point gamma of the constellation Leonis Majoris. This constellation is in the vicinity of the Great Bear, Ursa Major, or as known by many, the "dipper," near

* [A representation of this shower is preserved in our volume for 1834, at p. 430, with several descriptions,—Ed.]

the North or Pole Star. It was estimated that the point at which these meteors were first visible must have been more than two thousand miles from the earth. Since then their appearance has been noticed almost yearly, which has convinced astonomers that a body of nebulous matter revolves regularly round the sun in an elliptical orbit, the time of these exhibitions being at the aphelion of the body, that is, the time when the body is farthest from the sun, and that in passing through the earth's orbit, portions of the nebulous matter become visible to man. The astronomer Olbers thought that the real period of return of these showers was thirty-four years, from the fact that that number of years intervened between the brilliant exhibition of 1799 and the still more grand one of 1833, and the next will occur in 1867. Others confidently look for it this year.—*Sac. Bee.*

Sir Thomas Maclear, the astronomer at the Cape, in a letter from the Observatory at Cape Town, addressed to Admiral Sir Francis Beaufort, the late hydrographer to the Admiralty, transmits one of these aerolites which fell at the Cape. The letter runs thus:—

"I have taken the liberty to transmit to your charge for Sir John Herschel the accompanying aerolite, or rather a portion of an enormous aerolite, that exploded in the department called the Cold Bokkeveld, about 112 miles N.N.E. of this place, on the morning of the 13th of October, and which for magnitude ranks with the largest of undoubted authority."

"Judge Menzies returning from circuit saw it traversing the atmosphere, about 60 miles from the estate where it exploded, with a report equal to the discharge of some pieces of heavy artillery, to the great astonishment of the inhabitants, one of whom had a narrow escape of being destroyed by it."

"I am making strong efforts to secure a piece, said to have made a hole in the ground that would admit a dining table! This may be exaggerated. A man declares the hole is three feet in diameter."

"Another meteor on Wednesday last at 6h. 37m. p.m., daylight passed over us. I was sitting with my back to a window, when I was suddenly startled by the image of the window-frame on the opposite wall, as if the noonday sun was shining through it. At the same instant another person sprang up who was sitting with her face to the window, and saw a body as large as a full moon descending, and which fell in a S.E. direction from us, at the distance of less than half a mile. There was no noise or explosion."

"It is rather curious that these phenomena should generally happen between September and the latter part of December, which favours the hypothesis of the earth, at the latter part of the year, approaching the orbit of a mass of them circulating round the sun."—*Nautical Magazine*, 1839, pp. 207, 208.

That these "periodic showers" happen at a time when our earth is in that part of her orbit which crosses the path of the "nebulous matter" round the sun, above alluded to, seems now to be generally admitted. The purpose which they serve in the vast field of our solar system is, in the opinion of Julius Mayer, the means of renewing *ad infinitum*

those wonderful energies of the sun that are continually being expended in his rays. In fact, that they are the fuel of his fire!

It seems to be admitted that, "the extraordinary high temperature which exists on the sun almost precludes the possibility of its surface being solid; it doubtless consists of an uninterrupted ocean of fiery fluid matter." But this fiery fluid has a higher temperature than can be produced by any artificial means known to us; and, although the ball of ignited quick-lime used in Drummond's oxy-hydrogen lamp is considered by Sir John Herschel as the nearest imitation of the solar splendour that has yet been produced, we are also informed by him that the light of it "is only 1-146th part of that of the surface of the sun." How much greater than the heat of the lime ball in its burning condition must be that of the sun. The distance of the sun from us is calculated as ninety-five millions of miles. And of its size and powers he adds—

"That at so vast a distance the sun should appear of the size it does and should so powerfully influence our condition by its heat and light, requires us to form a very grand conception of its actual magnitude, and of the scale on which those important processes are carried on within it, by which it is enabled to keep up its liberal and unceasing supply of those elements." The diameter of the sun Sir John states to be 882,000 miles, and "in linear magnitude it exceeds that of the earth in the proportion of 111½ to 1, and in bulk that of 1,384,472 to 1."*

Then of the wonderful power of its rays Sir John gives us the following facts. He says "the sun's rays are the ultimate source of almost every motion which takes place on the surface of the earth. By its heat are produced all winds, and those disturbances in the electric equilibrium of the atmosphere which give rise to the phenomena of lightning, and probably also to those of terrestrial magnetism and the aurora. By their vivifying action vegetables are enabled to draw support from inorganic matter, and become in their turn the sup-

* The reader will have obtained a tolerably good idea of the enormous magnitude ot the sun in comparison with the planets which move around him by the illustration in a former page. But has he ever heard of spots in the sun's surface? No doubt he has, and that idea which he has already imbibed from the illustration will be confirmed when we add, on the authority of Sir John Herschel, that one of those ordinary-sized spots would more than contain our earth. He says the great spot of 1779, mentioned by Sir William Herschel, (*Philosophical Transactions*, 1795), as having been seen with the naked eye, consisted, he says, of two parts, the largest of which "measured 1′ 8·60″, in diameter, which is equal in length to more than 31,000 miles." Both together, he adds, "must certainly have extended above 50,000." This corresponds to 113″, which is not a fourth part of M. Gautier's quantity. Moreover, 470″ on the sun's disc (that of M. Gautier), not to 15·7, but to 27·3 diameters of the earth." And it is considered by M. Mayer, that were the earth in that position, about two years would be sufficient to consume it! Verily nature and nature's laws abound in wonders! Newton himself suggested the renewal of the sun's powers by the asteroids, and modern observation confirms the assertion.

port of animals and of man, and the sources of those great deposits of dynamical efficiency, which are laid up for human use in our coal strata. By them the waters of the sea are made to circulate in vapour through the air, and irrigate the land, producing springs and rivers. By them are produced all disturbances of the chemical equilibrium of the elements of nature which, by a series of compositions and decompositions, give rise to new products, and originate a transfer of materials. Even the slow degradation of the solid constituents of the surface, in which its chief geological changes consist, is almost entirely due on the one hand, to the abrasion of wind and rain, and the alternation of heat and frost; on the other, to the continual beating of the sea waves, agitated by winds, the result of solar radiation. Tidal action (itself partly due to the sun's agency) exercises here a comparatively slight influence. The effect of oceanic currents (mainly oringinating in that influence) is powerful, though slight in abrasion, diffusing and transporting the matter abraded; and, when we consider the immense transfer of matter so produced, the increase of pressure over large spaces in the bed of the ocean, and diminution over corresponding portions of the land, we are not at a loss to perceive how the elastic power of subterranean fires thus repressed on the one hand, and relieved on the other, may break forth in points where the resistance is barely adequate to their retention, and thus bring the phenomena of even volcanic activity under the general law of solar influence."

Having attributed all these wonderful effects to the powerful influence of the heat of the sun as felt by his rays, Sir John Herschel continues thus:—"The great mystery, however, is to conceive how so enormous a conflagration (if such it be) can be kept up. Every discovery in chemical science here leaves us completely at a loss, or rather seems to remove farther the prospect of probable explanation." And we may now add that it is precisely here that the subject has been taken up by Julius Mayer, whose theory shows the wonderful foresight of an Almighty Providence in having supplied fresh matter, which would be continually meeting the demand that would naturally be continually occurring as that became consumed which is on the surface of the sun.

The subject, when it is received into the mind with that calm consideration to which it is entitled, is almost astounding. Our globe is at an enormous distance from the sun, as we have already stated; it is a minute body, large as it may appear to us in comparison with that enormous body, it would be a mere speck on its surface; a spot we may see on that surface would contain a dozen or more such insignificant globes as ours. We are among a series of other bodies, some much larger than ours, obeying its influence in moving round it in our usual orbit, and we feel that heat which the sun dispenses around him even at the great distance that we are from him—hundreds of millions of miles; these, we say, are facts the consideration of which in themselves are astounding. But there is more yet for our astonishment and wonder. Those fires, the powers of which we have just seen described by Sir John Herschel, are unquenchable, although depending

on matter to keep up a state of consumption; as fast as that is consumed more is at hand to supply its place! The savant, Julius Mayer, tells us, and some of our own philosophers agree in the probability of his theory, that the innumerable quantity of small minute bodies, (so numerous as to be pronounced infinite), to which we have alluded as moving round it, and extending even to within our own orbit, are perpetually supplying fresh matter by falling on the surface of the sun, as the matter of which it is composed becomes consumed! Well may we who are endowed with minds to comprehend all these stupendous wonders recoil at them when we find that in all our pride and imagined importance we are but atoms in the midst of the works of a provident, omnipotent, and merciful Creator! But we must reserve a further discussion of these subjects for another opportunity.

Extension of the Telegraph System.

The importance of the telegraph for commercial purposes, and the many and varied uses to which it is applied, invest with more than ordinary interest the extension of this wonderful system to any part of the world. Perhaps, however, there is no quarter of the globe where its advantages would be more felt than on the great continent of North America. At present our only means of communication with the British North American Colonies, or the United States, is by the regular mail steamers, and as none of these now call off Cape Race, our earliest intelligence from the other side the North Atlantic is from nine to ten days. By interception at Cape Race three days were saved, for the time on the journey from Ireland to Newfoundland is but six days, and then along the coast to New York another three or four days, according to the state of the weather.

If there were a single submarine wire stretched across the bed of the ocean, it is very likely that its powers of telegraphic transmission would be tried to the utmost, as there would always be more messages to be forwarded than could be sent on by the battery working one line. The failures of the Atlantic Telegraph Company to lay down an uninjured submarine cable have set in motion the promoters of other schemes, of which there are several either published or in embryo. There is, first, the French project of a line from Paris to Lisbon, to Cape St. Vincent, the coast of Morocco to the Canary Islands, then by the coast of Africa to Cape Verd, and onwards to San Roque, on the Brazilian coast. Next there is the Americo-Russian project. The United States government has constructed a line traversing the country from East to West, and going northwards through California to the frontiers of the British possessions. The Russians, on their side, have made a line through Siberia to the Amoor and Yakoutsh; it is also intended to carry this line across Behring Straits to a point on the

frontier of North America, where the British and Russian boundaries meet. If the Russian government completes their share of this enterprise, there will then remain the section running along the British territory on the North Pacific. It was stated some time ago that an American company had obtained a concession to work this line when finished; but the Russian government made, in the agreement, a stipulation that all the servants of the company should be Russian.

Judging from the way messages are manipulated or mangled when passing through the Russian telegraph offices, and keeping before us the fact, that the imperial authorities have the right to monopolise the wires whenever any official takes it into his head to stop all private telegrams, we should say that the ordinary post will frequently beat this mode of communication. The many complaints made of the irregularies in the expediting of dispatches by the Indo-European line by Constantinople,—telegrams sadly mutilated, and a month old, having been received,—led Captain Smith, R.E., acting director of the Persian Telegraph, to address his Excellency Mr. Allison, the British minister at Teheran, on the subject. In consequence of repeated remonstrances, the authorities placed Morse instruments on the line to Russia; but this added to the confusion, for though the messages arrived, according to Captain Smith's account, "a little more quickly than before, they were even in a worse state, as the Persians add their own share to the previous errors of the Russians." Messages poured in from Russia in such a hopeless state of mutilation that all confidence in the line seemed likely to be lost. When, therefore, the Russo-American line is open via the Amoor, the messages will pass through so many stations as to render through telegraphing almost worthless; besides which, the line would be cut in the event of a war between the Russians and any other power. But the question of its practicability has not yet been proved. It is open to doubt whether a line across the entrance to the Polar Seas could be kept open.

Another scheme, for the present merely sketched on paper, is that from Europe to the East by Pekin, thence to Japan, and on by Anson's Archipelago, the Philippines, Caroline Islands, the Sandwich Islands, and then to join the land lines in Western Mexico or California. The cost of messages by this long and roundabout route would be too expensive for European use, though it might serve Eastern purposes. Then there are the lines from Orkney to Iceland, Greenland, and over the Northern Atlantic to Labrador. In these latter it is endeavoured to avoid long, deep-sea cables, and to make the islands in the oceans stepping-stones to shorten the lengths.

Probably there is none more feasible than that announced a few days since as Allan's Transatlantic Telegraph Company. This company proposes to submerge a cable in the first instance from near Falmouth to Oporto, 600 miles. This will demonstrate the practicability of laying down a comparatively light cable in the depths of the ocean. The next link will be from Oporto to Flores, one of the Azores, about 900 miles; and the last connection will be from the latter island to Halifax, in Nova Scotia. This line will present but few breaks, and,

if successfully laid, will solve the problem of Atlantic telegraphy. In paying out, the system of heavy breaks will be dispensed with, and the cable allowed to pass out freely, by which it is confidently anticipated, all danger to loss of insulation will be overcome. Allan's cable is constructed on the principle of allowing the tension to fall on the wire conductor, which is made strong, and covered with fine steel wire, wound round quite flat, and spirally. This, again, is coated with gutta-percha, and over all is a covering of broad tape, saturated with some preparation to preserve the gutta-percha from damage in stowing or paying out the cable. The whole cable is about five-eighths of an inch in diameter. Its conductivity in copper is 250 lbs. per knot, the insulation 300 lbs. of gutta-percha. Its weight in the ship is 8 cwt., and in deep sea 2½ cwt. per knot. The specific gravity is 1·5, its breaking weight is said to be equal to 7,500 fathoms, and 1 per cent. without elongating. The weight of the Atlantic Telegraph Company's cable is 35¾ cwt., or about four and a half times greater than Allan's. Allowing 2,000 miles of cable for the long stretch from the Azores to Halifax, the weight would be 800 tons, against 4,500 tons of that of the Atlantic Cable. These are great advantages, added to which the estimated cost of Allan's cable is but £600,000, whilst the Atlantic Company have already lost two large capitals, and, as we explained before, must, if they ever succeed in their undertaking, increase their charges to make up for the additional outlay. Allan's Company set out with the promise to convey messages of twenty words for £4, whereas the Atlantic Company intended to charge £20. If, then, Allan's cable is successfully laid, its value to the commercial world will be incalculable.

There is always more or less danger to be apprehended in paying out. It is the custom to coil the cable round drums. If the paying out were left to seamen, they would pay it along the decks in such a manner as to prevent kinking. A rope, if laid in a circle, when unwound, turns on its own axis, and this produces a torsion which increases its destructive force. Again, a cable may be calculated to break at a given strain, or by its length. But these do not give a fair criterion of what a cable is susceptible of resisting. As Mr. Silver puts it, a moderate state of the sea, or motion of a ship, will cause an action of the cable; and if it could be applied to a spring weighing-balance, there would be developed evidence on the dial of the latter of incessant variations, and frequently of violent jerks. These motions, resisted by a break, and the inertness of a weighted dynamometer, must surely cause more or less injury to the fabric of the cable, and in a rough sea, perhaps, part the conducting wires, or possibly the whole rope. The remedy for this state of affairs which Mr. Silver provides is a governing apparatus which shall deliver the cable at any general speed desired, sympathising, at the same time, with all the perturbations of the cable on its passage from the vessel, applying no uneven strain, but freely giving and taking, as the case requires. In other words, instead of stationing a man at the brake to give out the cable faster, or *vice versâ*, he would have a self-acting governor that would give with

a jerk or strain, instead of waiting till the action has taken place and the mischief is done.

These are practical points worthy of consideration by those who have the conduct of these undertakings, and will, no doubt, receive the attention of Mr. Allan, on whose scientific acquirements the company may safely rely for a proper appreciation of their value. This new company will have as their guide the experience gained during several years in submerging electric cables, and they ought to benefit by the faults of the past. It is desirable, on national and political grounds, to have the shore ends of a Transatlantic cable on British territory without passing through foreign states. This the direct line to Nova Scotia will give, and the promoters of this company may, in the end, find it prudent to enter boldly on the cross-sea line, leaving the Oporto cable as a continental and independent enterprise. New lines to the Continent are needed, and this peninsular project should meet with every support on its own merits. For the shipping interest, however, the Azores line would be in considerable request, for both outward and homeward bound vessels, in certain trades, could pass near enough to report their signal letters under the new *Commercial Code of Signals*. Whether, therefore, the line is carried via the Azores or by long sea direct, there can be but one feeling on the part of the public, in which we cordially join, and that is, to see a line speedily established between Europe and America.

Shipping and Mercantile Gazette.

NAUTICAL NOVELTIES.

Among our monthly notices of nautical matters, we place foremost the narrative of an occurrence second only in importance to that which occupied so large a portion of our last number. It is gratifying to note these proofs of friendliness that have been of late so conspicuous between the high naval authorities of this country and our neighbours on the opposite shore of the English Channel, or La Manche, as it is called by them. And now comes to us an account of another similar spontaneous event arising out of the late wreck of H.M.S. *Bombay*.* This disaster is fresh in the memory of our readers as well as the result of the court martial. The *Bombay*, which was the flag ship of Admiral Elliott, has been replaced by the *Narcissus*, and the following narrative will relate the transaction to which we have alluded. While we express our cordial agreement with the good taste and feeling which characterises the whole proceeding, we can no less admire the pleasing manner in which the present was accepted than the fact that it was a contribution from every person—officer, man, and boy, saved

* See our number for February last.

from the effects of that disaster, the burning of her Majesty's ship *Bombay*. The *Buenos Ayres Standard* states that:—

On the 14th of August a grand festival was held on board H.M.S *Narcissus*, in the Bay of Rio Janeiro, on the occasion of the captain and surviving crew of the ill fated *Bombay* presenting a sword of honour to the French Admiral, in recognition of his kind services towards them.

Admiral Chaigneau and his staff being invited to dinner on board the flagship, the chair was occupied by the commander, Captain Colin-Campbell, who had the French Admiral on his right, and Admiral Elliott, the chief of the station, on his left. The lady of the gallant British Admiral also assisted. As soon as the viands were discussed, Captain Campbell filled a bumper, and after the toasts of loyalty and courtesy to Queen Victoria and the Emperor Napoleon, presented Admiral Chaigneau with a magnificent sword, specially manufactured by Messrs. Delacours and Backers, at the same time addressing him as follows:—

Admiral Chaigneau,—This sword, which I have the honour to present to you on behalf of myself and the surviving officers and crew of the *Bombay*, has been defrayed by a subscription in which all, without a single exception, have had the honour to contribute, hoping to render this present worthy of him to whom it is offered, and as a record of their faithful gratitude to you. It was ordered before we knew that your countrymen in Monte Video had made you a similar present in token of acknowledgment of your having saved them, their families, and properties from impending danger and destruction. It is now my duty to tell you, sir, in presence of several of the *Bombay's* officers, and of the gallant sailors who surround us, that we shall never forget the kind attentions, brotherly aid, and tender care with which you treated us, and the cordial and generous hospitality which we experienced on board *La Fortune*. We all consider it our bounden duty to imitate your noble conduct, if through any mishap we should at a future time meet any sailors of your illustrious nation in danger, or requiring any assistance. Your conduct, admiral, has been highly appreciated in England, and if our government had not at once hastened to offer you the thanks of the nation, the whole British navy would have joined us in this expression of profound gratitude, which I am unable fully to interpret, in spite of my good will. This is a full-dress sword of the French general officers, and in offering it to you we pray God that you may long wear it for the glory of France, the honour of your family, and the satisfaction of your friends. Such are our fervent wishes, and we hope they may be fully realised.

In reply to this flattering address, Admiral Chaigneau said,—

Gentlemen,—I am overcome with gratitude for the honour just conferred on me in so spontaneous and enthusiastic an expression of your sentiments towards me, and in spite of the profound emotion I

feel I will endeavour to convey my acknowledgments of gratitude. The simplest words, when coming from the heart, are the most eloquent. Relying, therefore, on your indulgence and my own conviction, I beg to say that my officers and men can only accept your praise for our conduct and sympathies in a misfortune so courageously supported, as a valuable testimony of the generous sentiments which animate you, and the mutual esteem which unites your country and mine. In presence of the gallant sailors of the *Bombay* here beside me, and of my honourable colleague, your worthy admiral, I feel most happy in repeating, with a profound conviction, that the sorrow of Great Britain for losing so magnificent a vessel and so many of her brave sons, must be mitigated by the noble example given to the navies of the world by the crew of the *Bombay*, who acted the part of valiant men, relying on the skill of their officers, and more anxious for the preservation of the ship than their own lives. This was truly a splendid spectacle presented by the commander, officers, and men of the *Bombay;* and I am proud to have the opportunity of again congratulating you for the same. You have just said, my dear commander, that you hope to see me long wear the sword now presented to me. I do not know how many years I may yet have to run, but I assure you that I shall gird it on with pride to-morrow to celebrate the anniversary of our august Emperor, and if at a future day I shall be called on to use it for my country's glory and defence, I trust it will be to maintain at the same time the *entente cordiale* so happily existing between Great Britain and France, an alliance that guarantees the peace of mankind, the progress of civilisation, and the freedom of the world.

This eloquent speech, like the former, was greeted with enthusiastic hurrahs, and the happy *réunion* was kept up till midnight, when Admiral Chaigneau took his leave of the English flagship, and was saluted at his departure with Bengal lights, and other demonstrations of sympathy and respect.

We have taken this account from a letter addressed to the *Siglo*, of Monte Video, and feel much pleased at the above manifestation, which shows such friendly feelings between the representatives of the two great powers of Christendom, and reflects no less honour on the donors than the recipient of so well deserved a gift.

Some important experiment with that formidable article for war purposes—the Torpedo—have initiated us into its tremendous effects at the threshold of one of our principal arsenals, on the 4th of October. The *Times* thus describes the effect:—

The object of the experiments was to test the effect of those formidable implements of destruction of which so much was heard during the progress of the late gigantic conflict in America. The invention which was tried with the aid and sanction of the Lords of the Admiralty, and is due to the skill of Mr. Wood, an officer of the United States Navy, in conjunction with that of Mr. Beardslee, who personally superintended these experiments. Mr. Beardslee had been engaged at

Chatham for about a week previous in making the necessary preparations, and on the previous 30th of September deposited one of his large test torpedoes in the mud and sand off Gillingham Point, in the Medway, at the entrance to Chatham Harbour, there to remain in readiness for demonstating that prolonged submersion would not impair its explosive force. Near the same spot lay moored the hull of the *Terpsichore*, an old wooden 18 gun sloop of some 500 tons burthen, which the Admiralty had placed at Mr. Beardslee's disposal, as a sort of *corpus vile*, upon which he might work his will. And not far off again from this devoted craft were ranged at intervals several specimens of torpedoes of varying destructive power, the efficacy of which was to be tested by less costly as well as less practical operations than the blowing up of an actual man-of-war. The torpedoes used were of two kinds, the one called "electrical buoyants," and the other "percussion," these respective names indicating the agency by which the explosion of the shell is produced. They were in both cases formed of hollow water-tight cylinders, made of wrought iron, and varied in size and powder. The largest were constructed to receive a charge of 440 lbs. of powder, and the smallest for a charge of 68 lbs., the former being some 9 ft. or 10 ft. long and 1 ft. in diameter, while the latter were not above a third that length, though of nearly an equal diameter. To each torpedo, or shell, a cylindrical float is attached to give it buoyancy: and when it is desired to submerge the shell to any particular depth before firing it, the rope connecting the two can be easily untied and adjusted.

The morning being very foggy, there was considerable doubt for some time whether the trials would come off that day; but the sky clearing about noon, and the sun shining out with all that unclouded brightness for which the weather during the last few weeks has been so remarkable, it was determined that the operations should proceed. This decision, however, was arrived at at an hour when the tide was ebbing fast,—a circumstance somewhat unfavourable for the full effect of the intended experiments. It was about two o'clock when the Admiralty yacht *Wildfire*, having his Grace the First Lord and a distinguished party on board, steamed from the dockyard pier for the scene of action, about a couple of miles distant, and situate in the broadest and prettiest part of the Medway. Having taken up an excellent position for viewing the experiments at a few hundred yards from the barge on which Mr. Beardslee and his assistants were stationed with their electrical apparatus for igniting the shells, the signal was given for commencing.

At a spot indicated by a pole bearing a red flag had lain submerged 15 feet deep in the bed of the stream, as already stated, since last Saturday, one of the largest-sized torpedoes, charged with 440 lbs. of powder. A boat's crew was despatched from the operator's barge to establish electrical communication with this sunken shell. This preliminary completed, and the train all ready for firing, in an instant there arose from the placid bosom of the river high into the air a huge column of water, in shape and action much resembling those great water-

spouts occasionally witnessed by sailors in mid-ocean, and to which, though very beautiful to look upon, they do their best to give a wide berth. The splendid volumes of snow-white spray soared quickly to a height of little less than 200 feet, and then fell gently again in exquisitely graceful curves into the vortex whence they had risen, leaving no traces of themselves behind save a slowly expanding circle of bubbling, foaming water, the muddy, yeasty aspect of which showed that the river had been stirred to its lowest depths. The spectacle reminded one forcibly of a display of the great fountains at Sydenham, but was, of course, upon a much grander scale.

The explosion of the next large torpedo produced effects but slightly differing from those just described, except that it was accompanied by a far more deafening report, that fragments of the cylinder were sent spinning high above the topmost wreaths of delicate, feathery spray, and that the rare beauty of the too transient display more strongly contrasted with the after turbidness of the seething waters. Several other experiments of a similar nature followed, the only variation in their results being that sometimes the huge bodies of water tossed up were thrown laterally and diagonally rather than in a vertical direction, and consequently produced still wider circles of foam and mud than their predecessors. It is needless to say that any one of these powerful explosions must have proved most dangerous, if not absolutely fatal, to any even of our largest ships of war which might have come within their influence.

But the most interesting experiment of the day still remained to be pe-formed. We, of course allude to the proposed blowing up of the *Terpsichore*, which was destined soon to execute as fantastic, though not as happy, a movement as any associated with her name. Being, however, a vessel without a history, never having once been put in commission since she was brought from the private yard at Blackwall where she was built, to rot in the Medway like so many of her companions, there is little room for the indulgence of sentiment about her ignoble doom. With the full leave and license of our Board of Admiralty, our "American cousin," in friendship, not in wrath, played the part of her executioner; and in the opinion of not a few of the spectators many more vessels of her class might, with advantage to the public, be handed over to the same inglorious fate. Useless in life, their death might at least promote the ends of science. But let us hasten to describe more particularly the mode in which she at all events made a nominal gap in our *Navy List*. Two 75-pounder torpedoes having been placed at a depth of some seven feet below her keel, towards her bows, and the signal given for transmitting the electrical spark to their contents, a dull report is suddenly heard, accompanied with a visible upheaving and convulsive quivering of the whole frame. Simultaneously there is a loud and painful clanking and rattling of chains, as though every ounce of iron on board felt the death agony; cascades of water thrown on to her deck by the force of the explosion are seen running out again from her scuppers; and in much less time

than it takes to tell the tale—for the whole thing is an affair of seconds—the *Terpsichore* is unmistakably settling forward. In another moment her stern stands up at an acute angle, and her bow sinks deeper and deeper. Not a fragment of her timbers is seen to be detached from the rest of her bulk, not a splinter has been shot up into the air, or has fallen off into the water, and she appears to be going down bodily. The mischief she has received would seem to be a broken back, for she still continues to go down by the head, until in about five minutes from her first premonitory groan she lies fast aground in the Medway mud on an even keel, with the tide, now down to three-quarters ebb, up to within a few inches of her port-holes. There is not now enough water entirely to drown her, or she would infallibly be engulfed; but she is irretrievably wrecked, and the rising tide will in a few hours not leave a solitary trace of her visible. But the torpedoes did their fatal work without any superfluous parade; and it requires no great powers of imagination to call up before the mind's eye the terrible scene of confusion and despair which such a sudden stroke would create in a ship of war equipped and manned for actual service. Hardly a soul on board, one should think, could in that case have been saved.

It appears pretty plain that vessels of war would find a channel or river planted with these treacherous implements very awkward navigation, as by running foul of one of them that is fired by purcussion they might at any moment experience the fate of the *Terpsichore*. With regard, however, to boats going in under an enemy's fleet and quietly depositing these destructive explosives there, it could hardly be done at all if a sharp look-out were kept, except under cover of a dense fog or a dark night; and it seems tolerably clear that under such circumstances the operation would be about as hazardous to the assailants as to the assailed.

It is well known that they were often towed clear of our ships in the Chesapeak in the American war of about half a century age.

Among novelties in naval architecture we have the following concerning—

THE CIGAR SHIP.—The novel steam-vessel—well know to passengers on the river as the cigar ship, from her peculiar shape—will, as at present arranged, be launched from the premises of her builders, Messrs. Hepworth, Millwall, on the 19th instant. We recommend the cigar ship when she gets into salt water to keep clear of the heavy seas of the Atlantic in a brisk gale of wind—if it be really intended that she shall navigate that or any other such troubled ocean—a measure which we cannot believe until we see the proof. But here is something more than the cigar ship—*a water chariot!* Perhaps old Neptune wants a new one by this time, and this is preparing for him by our spirited proprietors. We doubt that it will beat the cigar; or whether it is not after all the joke of some nautical Munchausen in an experimental gull!

An experimental vessel on an entirely new principle is about to be laid down by an eminent shipbuilding firm for the projectors, who have patented the invention. It is described as the light draught roller ship, or water chariot. This invention consists in supporting a car or vessel above the water level on axles or shafts passing through rotary or hollow drums or cylinders which are made to revolve on their axles by steam or other motive power. This car or vessel, constructed to carry passengers and freight, is supported by the buoyancy of the drums, and kept suspended above the water level. The advantages of the invention are said to consist in increased speed at a much less expenditure of motive power and fuel, and from the light draught of water, greater safety from shoals, rocks, &c. This will be another novelty which we wait to see realized before we believe in. But we do hope to see the following project for Newhaven carried out by hook or by crook,* in earnest, and record it here that we may not lose sight of it, for, verily we do want such places in the English Channel, and the project is good.

At a meeting of the trustees of the Newhaven harbour at the County Hall, held on the 9th instant, a grand scheme has been projected which, if carried out, will make Newhaven into a port of vast proportions and importance. The principal features of the proposed undertaking are a breakwater (extending nearly in a semicircle about four miles in extent, forming a spacious harbour off the mouth of the river Ouse), berths for 150 ships, jettys, wharves, warehouses, bonding vaults, landing places, and indeed everything necessary for a first-class port. The project is to cost nearly £4,000,000, and if carried out Newhaven will in all probability become the Liverpool of the South.—*Surrey Standard.*

The following signs of the unfortunate Atlantic cable half laid down, remind us of that disastrous affair.

Halifax, September 28th.

Captain Lowther, of the ship Madras, from London, which arrived at Quebec on Monday, 18th instant, has furnished the *Chronicle* with the following extract from his logbook:—

"August 29th, 6h. p.m., lat. 52° 12′ N., long. 37° 20′, passed about a mile to leeward of a large buoy, painted a darkish red colour, with a flag-staff, having a red, white, and red colour flying, apparently new, with a flat black ball on the top of the staff, showing two smaller buoys or barrels lashed alongside."

Captain Lowther expresses himself confidently that these buoys were stationary, from the fact that a strong breeze was blowing at the time, and from the particular observation he took of them. Do the proprietors ever expect to recover the cable by these buoys? As well might

* The phrase "by hook and crook" originated in the fact that Messrs. Hook and Crook, surveyors, of London, were arbiters of bounds, after the fire of 1666, by which boundary marks were destroyed, and their just decisions rendered resort to law unnecessary.

they try to lift a rock from the Atlantic bed. They carried away all their tackle in the first attempts, and they will lose all the rest in the next. Their only chance of recovering it is to begin at the beginning, if they really wish to get what they can.

When our merchant craft take liberties with the shore in making their passages from one part of a coast to another, their best way is not to follow the example of Captain King inside of the Abrolhos and write about it like this:—

SHOAL NEAR THE ABROLHOS ISLANDS.—Captain King, of the barque *Sharston*, arrived from Bahia, reports having fallen in with a shoal near the Abrolhos Islands, and of great danger to vessels navigating those waters. He reports that on June the 18th, being then on a voyage from Santos to Bahia, and in lat. 17° 57′, S., long. 38 °35′ W., he was running in smooth water, wind east. At 11h. a.m., the lighthouse on the island bearing N.W., distance three miles, ship heading N.N.E., and going six knots, passed over and slightly grazed a sunken coral reef, ship drawing eleven feet six inches water fore and aft. Had fourteen fathoms of water alongside, mud bottom. On looking round saw dozens of rocks. Tacked ship and stood to the southward, threading a passage with great difficulty and danger. Threw the lead on some of them, having three and five fathoms of water, but alongside of them fourteen fathoms. Some of the rocks appeared nearly awash. The rock the ship grazed over appeared white coral, the others looked black and round, having the appearance of marine plants growing on them. When the lighthouse on the island bore N. by W. eight miles, saw the last rock, and had nineteen fathoms of water close to it, the top of the islands dipping, and about sixteen miles off had twenty-four fathoms of water. He also states that in the course of his voyages to and from the Brazils he has stood to the islands in fourteen fathoms, mud bottom. This "notice to mariners" appears in some of the papers of the day, but we should like to know how many mariners have profited by it, and how many more have laid down such a piece of hodge podge? The barque *Sharston*, had no business to be hugging the land inside the Abrolhos.

It appears by the following from Singapore that the ship *Formby*, of Liverpool, has had an escape of another kind.

We have been favoured by Captain Thomas with the following account of a daring attack made by Chinese pirates on the *Formby*, and trust that when Captain Thomas, whom we hear is ill, recovers, he will give us further particulars; as when pirates make an attempt to take so large a ship as this it is time that our government should at least be put in possession of all the facts.

Singapore, June 26th, 1865.

Sir,—The ship *Formby* of Liverpool, on her late passage from Hong Kong to Singapore, was furiously attacked by fourteen piratical junks, heavily armed, and each manned with about fifty men, fifteen miles south of Cape Linhose, coast of Hainan, on the 31st of May.

Some fifty shots were fired at the ship, some cutting through the plating at the water line, fortunately on the weather side.

With great difficulty we succeeded in stopping the holes, the ship being iron. Their guns were loaded with all kinds of conceivable missiles, cutting and damaging the sails and rigging badly. Fortunately, the breeze springing up we managed by outsailing them to make our escape without any of the crew or officers being wounded."

An insertion of the above will oblige,

Your obedient servant,

CHARLES THOMAS, *Commander of ship "Formby."*

To the Editor of the Straits Times.

The escape of the *Formby* will prove a caution to our merchant craft, and, we trust that some one of our gunboats will look after these gentry on the southern China coast.

The following seems to be a novel application of the electric light. Such an examination of moderate depths of the sea would be serviceable under certain circumstances. But we believe the application of the light to lighthouses has been finally abandoned by the Trinity House:—

THE ELECTRIC LIGHT AT SEA.—Some interesting experiments have just been made at L'Orient, on board the Coligny, the object of which is to utilise the electric light at sea. By means of a submarine reflector, the water was illuminated to a great depth, so that it was possible to look down from the deck and see the fish, attracted by the light, swimming round the lamp as if in an aquarium. A kind of diving-bell with a large glass eye in one side, and arranged to supply air to a diver, was also let down to a depth of thirty-eight fathoms. By means of this apparatus it will be easy to inspect submarine constructions, to fish coral, &c., and recover wrecked property. Signals were likewise exchanged by means of the electric light, between the Coligny and the semaphore of Belle Isle. These different applications of the electric light were made, in presence of a military commission, by the inventor, M. Bazin, civil engineer, of Angers, and were found to give satisfactory results.

An absurd report has got abroad which states that Captain Crozier, one of the unfortunate companions of Sir John Franklin, is yet alive among the natives of Boothia Felix. It appears to have arisen from a letter written to H. Grinnell, Esq., of New York, by Mr. Hall, who says he has obtained "interesting details" about Franklin's expedition, and that there "may be yet three survivors," and one of these Crozier, who succeeded Sir John Franklin on his death, an event, we may add, nearly twenty years ago. The whole story is evidently got up, consisting of vague statements, to excite interest. To suppose that Crozier, were he living, would not have found his way south long ago, is anything but probable. Of course, Mr. Hall is preparing for a book of his travels. In the matter of books, by the way, we perceive that

M. Guizot's work* on France under Louis Philippe, from 1841 to 1847, has just appeared in its English garb, a highly interesting and valuable contribution to history. The following concerns our nautical readers, from a notice of it in the *Daily News*:—

"The chapter on 'the Marquesas islands and Otaheite" relates the history of a dispute which, in the hands of less skilful and accommodating persons than M. Guizot and Lord Aberdeen, would probably have involved England and France in war. The affair seems to have originated in the mutual jealousy of the protestant and catholic missionaries, and was brought to a climax by the unwarrantable and overbearing zeal of a French naval officer. The French government had, in 1841, taken formal possession of the Marquesas islands, and urged by the catholic missionaries in the South Seas, had ever since cast longing eyes towards Otaheite. That island had long been Christianized by English missionaries, and its Queen, Pomare, was a steady admirer and friend of England. In 1842, taking advantage of some cases of ill-treatment suffered by French citizens, Admiral Dupetit-Thouars appeared off Otaheite, and demanded that the Queen should make measures to prevent the repetition of these offences. Mr. Pritchard, formerly a missionary, and then English Consul at Otaheite, and a most strenuous opponent of French influence, was absent, and his deputy, Mr. Wilson, accepted the treaty by which Queen Pomare placed herself under the protectorate of France, and yielded to its representative 'the direction of all affairs with foreign powers, as also all that concerns foreign residents, the regulations of the port, &c., and the right of adopting such other measures as he shall consider necessary for the preservation of good harmony and peace.' The protectorate was accepted, after considerable discussion, by the French Chamber, and recognized, though not without distrust, by the English government.

But the affair was not to end here. In November, 1843, Admiral Dupetit-Thouars returned to Otaheite, and availing himself of some trivial pretexts, set aside the treaty by his own authority, and declared Queen Pomare deposed and her kingdom annexed to the French dominions. On this, Mr. Pritchard, who had in the meantime returned to Otaheite, lowered his consular flag, and assured the natives (M. Guizot says) that England would support and restore Queen Pomare. An insurrection against the invaders at once broke out. M. Bruat, the French governor, whom M. Guizot describes as a person of equal intelligence and energy, was absent, and his subordinate, Captain d'Aubigny, at once placed the island in a most rigorous state of siege, arrested Mr. Pritchard, and confined him 'in a small dungeon under a blockhouse,' where he was treated with great severity. M. Bruat, on his return, released the prisoner from this unwholesome cellar, but seized the first opportunity of sending him away in an English ship.

* *France under Louis Philippe*, from 1841 to 1847. By M. Guizot. London: Richard Bentley. 1865.

On reaching England, the ejected consul at once complained to his government. The French Cabinet, which had repudiated the annexation as soon as the news of it arrived, was much embarrassed by a speech of Sir Robert Peel in the House of Commons on the 31st July, 1844, denouncing M. d'Aubigny's conduct as a gross outrage, accompanied by a gross insult 'committed against England in the person of her agent,' and claiming 'ample reparation.'

M. Guizot dwelt on the fact that Pritchard had abdicated his consular functions, and strenuously resisted the desire of the English government that he should be allowed to return to Otaheite. Great irritation was aroused in both countries, and this irritation was so far shared by the English government that an official note was prepared, announcing to M. Guizot that Pritchard would be sent back to Otaheite in the *Collingwood*. This would, of course, have been equivalent to a declaration of war. The matter was eventually settled by the proposal by the French government of a money compensation, to be fixed in amount by the French and English admirals commanding in the Pacific Ocean. The opposition in France, which had originally opposed the Protectorate, now seized upon this arrangement to attack the ministry for its pusillanimity in yielding to the demands of England, but the Chambers approved M. Guizot's policy after a vehement debate. And thus was happily averted another desolating French war."

Nautical Instructors and Seamanship.

Sir,—Of the subjects alluded to in a letter to the *Nautical* signed S. M. S., none appears to me so absurd as that on page 541, where your correspondent leads us to infer that a knowledge of practical seamanship is an essential requirement of a teacher of theoretical navigation.

What can be the use of a knowledge of seamanship to him who instructs others in the solution of plane and spherical triangles, and in the trigonometrical investigations of the formulæ for those solutions? Seamanship cannot be taught by words, it is learnt only in the rough school of experience.

S. M. S. makes preference to Greenwich as a school where sound nautical education is given, (forgetting his endorsement of Old Joshua Kelly's remarks). But is S. M. S. aware that the instruction in that school has been carried on entirely by landsmen? (Excepting during the last two years or thereabout.) Your correspondent also alludes to the *Worcester* and the *Conway*, and asks in admiration, "What may not such institutions accomplish?" Now in each of those excellent schools the nautical education is conducted by Old Greenwich boys who have not been to sea.

As the remarks of S. M. S. on this subject reflect no credit on those

teaching navigation who have no sea service, I feel it my duty to show him and your numerous readers what is being done without a knowledge of seamanship.

I am, &c.,
AN OLD GREENWICHER.

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 557.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
51. Principe Alfonso	Isle Balabac	8° 1·0′ N., 117° 1·2′ E.	F.	268	10	Est. has been?
52. Grimskar	Swedish coast	56° 39′ N., 16° 22′ E.	F.	48	12	Est.?
Borgholm Island, Oland	Ditto	56° 52′ N. 16° 38′ E.	F.	22	10	Est.?
Wormso	Ditto	.....	..	..	..	To be changed: The red discontinued and to be entirely of natural colour.
53. The River Bug	Russkaia spit entrance	On left bank	F.	33	..	Est.? Seen bearing from N. to N.N.E.
Ditto	On bank N. of Voloiskaia Spit.	On right bank	F.	69	..	Est.? Seen bearing from N W.b.W.½W. to W.b.N.½N.
Berdiansk, Azof	Breakwater, North shore	.....	F.	15	..	Est.? (*a.*)
54. Granitola C.	.....	.....	..	..	..	To replace Storello Point Light. See notice No. 48, p. 499.
55. Port of Brest	.....	.....	..	..	..	(*b.*)
56. Dungeness	East Channel	.....	..	..	..	Est. 1st December, 1865. (*c.*)
Falmouth	St. Anthony Point	.....	F.	..	..	(*d.*)
57. Po di Goro Entrance	Gulf Venice West shore	44° 48·7′ N., 12° 20·6′ E.	F.	66	14	Est. 15th October. On right hand entering.
Leghorn Harbour	On curved pier	.....	..	..	..	Est. 25th October. Red light will be raised to 87½ feet.
Port Maurizio	On West mole	.....	..	..	..	Is moved to end of pier, shows a white light and red West.
58. River Plata	South America	.....	..	..	..	Light vessel replaced on 27th July. (*e*)
59. Smalls	England W. coast	....	..	..	..	Est. 15th November, 1865. (*f.*)
60. Danger in Formosa Channel	.....	.....	..	..	..	See Nautical Notices.
61. Corton Gatway	Yarmouth	.....	R.	..	..	Two lights red for leading through. (*g.*)

F. Fixed. Ffl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a.) 53.—The breakwater extends into the sea to the depth of 14 feet water. If during heavy gales the force of the sea prevents this light from being exhibited, there will be *two fixed white vertical* lights shown, one 13 the other 10 feet above the sea, from a vessel moored inside the middle part of the breakwater, and about 35 yards from the shore.

(b.) 55.—Information has been received at the Admiralty from H.M. Consul at Brest, that in consequence of an imperial decree, the River Penfeld (the entrance of which formed the old commercial harbour) will on and after the 1st day of October, 1865, be closed to all merchant ships, and will be exclusively reserved to ships of the imperial navy; and that the landing place for boats of foreign men-of-war will henceforth be the Port Napoleon.

(c.) 56.—The bell heretofore sounded at Dungeness Lighthouse in foggy weather would be discontinued, and that in lieu thereof a powerful fog horn will be sounded.

The mouth of the horn will traverse an arc of 210°, viz., from N.E.b.E.¼E. (round South) to W.¼N., and *vice versâ*, so as to point in every direction between those bearings *once* in *each minute*;—the duration of the sound being *five seconds*, with an interval of *twenty seconds* between each blast.

The tower of Dungeness Lighthouse has been coloured *red* and *white* in alternate *horizontal* bands.

(d.) 56.—A *fixed* white light will be exhibited, on or about the 1st of December next, from the lighthouse on St. Anthony Point. The fixed light will be placed below the revolving light, and it will be visible *only* to the eastward of a line passing 2 cables eastward of the Manacles Rocks.

(e.) 58.—With the light on Flores Island bearing N.N.W.¼W., and the light on Monte Vldeo N.W.b.W.¼W., or 2½ miles south-eastward of her former position on the Admiralty chart.

The lightvessel is now more protected from the S.W. gales; but as her present position is not so favourable as her former one for shipping working up and down the river, the attention of the Minister of War and Marine at Monte Video has been directed to the circumstance, with the view of such measures being adopted as may seem best for the safe navigation of the river.

(f.) 49.—The *white* light exhibited from the Smalls Lighthouse will be shaded *red*, from the bearing of W.½N. to that of N.W.¼W., for the purpose of covering the Hats and Barrels Shoals.

(g.) 61.—The lights are ONLY SEEN from a bearing between N.N.W.¼W. and N.W.¼N., which pass the limits (quarter of a mile) of the navigable channel, and mariners must keep the lights in one, N.W.b.N., as the *only guide* to lead through.

UNITED STATES LIGHTS.

A notice, dated 18th of September last, from the Lighthouse Board of the United States, informs mariners that—the fixed white light at New Point Comfort, North side of entrance to Mobjack Bay, and West side of Chesapeake Bay, which was extinguished by the rebels in the spring of 1861, has been reestablished, and will be lighted hereafter every night from sunset to sunrise.

Another also dated 28th of August last, says that the fixed white light at Brazos Santiago, Texas, will be exhibited from a new tower at the North end of Brazos Island, on the evening of Thursday, August 24th, 1865, from sunset to sunrise. The tower is of wood, square, 28 feet high, white, is at an elevation of 43 feet above the level of the sea, and should be seen from a distance of 7½ miles.

And also another of the same date says, that a square wooden tower, thirty-four feet high, white, and surmounted by a black lantern, has been erected on Bolivar Point, at the entrance to Galveston Bay, 885 yards N. 66° E. of the position of the former light-tower, which has been totally destroyed.

A fixed white light was exhibited from it on the evening of Saturday, the 5th day of August, and will be shown every night thereafter, from sunset to sunrise. This light is forty feet above the level of the sea, and should be seen at a distance of seven miles.

Ports and Harbours on the N.E. Coast of Queensland.

(Continued from page 559.)

Port Denison.

From Gloucester Island to Port Denison.—Vessels intending to enter Port Denison by the North entrance should, after rounding the North end of Gloucester Island within a mile, steer so as to pass about half a mile to the S.E. of Middle Island; thence, making due allowance for tide, steering S.W.b.W.½W. for North Head, taking care to avoid a reef which runs out a mile and a quarter to the S.W. of Middle Island.

The North Head is a small rocky islet of moderate height, at the back of which (situated on the lower point of the Flagstaff Hill) will be seen, from a considerable distance, the houses at the pilot station.

In entering the port by this channel, avoid the reef off the South Head, (Stone Island,) on which there are two black nun buoys laid in two fathoms low water, entering somewhat closer to North Head, and when abreast of it, steer for Middle Hill, (a small cone on the main land midway between Mount Gordon and Mount Bramston,) which course will take you in with not less than sixteen feet low water; taking care to avoid a spit extending off Point Dalrymple, on which there are two red nun buoys lying in ten feet low water. After rounding the second red buoy, keep away for the township.

It is to be observed, by these directions, that on entering the port the black buoys are to be kept on the port hand and the red on the starboard.

Vessels entering the bay from the northward and westward should be careful not to approach within a mile to the eastward of Edgecombe Point.

Vessels rounding Gloucester Island at night time, with dark boisterous weather, should (with the wind from the southward or eastward) keep within a quarter of a mile of the island, as it is steep close to, and by making a tack, they will be able to select by the lead and smoothness of the water a convenient anchorage, in from seven to four fathoms, under Gloucester Island.

There is also excellent anchorage in from three to five fathoms on the east side of the head of Edgcombe Bay. The soundings are very regular in all parts of the bay, and shoal very regularly, giving timely warning of being near the land.

Vessels having worked into the bay during the night, it is advisable that they should enter the port by the south channel, this being the best entrance to Port Denison, having the greatest width, and also the greatest depth of water.

To enter by the south channel, vessels should, after rounding Gloucester Island, steer S.W.½S. (making due allowance for tide), until the peak of Mount Mackenzie (a long saddle-backed hill) is opened out to the southward of Middle Hill. These marks being kept open will lead in through the south entrance, clear of the reef off the south end of Stone

Island. Two red buoys are placed, one on the S.E., and the other on the S.W. extreme of this reef. When North Head is opened out clear to the westward of Stone Island, a vessel may haul up for the township, and take up her anchorage according to her draught of water.

In hazy weather, should Mount Mackenzie not be visible, vessels should be careful not to approach within three-quarters of a mile of the south end of Stone Island. The reef, however, can generally be distinguished, in the day time, by the discoloration of the water. A beacon is placed on the end of the sand spit running off the S.E. side of the island.

When the sea is too heavy for a pilot to get off, the sailing directions for the north passage should be attended to. A pilot will then be obtained in the fairway at the north entrance.

It should be borne in mind that, at springs, there are two feet less water in Port Denison than is shown by the soundings on the chart.

During northerly winds, it may often be a considerable saving of time, to vessels of light draught bound to Port Denison, to pass through Gloucester Passage, instead of rounding the north end of Gloucester Island. The following directions will enable vessels to use this passage without difficulty:—After rounding Saddle-back Island (a high island lying off Cape Gloucester), steer for the south-easternmost point of Gloucester Island; keep the Gloucester Island shore on board at a cable's distance, until abreast a sandy point, when keep away, with Passage Islet (a small rocky island that will be seen in the channel) a point on the port bow. Pass this islet at about a cable's distance on the port hand, which will take a vessel over the bar in six feet at low-water springs. Hence shape a course for Port Denison. Unless the wind leads through the channel, it would be necessary for a sailing vessel to have a fair tide, as the tides set through at the rate of about two knots at springs—the ebb setting into Edgcombe Bay, and the flood in the contrary direction.

High water full and change about 9h. 30m. Rise and fall of tide, from six to ten feet.

Dangers of the Formosa Channel,—*China Seas.*

Mr. Editor,—The following paragraph is worthy of your attention:—Captain Richer, of the French ship *Immaculée Conception*, recently arrived at Havre, reports—"I think it right in the interest of navigators, to give information of a danger I discovered in the channel which separates the Pescadores Islands from the Western Coast of Formosa, in the Chinese Seas. The danger consists in a very extensive line of breakers, on which the sea beats with great fury. It is situated according to close observations taken at the moment we perceived it, in 23° 47′ 50″ N. lat., and 117° 42′ 10″ E. long., from Paris. The English and French charts I possessed make no mention of the danger, with the exception of the English one of Imray and Son, which records danger at a distance of twenty-five miles,

and fifteen miles more to the north, but does so doubtfully. The breakers referred to are very dangerous, for they stand almost in the middle of the passage between the Pescadores Islands and the West Coast of Formosa, and this passage is almost unknown."

Captain Richer deserves much credit for giving publicity to this intelligence, but had he referred to the Admiralty chart he would there have seen the doubtful danger to which he alludes. Indeed, considering the time, the pains, and the care bestowed on the Admiralty charts of the China Coast by the present admirals, Collinson and Kellett, the existence of such a danger could hardly have escaped them; and, although their surveys did not include the examination of the wide channel between the Pescadores and Formosa, all they could do was to note it in its reported position. And now that it has been fairly brought to light by the French Captain Richer, it behoves our own officers to see to it, and not only to sound it thoroughly and give us the place of the shoalest water, and what that is, but also to examine well and lay down all its approaches, and show by a navigable chart of that channel the depths of it whether there are any and what other shoals besides this, and how they should be passed. Such a chart may the means of saving from wrecks many valuable ships and more invaluable lives, ships that cost a thousand times more than the survey which should be made for it.

Your obedient servant,

VIATOR.

MAGELLAN STRAITS,— *South America.*

The following information furnished by Commander Paul Shirley, of the United States gun vessel *Suwanee*, has been received from Commodore Harvey, of H.M.S. *Leander*, senior officer in the South Pacific.

The Diamond Rock, discovered in 1862 by the French gunboat *Diamond*, two miles S.S.E. of Cape Tamar, and marked doubtful on the Admiralty chart, was seen by the *Suwanee*:—its existence is thus confirmed.

Rock near Cape Charles.—In the month of May last a rock was seen in Smyth channel, near Cape Charles, lat 50° 48′ 30″ S. Without kelp on it, but the ripple from the paddles made the water break on it. To avoid it borrow well on the eastern shore after passing Cape Charles till the Quia channel is opened.

Captain G. M. Bradbury, of the American steamship *Colorado*, 3,700 tons, confirms the existence of this rock, which may have a foot of water on it.

Rocks South of Eden Harbour.—They are mentioned in the *South American Pilot*, and appear in the Admiralty chart as two, but consist of four rocks, and are considerably farther from the western shore than shown by the chart. The *Suwanee* passed close to and between these rocks and the western shore at night, when making for

Eden Harbour. Commander Shirley considers them very dangerous, as they are far enough from the western shore to bring up a vessel steering for that harbour, not knowing their position.

The *Colorado* making for Eden harbour in daylight, having no reason for hugging the western shore, as she did, passed inside of them, ignorant of her danger until it was over.

English Narrows.—Commander Shirley considers that the best route through the English narrows, Smyth channel, is to the eastward of the island, in lat. 41° 59′ S., where eight fathoms appears in the plan. Passing west of it, a sharp turn becomes necessary, and dangerous to a long ship.

Strait of Tsugar,—*Japan Islands.*

Rattler Rock.—Commander J. W. Webb, of H.M.S. *Rattler*, has reported the discovery of a dangerous rock, not marked in the charts, at the eastern entrance to the strait of Tsugar. The rock is awash at low water, and E.b.N., distant three-quarters of a mile from the white islet, or rock, north of Siriya-saki, or Cape Nambu, the north-east point of Nipon. Siriya-saki being a salient point off which the Rattler Rock lies, vessels are cautioned not to approach it too close.

Royal National Life-Boat Institution.

A meeting of this institution was held on the 5th of October, at its house, John-street, Adelphi, Thomas Chapman, Esq., F.R.S., V.P., in the chair. There were also present Commodore Ryder, R.N., comptroller general of the Coast Guard; Captain Sir Edward Perrott, Bart., V.P., Admiral W. H. Hall, C.B., W. H. Harton, Esq., Admiral Gordon, Colonel Palmer, Admiral Bullock, Alexander Beotefeur, Esq., Admiral M'Hardy, and Richard Lewis, Esq., secretary of the institution.

The minutes of the previous meeting having been read,

A reward of £25 was voted to the crew of the Caistor lifeboat, belonging to the institution, for putting off in reply to signals of distress, and safely bringing into Yarmouth Harbour the brig *Nautilus*, of South Shields, and her crew. The vessel had struck on the Barber Sands while the wind was blowing fresh from the east, and there was a good deal of sea on. This lifeboat has contributed to the saving of 113 lives from different wrecks, in addition to bringing some vessels into places of safety. For these services her crew had received rewards amounting to £650 from the Lifeboat Society. The boat is now nearly worn out, and is about to be replaced by a magnificent new lifeboat, the gift of the people of Birmingham to the institution. Payments to the amount of £1,550 were ordered to be made on various lifeboat establishments.

It was reported that the institution had sent new lifeboats, during the past month, to Hayling island, Whitburn, Selsey, and Aberdovey. The boats had been presented to the institution by different benevolent persons, and the public at each place had turned out in large numbers to welcome their arrival.

The cost of the Aberdovey lifeboat had been contributed to the institution by the people of Berkshire, and it was reported that Captain Stephens, of the Bank, Reading, and Captain Butler, R.N., of Hungerford, had, with their friends, taken great interest in collecting unds to defray the cost of the boat.

During the past month the secretary of the institution had visited some of its lifeboats on the coasts of Devon and Cornwall. He found the boats everywhere in excellent order. The admirable instructions of the institution for the restoration of the apparently drowned were now being extensively circulated throughout the United Kingdom. M. P. G. had, through T. Jones Gibb, Esq., presented to the society £300 to pay for a new lifeboat to be stationed at Bacton, on the Norfolk coast. The people of Bradford had also sent, through their mayor, C. Semon, Esq., to the institution £400, to pay the cost of a lifeboat now building for Ramsgate.

New lifeboat houses were ordered to be built at Worthing (Sussex), and Anstruther (Scotland). Mr. N. Mitchell had generously offered to the institution a new edition of his beautiful poem on the "Wreck of the Homeward Bound." Messrs. Forrestt and Son, the builders to the institution, have just completed two additional lifeboats for the French Shipwreck Society. Three others were also being built for that society. The builders had also one boat ready to be delivered to the Suez Canal Company.

The Emperor and Empress of the French took considerable interest in the lifeboats on the coast of France, and had recently visited one or two of those stations, with which they had expressed great satisfaction.

The meeting then adjourned.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, *in October*, 1865.—*Sold by the Agent, J. D. Potter*, 31, *Poultry, and* 11, *King Street, Tower Hill, London.*

544.—South America, Brazil. Santa Cathrina Island and Strait, various authorities, 1831–52, (2s. 6d.)

602.—America, N.W. coast, Vancouver Island, Roches harbour and approaches, Captain G. H. Richards, R.N., 1857, (1s. 6d.)

1,025.—Australia, East coast. Tacking point to North Solitary island, Commander Sydney. R.N., 1864, (3s.)

EDWARD DUNSTERVILLE, *Commander, R.N.*

Admiralty, Hdrographic Office, 20th October, 1865

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

DECEMBER, 1865.

Atlantic Navigation.

After giving much attention to the theories laid down for foretelling the direction and force of the coming wind, the unsatisfactory conclusion is irresistible that at sea they are frequently disappointing.

All seamen know that when the barometer falls rain, or storm, perhaps both, are in his neighbourhood. He increases his vigilance accordingly, but no one can with certainty predict the change which a few hours frequently produces in many parts of the ocean. Off the Cape of Good Hope, ships which are under all sail are frequently reduced in the next hour to a close-reefed main topsail, with but little warning that such a change was at hand. It is very singular that English pilots who pass a lifetime in one locality are quite unable to form a sure and certain opinion of the weather; to any question about it their almost invariable reply is, "Oh, it looks greasy, but it may work off;" or some such truism as that. Rarely, indeed, do they hazard a decided answer to the question, and when they do the chances are more than equal that it is an erroneous one. Fishermen, also, do just the same. Before storm signals were in vogue they frequently launched their frail craft and plied their perilous trade when the tempest was close to them. The signs of the weather could not be read, even by them, without the aid of science, and with it we are sometimes taken by surprise, and our predictions are not realized.

The following distinct signs of approaching change of wind and weather in the North Atlantic are, probably, known to most observant

navigators:—First, if the wind is W.S.W., with drizzling rain and fog, and it becomes squally with heavy rain, there is almost a certainty of its flying round with sudden violence to N.W., and clearing up; but should the barometer not rise steadily with the change of wind, it will back again to S.W. Now, if the barometer be closely watched previous to these shifts, a perceptible rise may most frequently be detected, and seaman should always be on their guard when on the port tack under such circumstances, for, probably, no change is so sudden and dangerous as this in the winter. In my opinion, the majority of accidents to ships' masts and sails, which occur in the Atlantic, arise from this cause.

In my experience the wind has blown for many days in succession between these points (N.W. and S.W.) at times, with great force for twenty-four hours, when it would lull for a short period, or, perhaps, die away entirely, then recommence at S.W. After this has been going on for some time it generally veered to N.E., and not unfrequently runs a vessel, bound to the southward, into the regionof the Trade wind.

Secondly.—Again, with the wind at N.W., a high barometer, and a tolerably clear sky, and it suddenly becomes overcast with an opaque white cloud *(cirrus stratus)*, it is certain to back by the West to the South and blow for many days from that quarter, especially in the spring of the year, but seldom with much force or accompanied with rain. After this, in the spring, a N.E. wind will generally follow, blowing fresh and steady.

And, thirdly, if the wind be from the N.W., with a falling barometer, and commences to veer towards the North, a heavy gale or cyclone will inevitably follow. No seaman should be then tempted by a leading wind, if bound eastward, to run on, or the gain of a few miles will, probably, be dearly paid for by future loss, as the wind is certain to be N.E., or more easterly, a few miles further on, and blowing furiously.

It was once my lot to experience a remarkable instance of the correctness of this advice on my passage from Vera Cruz, with a convoy of treasure on board. The weather had been unusually favourable, although heavy N.W. gales had followed from the meridian of 50° W., but the ship being in good trim no damage had been sustained. On the meridian of 35° the barometer commenced falling, and the wind veered slowly towards the North, evidently increasing, but it appeared hard to heave to under such circumstances, as the ship was going eleven knots an hour, especially as an opposition steamer had left Jamaica at the same time, and could not be far distant. The vessel was, therefore, kept on her course for some time longer, when the weather presented such unmistakeable signs of mischief, that, coupled with a still falling barometer, could not justify any one in running further. The ship was brought to the wind, and in a few hours it veered through North to East-north-east, with terrific squalls attended by hail, and a very heavy sea. Seventeen hours elapsed before the engines were again set on.

The rival steamer was only a few miles to the North of our position

when we hove to, but, tempted by a fair wind to run on further than judgment prompted, plunged right into the body of the storm and lost two suits of fore and aft sails, and, to use the captain's words, found themselves in such peril that he thought she would "play him a trick." Their barometer fell to 28·5, but whether it was correctly adjusted or not is unknown, for he had no opportunity of making a comparison.

Fourth.—In the vicinity of the Azores, in winter, sheet lightning in the North-west invariably augurs an approaching gale from that quarter.

Fifth.—If the wind in winter comes from the S.S.W., with thick weather, but without rain falling in any noticeable quantity, it frequently stands for several days. Indeed, sudden shifts from S.W. to N.W. appear to be always heralded by heavy rain. In summer the wind frequently hangs to the southward for days together, with the barometer steady at 30·50; such breezes are most teazing to outward bound ships, as seamen generally expect northerly winds with a high barometer in the Atlantic until they reach the horse latitudes.

It is not uncommon to find great temporary depression of the barometer without a commensurate force of wind or fall of rain, but danger is not far distant on such occasions. There are few seamen who have not shortly afterwards seen unmistakeable signs of the effects of the depression by encountering a tumbling confused sea, the crests of which are running together from all quarters of the compass, leaping and bubbling like the swell by a quay wall when the wind is blowing directly on it.

In March, this year, an instance of it was observed by me a little to the northward of the Azores; the barometer fell very rapidly after it had been standing high for several days, wind S.E. At 10h. a.m., double-reefed the topsails. At noon the wind had freshened to a strong breeze, but fell again at sunset. The sky at this time appeared one of the wildest I have ever seen,—dark masses of copper-coloured clouds, mixed with black, covered the horizon from South-west to North, at an altitude of 40°, throwing a singular reflection on the water; one flash of lightning was only seen. The next morning the weather was fine, with a light haze, and soon after daylight the ship suddenly plunged into a sea like unto that just described. A schooner's main boom and bowsprit were passed during the day, also a large quantity of deals, which were probably part of a deck load. When vessels disappear in this mysterious manner there is little probability that a knowledge of the event will ever reach those who are so deeply interested in the safety of their crews. After a season, the vessel is noted in Lloyd's books as lost, the insurance is paid up, and, except by a few, the event is quickly forgotten. God has mercifully ordained that it should be so, were the dread of probable misfortune in life permitted to sink deeply into our minds we should not be fitted to battle with the world, either in the city or on the ocean.

We are able to calculate with unerring precision the motions of the heavenly bodies, so that their position in space is known with unerring

precision for any moment of time. One law governs all, and brings even the wandering comet under its powerful analytical reasoning. But the law which shall bring the surface winds of the extra tropical regions of the earth under its provisions is still a mystery, and, probably, for ages will yet continue to baffle the highest efforts of the human intellect.

It is only by mere chance that any days of the same date in consecutive years have similar weather. On one, a light warm air and pleasant sunshine will prevail, on another, a bitter north-easter, with hail and sleet, will be found in the same place.

It is rather amusing to note the difference of opinions among seamen regarding the effects of the moon on the weather. The opposers of the lunar theory justly say that the moon changes her phases in such short periods of time that it is easy to attribute any alteration of wind or weather which may occur to the influence of such change. It does not appear to me why a small portion of the enlightened disk should have more effect on this globe of ours than when it was in shadow. That our satellite has effects on terrestrial objects in many parts of the world, when near her full, is universally admitted; meat or fish, when kept under its influence within the tropics, rapidly taint, and the latter especially; if eaten after such exposure it gives rise to vomiting, swelling of the head, and discolouration of the face. What is familiarly termed moon-blindness is brought about by sleeping exposed to its rays on a clear night.

On the isthmus of Central America trees, which are cut after the full, rapidly decay, because they are then full of sap. If cut during the first quarter they last many years; the natives know this so well that they will not fell one at any other time.

There has been a change of direction of the North-east Trade wind in the Atlantic in the memory of many navigators who are still living that is not unworthy of a passing remark. Less than half a century since, West Indiamen, when they entered the region of this wind always found it blowing steadily from N.E. to E.N.E., frequently for days in succession; with studding sails set on both sides, they pursued their course in the most delightful climate. In succession, each mast was stripped to a girtline, and the rigging refitted without any sensible loss of time. Let any one who sails through this region now say if such advantage can be taken of the fair Trade wind. Masters of ships bound to any of our West India islands on arriving there from Europe, invariably may be heard to remark that they had no Trade wind, but frequently coarse weather and variable winds, and my observations for many years confirm the correctness of their statements. It now comes more from the E.S.E., but frequently is so variable that in a few hours I have known the wind to veer half round the compass. On one occasion, in October, the wind came from the S.W., in lat. 28° N., and remained steadily in that quarter during the passage to St. Thomas. Where then was the old Trade wind? At that island the same wind had been experienced for a fortnight, and the inhabitants rightly divined that bad weather was in the neighbourhood.

In connection with this change of direction in the Trade wind is the fact that all over the West Indies the fall of rain has alarmingly decreased. In many islands droughts are frequent, and great distress and suffering are caused thereby.

In various places on the hills of Jamaica water-wheels may be seen rotting in ravines, where water courses are dried up, which once poured down no trifling stream to the larger rivers; in fact, the island meteorological records show similar results of change. During the present year large numbers of cattle have perished, and the soil bears a parched-up appearance, with scarcely a blade of grass visible. If this be the situation of a mountainous country that of a lower level must be worse still.

In St. Croix felling the trees has contributed to lessen the local fall of rain to an alarming extent, the inhabitants see their error now when it is too late. The same may be said of other islands where cultivation has been greatly extended. But this has no influence on the general character of the whole group, which, from its almost universal loftiness, cannot be greatly affected by partial alterations. To what, then, is it to be attributed? There appears to me but one cause, which is the felling of the forests, and the cultivation of the vast plains of North America; this, by the increase of temperature, draws the Trade wind more to itself, and frequently destroys it entirely. In winter, the fierce northers blow with great violence in the Gulf of Mexico, all along the Coast of Nicaragua, and on the Atlantic side of Jamaica, Saint Domingo, and, at least, as far East as St. Thomas, but, from some cause, they never reach the Venezuelan shores. This healthy and bracing wind is becoming more prevalent than formerly over the whole of the group; to it, in a great measure, may be attributed the increasing salubrity of the West Indian climate; with ordinary care, men now live there without fear of the dreaded yellow fever. Indeed, it is singular how moderate is the rate of the life insurance company in Jamaica; there cannot be a surer test than this in any country of its salubrity.

All over these parts of the Caribbean Sea, where the norther extends the barometer rises, frequently nearly 2-10ths of an inch, plainly showing that the rise owes its existence to the invasion of the tropical by the more heavy wind of the extra tropical regions. Now, it is generally believed, that all over this sea the barometer is only affected by the diurnal wave.

It is worthy of remark, also, that of late years great hurricanes have not visited the West Indies. They seem to have disappeared with the rain, it is to be hoped for ever. In many of the islands where hurricane-shutters used to be fitted to every house, no person now living has seen one. To the North, in latitudes on the verge of the tropic of Cancer, heavy gales blow in the hurricane season, but not every year, the heaviest, from my observation, come from the southward, veering towards the West.

The origin of the West India hurricane is still a mystery, the exact place of its commencement is likewise unknown.

It has never been my lot to witness one among the islands of the Caribbean Sea. But once, off the Isle of France, an opportunity was afforded me of observing one. Doubtless there is something which is truly awful in the presence of a great convulsion of this kind beyond the mere sense of danger, for the boldest Christian, or the scoffing atheist, alike feel their helplessness in the midst of such visitations as the hurricane, the thunderstorm, and the earthquake. In ordinary situations of danger, man feels his spirit rise with the occasion which calls forth its display, and successfully meets the difficulty, but in the hurricane he can do little to ward off danger coming in a form over which he has no control.*

All animated nature feels the same. The wild beast cowers, and strives to hide himself, even among the homes of men. The sea-bird screams with fright, and darts wildly about, vainly seeking shelter; and it is not uncommon to hear of animals of various species crowding into the same cavern, apparently losing for the time their propensities of fear or assault in the midst of approaching danger, which their instinct tells them is beyond their powers of resistance.

It is fortunate for mankind that great convulsions of nature are of rare occurrence, or many parts of the globe would become uninhabitable, for it takes years to restore the city destroyed by an earthquake, or the forest uprooted by a hurricane.

When staying at Barbados, I was informed that prior to the memorable storm of 1831, a magnificent plantation of cocoa-nut trees fringed the brilliant white sandy beach of Carlisle Bay, forming a frame to the city and the charming landscape beyond. Not a vestige now remains of these goodly ornaments. Within the city, a few trees are again thriving, but they look dusty and stunted, such a situation is not genial to their nature. The cocoa-nut is the sailor's tree, loving to plant its roots on the sandy beach, with the salt spray flying over its spreading leaves as they joyfully rustle in the strong sea breeze, under the fiery sun of the tropics.

From my own observations I am induced to believe that bad weather in the Atlantic always commences to leeward. On many occasions I have met with a succession of westerly gales in steaming to the westward, while a ship, two or three days behind, has encountered nothing but the swell, with comparative light winds.

The Azores, doubtless, form the bulwark, which breaks the force of the fierce storms prevailing more to the northward. After passing that group the gales are shorter, and rarely blow with equal violence. Steamers bound to the West Indies consider their troubles over when past them.

On the edge of the Sainthill Bank, in coming from the southward, I have frequently encountered sudden and violent shifts of wind from S.W. to N.E. with scarcely any warning; the change of temperature

* When the nature of the hurricane is well understood, as it should be by every sailor, (for nothing is more simple,) he can get out of its way, or profit by it as he has done.—See the *Storm Compass*, Potter, Poultry.—Ed.

in a few minutes is surprising. Winter comes at once, even in the end of May snow and hail accompany such a change. This wind rarely stands more than a day from N.E., generally backing to the westward.

What many call the S.W. passage winds of the North Atlantic, have, according to my observations, altered of late years. I never meet in the present day those enduring drizzling rains which formerly lasted for days, with a steady south-wester, but more westerly and North-west winds. On the other hand, the gales from the N.W. are heavier than they used to be, and lately, at least, blow with more frequency; at times, with the strength of an ordinary hurricane.

There is a fact in connection with the winds of the Atlantic which does not appear to have been mentioned by navigators, viz., the singular manner in which the gulf weed arranges itself in long parallel lines under its influence, exactly as a fishing net appears when paid out from a boat in motion. Frequently from the masthead have I traced these lines as far as the eye could reach, each showing perfectly distinct from its neighbour. At times, we have steamed several hundred yards alongside of one, without appearing to break it up or recede from it.

Perhaps these are made in the following manner:—A piece first forms a species of breakwater, the next is blown upon it, or under its lee, and so on; but the marvellous celerity with which the lines sway to the direction of the wind is most surprising. There appears to be no breaking up, no compression. Imperceptibly, each piece falls into its required place, and keeps the line unbroken, like ships swinging to a long scope of cable.

But these wandering remarks must be concluded, although on a subject which possesses much charm for seamen, not only in a theoretical but in a practical point of view. He who will most familiarize himself with the laws of winds and currents will make the best passages; and in this age of intense competition trifles must not be neglected by our navigators if they wish to hold their place on that element which they have long looked on as peculiarly adapted to their genius, for there can be no doubt that the people who possess the best seamen and the best ships will ever hold a foremost place in promoting the commonwealth of nations.

MERCATOR.

A FOREIGNER'S ACCOUNT OF US:—*The Trinity House.*

(Continued from page 578.)

Among the various measures adopted for lighting the coasts of Great Britain there is one which is peculiarly English, in the floating lights that demands attention.

Those who cross over from France to the English coast in a steamer have, perhaps, observed at night in the mouth of the Thames a light that

guides vessels to the port of London. This light, called the Nore light, has been placed in a vessel to mark a dangerous sand of this name. The inventor of this system of light was a person named Robert Hamblin, who lived in the last century. He was a barber, of Lynn, and married the daughter of a pilot, and, perhaps, in consequence of this alliance, considered himself to be something of a sailor. The fact is, that without having been brought up to the sea, he became *maitre d'equipage* in a vessel which carried charcoal to different parts of the coast. This occupation does not seem to have made his fortune, and after suffering losses in his business, he determined to introduce a new method of distinguishing lights on the coast. Chance threw him in the way of a man of enterprise named David Avery, who woke from his morning dreams with his head full of millions of money, but his pockets empty. Setting to work together they obtained from the government, on the 4th of July, 1730, a licence to use their invention for fourteen years. And step by step, they soon established at the Nore a light in a vessel, and then petitioned for the power of levying payment for the expense of maintaining the light. But this appeared to the Trinity House to be a downright breach of their privileges. The light-vessel, however, was highly approved of for navigation. Encouraged by this success, David Avery, who seems to have taken the chief part in carrying out the project, announced his intention of placing a similar light-ship in the sea of the Scilly Islands. Hence dates the period when Great Britain was to see her coasts surrounded by floating lights. The members of the Trinity House, in their capacity as guardians of navigation, laid their complaint before the Lords of the Admiralty, who could not, or would not, do anything. The corporation then addressed the king, stating the illegality of any one but themselves demanding a tax from the merchant shipping, and on the 4th of May, 1732, they succeeded in getting Avery's licence revoked. Avery, whose dreams of good fortune were dissipated by this thunderclap, appeared before the corporation, and proposed to treat with them on the subject of the Nore light. He asserted that he had expended £2,000 on it, and a treaty ensued. The licence and the proprietary of the light in perpetuity passed to the hands of the Trinity House, but Avery was to retain the lease of it for sixty years, on the condition of paying £100 a year to the corporation. Such is the origin of floating lights. Hamblin and Avery do uot stand high in the estimation of the elder brethren of the Trinity House, but, for my part, I see no reason whatever for treating the memory of either with disdain. The invention was really useful, and this is proved by its contiuued adoption. It is asserted, certainly, that the same idea was proposed fifty years previously by Sir John Clayton. No doubt the Trinity House had opposed the project, while these two adventurers, if they may be so called, had the honour and merit of carrying it into effect.

Lighting the sea coast by means of vessels is subject to certain geological conditions. There are forty-one floating lights on the coasts of England, while there is but one on the coast of Scotland,

and five on that of Ireland. Must there not be some reason then for this difference, or, as naturalists say, some geological law for determining this distribution of light-vessels? Most assuredly, and it is this:—the shores of Scotland and Ireland are composed principally of granite rocks, as well as porphyry. Worn down in the course of centuries, these masses have formed in certain parts accumulations of sand banks, and occasioned narrow passages, to which the sea gives access, but of a dangerous kind; at the same time there remain always some detached solid blocks on which lighthouses can be built. This is entirely different from the character of the South and East coast of England, where nearly the whole line of coast consists of chalk, or some such friable rock, while the sea bed consists of sand. Here a sufficiently solid base may occasionally be found for the erection of a lighthouse to withstand the force of the storm, or even that of the sea. But it is also in such localities that the light-vessel does good service. One of the parts which are most dangerous to shipping is the coast of Kent, at the Goodwin Sands, which, by all accounts, have absolutely the power of swallowing ships. Various attempts to establish a lighthouse on them having failed, three floating light-vessels have been placed on these dangerous sands, and which have certainly saved many vessels from destruction. Similar vessels are placed at the mouth of the Thames, and at Yarmouth, Lowestoft, and other places, for the same reason. In fact, the light-ship, in other places very different, serves to prevent ships from being wrecked from the effects of currents, eddies, or sunken rocks, concealed only by the tide. The floating light of the Scilly Islands is especially one of this class.

Desirous of visiting this light-vessel, situated at the S.W. extreme of England, I embarked for the purpose at Penzance, in 1863. From accounts which I had read of the Scilly Islands I had formed the idea of seeing a collection of rocky detached land, inhabited by seals and half-civilized beings. It is thirty-six miles from Penzance to St. Mary's, (Scilly,) the part which I intended visiting first. On the bridge of the steamer, a seaman of tall flexible figure, his head covered by a small-rimmed round hat, with a foot as firm as that of any sailor that trod a deck, walked about easily in spite of the violent motion of the vessel. He seemed to know everything and everybody, even those whom he had never seen before. Perceiving my desire for information, he readily pointed out to me the most interesting parts of the coast. Thanks to this obliging man, I was enabled to know Turyn Castle, also a formidable promonitory of rock on which was the Logan stone, the Runnel stone, a sunken danger at high water, the granite rocks of Penrith, one of the most important traits of this coast, and lastly, the Land's End, in its sombre but imposing grandeur, at a distance of from two to three miles. No doubt there are certain beauties of nature, as well as certain events in history, which derive importance from distance of space or time. We very soon lost sight of the land, and pursued our voyage between sea and sky. If tradition is to be believed, there was a time when this want of

continuity of the land had not taken place, a tongue of land is said to have joined the Scilly Isles to the Land's End. It is said to have consisted of a beautiful fertile country, on which were villages, and even some forty church towers here and there, and was then known by the name of Lethoson, or Lionesse, which is still the name of the channel that separates the Land's End from the Sorlings or Scilly Isles, some thirty miles across. According to some this land of Lionesse was the scene of a bloody battle; there, for a whole day, the clash of arms was echoed among the mountains and the rocks of the shore until all the knights of the round table had fallen, one after another, around Arthur their king.

Where, then, is this beautiful country, and how has it disappeared? It is said to be under the waves. Vague accounts of fishermen allude to fragments of doors and windows, the remains of windmills and other vestiges, collected from time to time, in their narratives. An ancient family of these parts, that of Trevillian, bears on their arms a horse leaping from the sea, in memory of one of their ancestors, who at the time of the inundation endeavoured to gain the Cornish coast, mounted on a courser, and being a good swimmer. How is it that these fables appear to be denied on the authority of Strabo, who describes places much as they are at the present time? Geology has no necessity for denying the authority of the legend, especially since the theories of Lyell have not failed to notice the late inroads of the sea. But the water is tolerably deep, and also sufficiently tempestuous to have washed away an ancient barrier. Some isolated rocks, as the Wolf and the Seven Stones, seem likely to be the remnant of an isthmus which, shaken by subterranean convulsions or undermined by the perpetual washing of the waves, was one day destroyed by the violence of the Atlantic. But the date is lost by an impenetrable veil in the mist of ages.

After being for two or three hours out of sight of land, we discovered on the horizon what seemed to be some petrified clouds, but which proved to be the Scilly Isles. My cicerone then informed me that he was a native of St. Mary, and offered to accommodate me, that is, to provide me with lodging at his house. I never liked inns, and hotels to travellers are common topics of conversation, so I gladly took his offer, and, in consequence, made arrangements accordingly. I was no less pleased with his cleverness, and began to renew my first opinion on the *naiveté* of the Scilly Islanders. Approaching the island, a small little craft called the *Maiden Bower*, with plenty of canvas on her, and which had only been launched that morning, awaited our arrival, and lay ready to carry us into the harbour. The crews of the two vessels saluted each other with loud cheers, and I learnt that the salute on our part was to welcome her to her element and wish her all sorts of prosperity in her career. My host, for now such he had become, informed me that the *Maiden Bower* had been built at the islands, and I thought that these half-civilized beings had very good notions of naval architecture.

For some time we continued our course along some ferocious-looking

rocks, wonderful outworks of nature. The first appearance of these isles is most singular. If ever our continents should be invaded by the ocean they will present the same aspect. Scattered patches of granite, detached here and there, floating, as it were, on the surface of the sea, they are at once grand and terrific. At first sight the group appears to be inhabited; they might be called the ruins of a world. A wide-spread ocean, on which the sun's rays were beginning to decline, murmured with an air of empire around these half-drowned lands, which, nevertheless, were protected by an unyielding belt of rocks.

It was about six in the evening when we entered the harbour of St. Mary, surrounded by an extensive curvilinear jetty, built in the years 1835 to 1838. This was covered with people, perhaps to welcome the arrival of the new craft; but what surprised me was to find here as much fashion as there is in London. The ladies wearing round straw hats, and speaking English with a much purer accent than they do in Cornwall. The town, or rather the capital of the island, is called Hugh Town, and is entered by a narrow gloomy pass something like that of a fortified town. We crossed some handsome streets, and a square called the Parade, on which an interpreter, recognizing me as a stranger, came and offered his services, and proved to be a Spaniard who spoke a good many languages without knowing one. A handsome shop attracted my attention, which I went into, and was served most politely, as if it was at the West end of London, the change being given to me in a little paper bag. Really these people of Scilly are far superior to what I have supposed them to be.

My friend's house was built of granite, like most others in Hugh Town. His wife was Irish, a woman who did not seem to regret having left her country, and as both had to go out to look for provisions, I was left in charge of the house. Besides it was Saturday, a visiting day, and I was requested to be "at home." Certainly, I cannot say that I was entrusted with the keys of the dwelling, for there was no such thing. The rooms, shops, &c., were all open with as much confidence in their owners as in the primitive ages. But I was scarcely left alone when there was a knock at the door. Of course I had to open it, when two young ladies, sisters, deliberately entered. They were daughters of a farmer of the island, but there was no rusticity in their dress or behaviour. The eldest, who was a fine, tall, fresh-coloured damsel, was somewhat scientific, acquainted with mathematics and history, obtained at an establishment in Hugh Town. She was, moreover, affianced to a young man of St. Mary's and wore the usual ring. The second was about eighteen, something more refined than her companion, with a pleasing simplicity of manner. They had neither of them ever been out of the island, and had a great desire to see the world. They spoke of Penzance as Virgil's country folk would speak of Rome, and their father had promised to take them to the main land next summer. At Hugh Town there is no guide at night but the moon and stars, which do not always show their light. What a marvellous thing to them would be a town lighted with gas!

and neither of them had the least idea of a theatre, although the eldest had read Shakspeare. The king would be very handsome if his costume equalled the descriptions and the pictures made of it, they would observe, but it was the princess whom they particularly wished to see. There was something rich in this extraordinary jumble of intellectual culture and ignorance of society. They specially admired the Romans, and were they gifted with freedom and means, I really believe that the sea would be no obstacle to their journeys. "Who knows," said the younger of the two, "what might happen in a foreign land?" And by the foreign land she evidently meant England.

Full of business, the two sisters were soon busily engaged in preparing supper in a corner of the kitchen as if they had been in the habit of directing affairs there themselves, occasionally employing a huge pair of bellows (a veritable relic of antiquity) in pursuading the fire to hasten its work. In the midst of this employment came their father to join them. He was dressed in black, and was a person whom the English would call very respectable, and not a little proud of his daughters, the extent of whose attainments was measured in his mind by the sum which he had paid for their education, which sum, he said, was £60 sterling.

In the midst of these interesting subjects of conversation the good man of the house and his better half came home, and we sat down to supper off an enormous lobster, which had been caught the same morning in the bay. We did not separate until about eleven, and as I had not got rid of the steamer's motion I seemed to be moving too all night. The same wind which we had on the voyage seemed to be in my ears, even the seas which ran up the sides of the steamer seemed to have followed me, and were rushing against the windows of my room, as the sea itself was not far off. St. Mary's, the largest of the Scilly Isles, is not more than eight or nine miles in circumference, and Hugh Town itself, standing on a narrow slip of land, seems to be always between two seas. This situation is very pleasant but somewhat dangerous, and it is predicted that some day or other it will be washed away by a deluge.

I was awoke the following morning (Sunday) by the singing of Psalms in a neighbouring chapel. St. Mary's has two churches, an old one and a new one. The old church is in the middle of the country—a venerable ruin—in which, occasionally, the burial service is read. The new church is a tolerably large building, finished in 1837, the principal ornament of which is its simplicity. The subject of religion seems to be in the hands of the ruling party of dissenters called Ranters, who have even produced of late years a thorough reform in the manners of the people. There are two schools in the town, one for boys and girls, and the other for adults. In the winter a course of public lectures is given in the evenings by the upper class at the infant school.

There is a trait of character here that is well worthy of note as doing honour to the inhabitants of St. Mary's, which is, that there are no poor on the island. If one of the islanders is incapable of earning

his daily bread, the others immediately come to his assistance, so that one never meets in the whole island any one in rags. Drunkenness is unknown in the island, particularly among the women. The young women are of an independent kind and averse to servitude. They will engage themselves as domestics, however, in the families of visitors; but in the island, where all are known to each other and live in a state of relative equality, their self-love will not allow them to acknowledge the authority of a mistress. They are quick and ready at learning a profession, such as that of dressmaking or millinery, and the young men in their turn make good sailors; besides this they learn navigation, and frequently are something more. Marriage here is the result of maternity, but elsewhere maternity is the result of marriage. It is related that a clergyman, who had been fourteen years in the island, had only known in all that time of the births of two first-born infants that took place above nine months after the marriage of the parties. He was so delighted by the circumstance that to one of the mothers he made a present of a handsome bonnet for the child, and to the other he gave a beautiful gilt-edged Bible.

There is but one doctor to attend in all the islands, so that they have to come and look for him in a boat, to take him five or six miles by water to the villages in the midst of a wilderness of rocks, and he is much esteemed for the disinterested kindness with which he attends his patients. The public authority is represented by one policeman, a carpenter by trade, who follows his business during the day, but when evening comes assumes the vesture of authority, and walks majestically about the port. The island is, besides, defended by a citadel known as the Star Castle, attached to Hugh Town, seated on the summit of a hill about a hundred feet high, and has a large bell suspended before the gates, intended in case of necessity to sound the alarm. It was built in 1593, in the reign of Elizabeth, and consists of tolerably extensive buildings, officers' quarters, magazine, and barracks, with several batteries, the principal of which mounts five guns. The ramparts, at present, form a beautiful promenade on fine sand, glittering with grains of mica, and ornamented with the wild broom and gigantic ferns. On entering I met a tall serjeant, who appeared to be the principal person there, and on inquiring of him how many men he had under his orders, "At present," he replied, "I am the garrison, but we have had, in my time, a dozen soldiers; and as they say that there is to be a European war, I hope they will place us on the war establishment." Meanwhile, he is assisted in his duties by his wife, who keeps the keys of the castle.

These islands are the Cassiterides, or Tin Islands of Greeks, although there is not even the trace of any tin mine among them, but of course the ancients confounded them with the Cornish coast where these mines abound. The Romans made them a place of banishment. Ausone is the first who describes them under the name of Sillinæ Insulæ, which appears to be derived from the British word Sulleh, signifying rocks dedicated to the sun. Others say the name is derived from Silya, the salt water eel, from the trade which the natives carried

on with these fish. The bay to the North of St. Agnes is still called Perconger, the port of the salt water eel. Scilly Island, which has given its name to the group, is a huge massive rock rent in twain by a large chasm. The islands were conquered by Athelstan, the first Saxon king who subdued the Britons of Cornwall, in the year 938. During the civil wars between Charles the First and the parliament, they declared first for the king, but were reduced in 1654 by Admiral Blake and Sir George Ayscough. On the shore of Tresco Island stands a lonely tower which still bears the name of Cromwell's Castle, and nearly opposite to it is a rocky islet called Hangman's Isle, because, as tradition has it, some mutinous soldiers were hung there by the parliamentary troops.

The Scilly Islands, in ancient times, were the property of the crown, but have passed to the Duchy of Cornwall; but from the reign of Elizabeth they have been leased to individuals for a limited time. The lessee, who is governor at present, is Mr. Augustus Smith, who resides on Tresco Island, nearly opposite to St. Mary's. The property of Mr. Smith consists of a group of modern buildings, forming very picturesque objects on the side of a rock. Who would suppose that at the foot of this bare rock there would be a couple of fresh water lakes extending into a rich valley surrounded by beautiful cultivated grounds? Mr. Smith has planted gardens about an ancient abbey, a relic of the tenth century, and climbing plants, which spread over the pillars, and arched windows, without concealing the architecture. The choicest flowers are seen in profusion on the bare granite, and literally, shrubberies of geraniums flower over the heads of their visitors in the walks; in fact, the richest vegetation flourishes in the open air. In spite of the strong winds to which the islands are subject the climate is very mild, and, in sheltered places, hothouse plants succeed.

The proprietor of the island for several years entertained the idea of acclimatizing the ostrich at Tresco. He began with four of these birds, which have since increased and multiplied marvellously. Mr. Augustus Smith is a kind of viceroy here, whose authority, somewhat dictatorial, extends over the whole group of the islands. Five of the principal of them—St. Mary's, Tresco, St. Martin's, St. Agnes, and Bayher, are inhabited; the others, to the number of 140, are nothing more than islets, covered over with a stinted turf, and are frequented only by sea-birds. St. Agnes possesses a church, two or three shops, and a handsome lighthouse. One of the islets, Simson, yet inhabited, has three families on it, but the parents die there and the children desert their humble birthplace. St. Helen's, which still has the ruins of a church, is only occupied by a few deer and goats, which have become wild. When a stranger finds his way among these animals they watch him intently, retiring to the edge of the rock, and do not recover their natural manner again till they see him re-embarked in his boat at a distance from them. Another islet is occupied by a couple of donkeys, which salute the stranger with their melancholy braying, to assure him that they have not yet lost the recollection of society. They used to be on St. Mary's, where they committed depredations, and were

transported for their misdemeanours, by Mr. Smith's order, to the deserted rock which they occupy. The fishermen in passing them bestow a biscuit or two on them, for which the poor animals are most grateful.

The Scilly Isles are highly interesting in respect of Celtic antiquities. Borlase, the historian and antiquarian, says that the ancient Druids honoured among the rocks one of them as a personification of the Divinity. In this respect they could not have chosen a more appropriate place than a lonely ocean, scattered with rocky islets, the abrupt forms of which, lashed by furious waves, appeared in all directions in desolate and solemn grandeur. I do not think there is any part of the world where the granite has been thrown into such fantastic forms, and even solemn to the perceptions of the ancient worshippers of nature. These rugged solemn-looking masses, these huge pieces of rock strewn about in the most sublime disorder, like collections of giants in all kinds of attitudes, the roaring of the sea, re-echoed from numerous caverns, all combine to inspire the untutored mind with feelings of religious awe, and that the whole place was sacred. The rocks have severally received strange names according to their resemblance to subjects, or otherwise, of human work. The Druid's chair, for instance, resembles a massive large elbow chair, in which they fondly believed their high priest was seated to contemplate the beauteous grandeur of the rising sun. Borlase is of opinion that some of these isolated rocks have been worked with the chisel so as to form basins for receiving the rain water which they used in their ceremonial ablutions; but geologists insist that the natural power of the elements was sufficient to decompose the granite and produce such forms. These basins of rain water are not of a singular character; my attention was frequently attracted by the hoarse noise of seagulls collected in groups drinking the water out of them. One of the curiosities which have occupied the attention of antiquaries are the logan stones, of which there is a capital specimen at St. Mary's. The islands also contain many barrows, and in a cairn at Simon, opened two or three years ago by Mr. Smith, a granite circle was found and some bones.

At St. Mary's, near a tower called the Telegraph, and from the summit of which the coast guard see all that passes about them, I visited an ancient cromlech, half concealed by the ferns, that is called the Giant's Grave. This consists of three blocks of granite resting on flat stones which serve to support them, and forming thus a kind of passage, through which a man might crawl on all-fours.

There is also in the islands a curious specimen of what are called cliff castles, from which it must not be supposed that a citadel is meant, formed according to the art of the modern engineer, for these castles repudiate all rules of architecture. Borlase attributes to the Danes the traces of extensive military works that are seen about the rocks of St. Mary's; but that class of society that delights in the marvellous has given it the name of the giant's castle. But it is not in stones and natural monuments that the ancient Britons have left the trace of their presence; some Celtic customs are still preserved in the manners of the

people. At the summer solstice, (midsummer,) on the coasts of Cornwall, it is the custom to fire the *feux de joie*, a proceeding which all antiquaries attribute to the ancient Druids, who believed that they thus invoked the blessing of heaven on the harvest which is then beginning to ripen.

The resemblance, in former times, between England and our French Britainy is very remarkable; there was the same race of people, the same language, and nearly the same rocky formation. In the present day the difference is very great. While immutable dogmas, feudal traditions, and ancient rules and customs have enchained us in Brittany with ignorance and primitive habits, the Celts on the opposite side of the Channel have found in religious and political liberty the means of improving their condition and throwing off the shackles of primitive ignorance.

The natives of Scilly are most industrious. Some are pilots, others devoted to shipbuilding, the rest to agriculture. The interior of St. Mary's is one beautiful garden, surrounded by an impenetrable barrier of rocks, in the midst of which stands the proud promontory of Penninis. Here is always found an evergreen country, well-cultivated, watered by natural streams, forming a perpetual contrast from scenery of the wildest and magnificent of barren rock to that of the most luxuriant vegetation. The ferns themselves flourish in their most prolific forms. Stone huts, formed without cement, surmounted by a roof of mortar, and bound round with large straw bands, serve as granaries in which the fruits of the harvest are stored. The fields are separated by fences of wild brambles, from which the children are busy gathering berries for tarts. The farmer travels about on horseback or in his chaise. I remember meeting on one of the sandy roads which was well kept, a carriage of antique form, drawn by two black horses, which by their ardour seemed to feel that the island was not large enough to admit of their displaying their powers. Near the town the gardens, divided among the inhabitants, extend along the side of a hill, where they cultivate their vegetables.

Fruit trees do not prosper without shelter from the wind. Near Old Town there is an excellent orchard, surrounded by earthwork, which protects the trees from that enemy of vegetation—the sea-wind. Here the delicate plants, which are found only in the greenhouse with us, are not too proud to mingle themselves with those of a more common kind. The walls are but seldom left naked, and are nearly always covered with some rich production which is called the ice plant, known by botanists as the mesembryanthemum cristallinum. The name of ice plant comes from its being always cold to the touch. Some say it was imported from Greece in 1727, but it is commonly said to have come from the Cape of Good Hope, and forms most elegant hedges. The principal cultivation of the island however is the potato, which is generally the first in Covent Garden market.

The desire to build and to make a fortune is one of the maladies of modern civilization, especially in England. I much fear that the malady has not crossed the channel, and has not affected the natives of

Scilly. I was accosted in the interior of the island, opposite a newly-built house, finished with some elegance of style, by a pale, tall, thin man, who would give me his history. "It is I," he said, "who built that house. It is very handsome, very convenient, but it has killed me. It has condemned me to live on potatoes for ten years, and yet to work like a horse. You see the consequence," he added, showing me his attenuated limbs. "In proportion as that house increased in its height, and became more finished, so did I fall away. And now that it is finished I have but two years to live."

The sea, which immediately surrounds the Scilly Islands, is avoided by the mariner. At St. Mary's, in Porthellish Bay, is seen what is considered as the admiral's grave. Sir Cloudesly Shovel, when returning from Toulon, in 1707, his ship was lost with some others among the rocks which form the western chain of these islands. He was interred there, and two stones, one at the feet and the other at the head of his grave, still mark the spot where he was laid. Lady Shovel, however, had his corpse afterwards removed to London. But why speak of ancient wrecks? While I was on the islands the French sloop *Dunkerquoise* arrived at St. Mary's, her mainmast gone, and her bends all open, and leaking everywhere. Her crew were from Brittany, who were occupied in the whale fishery of Iceland. They had been successful, but in returning they had run foul of an English steamer one night. The crew was happily saved by the steamer with the exception of a boy who was drowned, and was still deplored by the captain, with tears in his eyes. But at St. Mary's, sometimes in the winter, eight or ten bodies may be seen being carried in silence to their graves through the streets of the town.

With some winds the parade at St. Mary's will be covered by the sea. After a wreck, it is common to see the sharks scenting out, and hunting for the bodies of the unfortunate crews. Such calamities, nevertheless, constitute a branch of industry for the people, and the winter especially is the time for their harvest from the spoils of the storm. It is true that such disasters have not been so frequent since the islands have been better lighted, much to the concern of the islanders, who lament, in their dreams, the loss which this improvement has occasioned. Alas! how true it is, that the march of progress is not welcomed by all of us!

I had come to see the light-vessel that was moored off the Seven Stones, in 1841. She lies about two miles to the East of that small group of rocks which show themselves by a mass of breakers. The weather was perfectly calm, for the boatmen of St. Mary's would never think of risking themselves so far if it were the least unsettled. I had a good opportunity for judging the fury of the waves on a reef of rocks, and the natural violence of these seas where, on certain days, the sailors say ships founder like pieces of lead. After tacking under St. Martin's Head we gained the rock. At first sight, to ordinary persons, a light-vessel is much the same as any other, but, on a nearer inspection, an inquisitive person will soon find a very wide difference. The light-vessel is always stationary. Her short gouty masts show

no sail, and are merely surmounted by large balls. A ship may be looked on as the symbol of motion, but the light-vessel never moves. What is required in a ship is, to sail well, but a light-ship is required to remain permanently at rest. Should the light-vessel be driven from her moorings by the tempest, like a meteor, she would deceive ships, if her light was then burning. But the light-vessel is not a ship for navigating—she is stationary. The forms of light-vessels vary according to their stations. The Irish vessels are longer in the hull than the English, but both are built with the intention of riding in any seaway. In fact they must keep their stations at all times and in all weathers, in spite of winds and waves, tides and currents, and the easier and steadier she rides the better is she fitted for her duty. In order that she should always preserve her station she is moored by heavy chain cables. The extent of the chain differs according to position. That at the Seven Stones, at anchor in 40 fathoms water, has a cable a quarter of a mile long. Lately she has been fitted with bridles, by which she rides more easily, and there is no instance of a vessel being wrecked. And however hard a gale they may have the crew never desire to change their vessel. Should she drag her moorings, and be driven from her station by the force of sea and tide, in order that her light may not mislead ships a red light is shown from her, and guns fired, but she is very soon returned to it. The danger however of driving, and the necessity in that case of her careful management, may be accepted as a proof of the courage of her crew, who pass whole years on board of her.

In order, however, to be prepared, a spare vessel is always ready at the Trinity House store, and thanks to the electric telegraph, the news of such an event is soon conveyed to the Trinity House, and another vessel, as a substitute for her, in case of necessity, is soon in her place. The light-vessels of the Trinity House are painted red, those of the Irish Ballast Board are painted black, for it has been proved that black and red contrast best with the colour of sea water. Each vessel bears in conspicuous characters the name of the danger which she is intended to indicate, and she carries the Trinity House flag—a cross with four ships, one in each angle.

There seems to be a very good look-out in these vessels, and we were welcomed on board as visitors. The crew of this vessel consists of a captain, mate, and nine men, of which three attend the trimming of the lamps, and are lightkeepers; the other six, one of which is a carpenter, keep the vessel in order. The crew, however, are not always all present, perhaps but two-thirds are on board, the rest on shore, for the confinement constantly in such a vessel is found to be beyond physical endurance. The monotonous sameness presented to the eye, the constantly breaking of the wave as far as the eye can reach, the perpetual noise of the wind and sea about the vessel, sometimes so loud that those on board can scarcely hear their own voices, seem to produce an injurious effect on the mind. It is impossible to forget the Seven Stones Rock, always dangerous, with its two pointed summits showing like two teeth, at low water. And, certainly, it is

astonishing that men can be found to brave a confinement beset with so many dangers, and one need not marvel at their being considered as one of the curiosities of civilization. In order to reduce the severities of the service of these vessels, two months afloat and one on shore, is the usual routine. The captain and his assistant take their turn, each a month afloat and a month on shore. But this is allowing that the state of the sea admits of it, which is not always the case, for frequently in the winter there is no possibility of landing, and for weeks together there is no communication betwen the Seven Stones light-vessel and Scilly. The part of the crew that are on shore are generally occupied in cleaning the chains, painting the buoys, and such work, and reside at Tresco. A curious remark was made by one of them to me, who said that when he was on shore his dreams were of the sea, and when he was afloat his dreams were of the land.

The crew were all good specimens of robust health, with bronzed faces, and an eye of assurance and repose. Contented, generally, with their lot, their only cause of murmuring seemed to be the quantity and quality of their provisions. The ration of bread (a pound per day) in their opinion, was not enough for a hearty man; and, I must say, that the effect of the air to which they are exposed is very favourable to promoting the appetite. When afloat, their provisions are supplied by the Trinity House, and when on shore they receive 1s. 3d. per day. One of the two lamp-trimmers on board (the other is on shore) performs the duties of cook for a month. Formerly, according to report, the crews of light-vessels, shut away from communication by the state of the sea, were said to perish from hunger. In these days a steamer, or a good sailing craft, keeps up a regular monthly attendance on them. This communication is never longer than six weeks, and there is generally sufficient provisions on board to last over that time. A light-vessel has two purposes to answer—one to point out a danger, and the other to light the navigator. The danger in this case is the rock called the Seven Stones, and the vessel is placed as near to the reef as she can be without exposing her to danger. As to the system of lighting, it depends on the conditions of the danger to be lighted; and however closely a vessel may be moored she must rise and fall with the tide. In such a case, a large fixed lantern cannot be used, such as one sees in lighthouses. The apparatus consists of lamps with Argand burners, which preserve a vertical position when aloft. This is all exceedingly well managed, and the silvered reflectors are so beautifully polished that not a single blur can be detected on their surface. The lanterns in which they are fixed surround the mast; they are lowered to the deck during the day for trimming and replenishing with oil, and at night are hoisted by lines into their place. The vessel is also provided with a gun and a gong; the former being fired when a vessel is seen approaching too near the Seven Stones, and the gong is used in fog or snow storms with the same object. But, unfortunately, sailors do not always understand these signals.

(To be continued.)

THE MARINER'S COMPASS *in trouble, complains to his Master.*

I.

Pity the sorrows of your poor old friend,
Whose numerous troubles seem to have no end;
Whose *Rights* are slighted by the foulest plan
That's possible to be devised by man.
Long have I served thee, and would serve thee still,
But Iron masters me against my will!

II.

Time was when ships were built of honest wood,
Then duty plain, my course was understood:
But now, alas! distracted from my rôle,
How can I turn to my magnetic pole?
My own liege lord, the author of my dip,
Though not allowed, nor seen in any ship!
There's iron here close by me, iron there,
Aloft, below, in fact 'tis everywhere;
No longer free am I my work to do,
No longer left to point magnetic true!

III.

From Britain's shore, from pole to pole, I roam,
Flound'ring abroad, and sick in heart at home;
The compass doctor says he sees my plight,
Brings antagonist magnets into fight;
Checks my wide rambles, says that I'm all right!
Prescribes my cure in tables neat and clear,
But useless in the other hemisphere!

IV.

Alas, my friend! You know the tricks I play,
Victim to freaks and fancies of the day;
Nor blame me! see the tyrants of my woe,
Heedless and careless of which way I go!
But sweet revenge I have from day to day,
My duty's now your ship to lead astray!

V.

Lured by attraction's soft engaging charm,
Coerced by powers which I can't disarm,
Lost amid forces which no one discerns,
My head is gone, and I am theirs by turns!
Forfeit my fealty to my monarch's call,
And turn the helpless captive of them all!

VI.

A useless compass now in me you see,
Sad emblem, also, of apostacy!
The truant to my duty thus I play,
Magnetic North no more can I obey!
From such false friends release me! if you will,
And I shall be your humble servant still.
Exert your powers, azimuthal charm
And amplitudes will banish my alarm:
Let Burdwood's Tables* learning's influence move,
Lest o'erwhelming iron your destruction prove.

A. B. B.

THE "KATE" CUTTER CATASTROPHE.—NEW ZEALAND TROUBLES.

As we have anticipated in a recent number, dissention runs high in New Zealand. What with responsible government leading to opposite views between the governor on one hand, his ministers or, as they are styled, his responsible advisers on another, and the commander-in-chief of our troops on another, affairs are likely not only to give matter for discussion at home but uneasiness abroad. Meanwhile, the infatuated Pai Mariri movement (under which infatuation there probably lies more than secret revenge) goes on finding its victims, affording opportunities for the exercise of that wretched cannibalism which it was hoped by the friends of the people had long ago been quenched. Our chief consolation at present is derived from the fact that the followers of the Pai Mariri movement are but a small faction of the native population. How long it will be so remains yet to be seen, but from the hold which our countrymen have obtained on the opinons of the friendly natives there is fair ground for believing that the fanaties will still be in the minority. It has been said that the subject of responsible government has been sorely tried in that settlement. If the governor entertains views opposed to his "responsible advisers"—the ministry—he is still thrown on the colonists to replace them, and these, when they do so, may entertain views little different from their predecessors. And again, as the commander-in-chief is guided in his proceedings by directions from the Home Government, he follows his own views as to carrying out or not those which he may receive from the governor in furtherance or not of the wishes of his "responsible advisers." And thus responsible government as it should do must depend on its own resources. This, it appears, the government of New Zealand are desirous of doing, and wish our troops away.

Such matters, however, were not in the category of those subjects which pertain to these pages, but they lead to matters which do, and

* See volume of *Nautical* for 1865, p. 65.

among them we related the transaction of the arrival of the schooner *Eclipse*, connected with the miserable murder of the Rev. Mr. Volkner, and we have now another horrid transaction which took place on board the *Kate*, a cutter employed in the trade of the coast. The proceedings of these Pai Mariri people on board that vessel realize the most treacherous and bloody deeds which a barbarous people ever committed, and show that the native mind is just as capable of descending to the degrading recourse of cannibalism as it was in the early days, even of this journal. The mission of one of Her Majesty's ships to capture the murderers of Mr. Volkner having failed, the last accounts state that the governor was about returning to Auckland to take active measures to arrest them. It is also added that at Taranaki a skirmishing party, which had surprised a village and shot some thirty Maories, was attacked on its return, and Lieutenant Bally and three privates of the 70th were killed, and Lieutenant Traydon and five men were wounded. On the East coast the friendly natives and the Pai Mariri fanatics are still fighting. The latter hold all the important positions. In a recent engagement the loyal Maories lost five men. The bodies were taken by the Pai Mariries, the heads were cut off, the brains and eyes were eaten on the spot, while the trunks were cut up into joints, baked, and feasted upon. There can be no further doubt but that cannibalism, in its most revolting and horrible phase, is one of the points of the new superstition.

These things are much to be deplored, but where or when will they end and can the responsible advisers forming the government put them down with the military forces of the colony itself. It is to be hoped they will prove themselves equal to the task. But the confiscation of land, as in the Waikato Valley, will not assist them in their conciliation, nor will it be advanced if the following opinion of the late commander-in-chief should prove to be true.

"Sir D. A. Cameron's view evidently is that the present war is carried on for the profit and gratification of the colonists; that it is in great part conducted with a view to the occupation of the Waitotara block of land, claimed by a purchase from the natives, which was an iniquitous job; that it is not surprising that the natives have resisted our road making there, and that the government at home ought to be made acquainted with the true history of the business; that it is not probable that any colonial ministers would care how many British officers and soldiers are lost in any operation they recommended, so long as the policy they advocated is carried out; and that this subject of the loss of British officers and soldiers is a point which has never sufficiently entered into the Governor's calculations. That, at least in one instance, the Governor and one of the colonial ministers would have entertained feelings, in common with the rebel natives, of disappointment at an attack not being made, which it is stated by the general would have entailed a large loss on the British force, with no corresponding advantage on our side."

But we turn from this subject to the following nautical picture of a recent transaction in New Zealand.

Accounts from Tauranga state that the natives of the East coast have murdered Mr. Fulloon (the government interpreter), Captain Pringle, Mr. Robinson, and the mate of the schooner *Kate*, burning the schooner afterwards. The following is taken from an account supplied to the *New Zealand Herald* by its Tauranga correspondent:—

The *Kate*, cutter, Pringle master, left Auckland on the 8th instant, having on board the captain, mate, and a youth of the name of Campbell, with Mr. Abraham Bennet White, the supercargo of the vessel, and two passengers, Mr. Robinson and Mr. Warbrick, bound for Tauranga, Maketu, and Whakatane. On her arrival in Tauranga, Mr. Warbrick remained behind, and Mr. James Fulloon arriving from Auckland in the steamer *Rangatira*, took passage in her to Wakatane. Some stress of weather setting in, the vessel did not reach Maketu before the 20th instant, and left again on the 21st, arriving the same afternoon off Whakatane, there to await the morning's tide to enable her to take the bar. Whilst the vessel was at anchor, communication was made from shore, but no evil tidings or forebodings were ever dreamt of. A little boy belonging to Mr. White came on board, and remained all night with his father. Early the following morning a canoe, containing Te Hemara, a chief of the Nga te Patutatae tribe, Hoani, a young scamp of many year's note, with a gang of determined savages, pulled off to the vessel. They found Mr. White at breakfast, and having gone through the usual salutations were desired to sit down and partake of breakfast with them, to which there was no hesitation, which probably tended to stimulate and strengthen these base wretches to expedite their treacherous plot which lay before them. I ought here to state that all the crew and passengers were on deck except Mr. Fulloon, who was not well, and was at the time lying asleep in his berth. Unknown to Mr. White, the native Hoani slyly crept down into the cabin to see whether there were any firearms. Unfortunately, he found a loaded revolver lying alongside Mr. Fulloon, which he immediately seized, and concealed on reaching the deck, and whilst partaking of Mr. White's hospitality, betrayed no unkind or suspicious symptoms of danger.

The instant these men and devils had finished their repast, a signal was given, and in an instant each man was struggling with his victim. Captain Pringle was the first man killed, afterwards the mate. Then a struggle ensued with Mr. White and his combatant, but Mr. White's little boy, about nine years old, pleaded for mercy, and, strange to say, these hard-hearted devils became alarmed at the entreaties of the child, and they ceased any further attempt either on Mr. White, Mr. Robinson, or Campbell. But while thus engaged, Hoani sneaked to the companion-slide of the cabin and fired a shot from the revolver at Mr. Fulloon, whilst he was thus ignorant of what was going on on deck, being hard asleep the whole time. The ball entered his arm, upon which he jumped up in his berth and began to feel for his revolver; while he was doing this two or three balls were fired into his lungs, which soon put an end to his struggles. The vessel was then seized and taken into the river, Mr. White and his companions being

prisoners. The valuable cargo of the vessel, the property of Mr. White, was taken out of her, and then commenced the destruction of the vessel, which, after stripping her of every article that was moveable, was set on fire and totally destroyed. Through the interference of the principal chief, Te Keepa, who lives about four miles from the Whakatane Heads, Mr. White's life and that of his friends were miraculously saved; they were taken on by him and left in the charge of that venerable and much-respected chief Apanui, whose heart yearned when he saw and heard the doings of his tribe. Mr. White and his companions were accommodated with a canoe from this chief, and reached in safety Maketu last night, when information was at once made before Mr. Commissioner Smith, who no doubt will represent the case in a forcible light to the government at Wellington; but when it will reach them is a question, and when it does reach them whether they will do anything more than they did when they heard of Mr. Volkner's murder by the same believers and promulgators of the same faith is another question. Mr. Fulloon was well and favourably known by all the Auckland citizens.

The following additional intelligence appears in the *New Zealand Herald*:—

A private letter received in Auckland on Saturday from the Tauranga camp, after shortly stating the above occurrence, adds:—"Information has also been furnished us this evening, from the West direction. It is currently reported that three officers of the 68th Light Infantry, who went on yesterday to Te Puna for a shooting excursion, have been detained by the natives. It is very probable we shall want a reinforcement in this locality ere long. I firmly believe we have few natives here except the Arawas or Maketu, who are not Pai Marires."

Since the above was in type (says the same journal) we have received the following later particulars by another arrival from Tauranga:—"The cutter *Kate* and schooner *Marinuru* have been seized and burnt, and a man named Robinson killed." Our correspondent since informs us that Mr. White is still at Whakatane in the hands of the chiefs, but is considered to be safe.

Under the head "Latest Intelligence from the North," is the following:—

Reliable information has been received that 500 troops are to be sent to Whakatane, on the East coast, Auckland, to avenge the murder of Mr. J. Fulloon. It is expected that H.M.S. *Brisk* is to proceed from Wellington to Wanganui, to take troops from the latter place.

It is a pity that in a country abounding in so many resources for the benefit of mankind affairs should be so badly managed as to lead to events of the above stamp. It is said that copper has been discovered in the Bay of Islands.

Petroleum oil springs have been discovered in New Zealand, but the exact locality is not mentioned.

The gold fields discovered on the West coast continue to attract attention, and are being profitably worked. Copper has been found in the northern island.

THE MARIANAS ISLANDS.—*Discovery and Population: Narrative of Captain Don E. Sanchez y Zayas, of the Spanish Royal Navy.*

(Continued from page 460.)

Nevertheleless, travelling in some carriage is common enough in the Marianas. There is certainly a superior kind, still rough enough for the ladies. The Indian naturally travels afoot, the legs bare and the head exposed to the sun. The European mounts a bullock, and it is a common thing to meet a friar mounted on one of these, guiding his deliberate steps as well as he can by the animal's horns. As for the ladies, the crinoline, along with their natural weakness, does not allow either of their walking like the Indians or mounted on oxen like the padres. I have had the pleasure of receiving on board the *Narvaez* many of them who performed the journey from Agana in precisely the same circumstances as those in which I made the journey above-mentioned. The carriage and the horse form a luxury which in other places as well as the Marianas is not to be enjoyed by every one.

Besides Agana there are ten other towns in Guajan, but they are all of them poor places in which no Spaniard or European, save the padre, is to be found. In fact they are as unimportant as their population is small, there being but three parishes for curacies in the island; one at Agat, including Samay, another at Inarajan, and a third at Marizo, to which Umata is attached. The other towns called Pago, Sinajana, Anigua, Asam, and Tepungan, visited by the curate of Agana, and so small are they that the whole five do not muster eight-one Indians, that is, eighty-one cane huts thatched with cocoanut leaves, occupied by so many families of fishermen or labourers.

The charts of the island (those of M. Duperrey and Coello) show other towns in different parts of the island, such as at Apra, in the bottom of the port of that name, Ajagan in the southern part of the island, Tarafofo and Ilic on the eastern coast, and some other places. But they all disappeared in 1856, when a virulent epidemic visited the islands. The want of medical assistance, (for there is no more than one medical man in all the islands,) and the total want of medicines, and the absolute destitution of all resources whatever, allowed the sickness to take its own course, and in a short time to carry off half the people of this island. There were parts of it in which not a single person was left, and those towns the population of which is not quoted disappeared entirely. I have myself seen that in the place where Apra stood not a single hut remains, nor an enclosure, nor anything to indicate that it had been the site of a populous town.

At present the most important town next to Agana is Agat. This place has thirty-six houses. The word house applied to the Mariana Archipelago signifying merely a building on the ground of canes, planks, and leaves of the cocoanut tree, and generally built by its occupiers. One of the regular houses of the town of San Roque, near Cavite (and none of them are good) has there the name of the Royal

Palace. But a house built of stone, such as those of Cavite, generally is in the Marianas totally unknown, excepting in Agana, the capital, where there may be some sixty of them, good and bad. The governor's palace at Agana has the appearance and even the conveniences of a regular house of Manila. A house in the proper acceptation of the word, such as those of Europe or America, a house in fact such as is understood in Spain is little less than a mito in the Marianas. It must not be looked for nor even thought of. The columns of Hercules might as well be looked for at Ceuta. Agat, besides its thirty-six cane houses, has another of stone in which the curate resides, and a poor church.

The town of Sumay, about a league from the former, stands on the beach in the port of Apra. It is generally the resort of the crews of the vessels which are lying there, for Agana is far away, and thus Sumay reckons twenty-nine houses of tolerable appearance, whose inhabitants are more accommodating than other people of the island.

Inajaran is a tolerably sized town (of one hundred and twenty-six inhabitants and twenty-one huts, besides the curate's house,) with a very fair port. But being situated on the eastern shore of the island, and with no shelter from the N.W. wind which prevails most part of the year, the sea which is always running there prevents and always will prevent vessels from anchoring and any increase of the town.

Umata is the port and town of most repute in the Marianas from having been the resort of ships in former times. Ships from Mexico to the Phillippines always touched there for water, and to leave supplies for the colony; and when this was the case the governors repaired to Umata with all the good society of Agana, and then all the business of the islands was transacted. Thus Umata was, so to speak, the arsenal of the islands, the port of its commerce, the main source in fact from which the archipelago derived importance. Ships used to lie here two or three months, placing their cargoes in store, and their more precious articles in the governor's house, in which there is yet preserved an enormous wooden chest in which they were kept. They replenished the cellars, and the boats worked with safety, while days were passed in feasting and dancing. Those days, however, unfortunately for Umata, fled not to return. The fleets of Mexico and Peru no longer touched at its port, the famous Acapulco galleons, laden with their treasures and rich adventurers, disappeared; the gaming-tables no longer resounded with the rattling of doubloons, nor was the print of the sailors' feet seen on the strand, or their songs cheering the now silent town. Instead of the harbour being crowded with shipping a solitary whaler is seen here, now and then; rushes grow on the banks of the river where formerly stood the shops of the settlers, and Umata has been gradually withering away like some choice flower from sheer want of nourishment.

The port is certainly very small, and although the depth of water is considerable its limited space is better managed by vessels drawing little water. It has nearly the shape of a semicircle, the diameter of which is two cables' long, but the place where the anchor should be dropped is only about 100 fathoms across. Hence vessels generally

anchor in the roads which are bad, and above all exceedingly inconvenient from the swell. The roads of Umata are nothing more than an open coast-line of the island, under shelter of which vessels may anchor during the N.E. wind. But the bottom is readily found, and a vessel may anchor off any part of the coast from Point Orote to the vicinity of Merizo. Off Agat there is better anchorage and more shelter from the sea, taking care to avoid Point Orote, and the sea never comes from the northward excepting in the summer months. It is in this season when the influence of the S.W. monsoon is felt at the Marianas it is absolutely impossible to be any where on the coast, except at the port of Apra, without the danger of getting lost from the heavy sea which gets up and the bad holding ground, which is generally rocky.

Notwithstanding the anchorage off Agat is better than that of Umata, this roadstead is always preferable, for the coast-line about Agat is bounded by reefs, and the landing very difficult, and it is very troublesome to obtain water there. Umata has not these inconveniences, and water is obtained there with the utmost facility, a supply for which small vessels really go there.

The town is a wretched place, composed of about a dozen Indian huts, and a small church, besides the governor's house. This last building contains a stone on which is the following inscription:— "From the effects of a tremendous earthquake on the 25th of February, 1849, this palace was destroyed and was rebuilt in the same year, El Senor Don Pablo Perez, Governor." The church has also another stone with a similar inscription. In fact it is easy enough to see that the earthquake abovementioned must have been tolerably severe for the palace is nearly all on the ground, and the church much in the same condition. The two wings of the palace are completely in ruins, and are seen in the midst of broken walls, fallen roofs, and mountains of rubbish, in the midst of which are some few habitations occupied by a native who performs the duties of captain of the port. The present roof of the church is formed of leaves of the cocoanut, and with these there are the four walls and the steps of the altar, with a few badly carved images. Notwithstanding a poor hermit is made to figure in the plates of M. Dumont D'Urville's work, I suspect that service has not been performed here for many years. The *cura* resides at Merizo, and thither go the people from Umata to attend mass.

Whatever may be seen on the plan of Umata it will appear to be a point of land abundantly fortified. The forts of San José, San Angel, and la Soledad, and the battery of Carmenare, a tolerable number of respectable fortifications, and whoever sees them on paper will suppose them to be bristling with cannon, with sentries, musket in hand, pacing the walls, and the national flag waving over one of the bastions. But there is always a difference between imagination and reality, and the Marianas are no exception to the general rule, hard as it is to confess it. Those castles are not castles, they are twin brothers of those at San Luis de Apra. They are all small affairs, and they have not a single piece of artillery mounted.

The position of the fort is well chosen, but the works are so diminu-

tive that they appear to be nothing more than burlesque, and besides this they are falling to pieces.

The town of Merizo is scarcely two miles from Umata, having thirty-two houses with one hundred and forty-six inhabitants. The houses which are the worst of any of the islands are stinted, low, and bad in every sense of the word. The people say this arose from the scarcity of wood, but the *cura* considers that the fault lies in their own laziness. For my own part all I can say is, that at a short distance from the town there is an abundance of trees. No doubt the natives to the southward of Guajan are decidedly more lazy and listless than those to the northward according to the general opinion in the island. The church which was built in 1779 was burnt in 1858, and in three years afterwards was rebuilt, the old walls serving with a thatch of cocoa-nut leaves. The only habitable house in the island is that of the *cura*.

In the vicinity of Meride small vessels may anchor with care, but few in number. The reefs which abound there and on the whole coast also are even worse, if possible, than those of Apra. There is a channel between them where, if necessary, the anchor may be dropped, but only for a short time. On these reefs stand the island of Bali and also Cocos, both formed of sands, extremely low, and of no importance. In heavy storms the latter is covered by the sea, which very much alters its figure. All this part of the coast of Guajan is very dangerous and should not be approached by ships without great caution as the reefs extend considerably from them.

It is too true that the population on the South side of Guajan (Guam) labours under the dreadful disease of leprosy. Umata, Inarajan, and Merizo, are places full of lepers. Hence arose in former times the circumstance of some of the Spanish navigators naming the islands after St. Lazarus, no doubt in reference to this terrible plague. It is said that the disorder is natural to that locality and is attributed to the abandoned manner in which the natives live along with their domestic animals—dogs, pigs, and fowls,—and the food which they eat, even to raw fish. But whatever may be the cause the fact is that the evil exists, and they cannot dispense with the small resources which they possess. The appearance of those unfortunate creatures afflicted with wounds and eruptions of the skin is really pitiful. There are some who are covered with the white dust from head to foot, an eruption which gradually carries off the skin and gives them this appearance. Others again are covered with scales and itch, others deformed from their sores, and all excite compassion to see them as well as a horror to touch them.

The curate of Merizo writing to me on that part of the island says :—

"This town has thirty-two houses in which there are living one hundred and forty-six souls. The houses are bad, narrow, low, and dirty. Their inhabitants say it is from the scarcity of wood, but I believe the fault lies in their own laziness. According to accounts the church was built in 1779, according to a stone which has upon it the

name of Charles III and that of P. Antonio, a Jesuit. That it is the work of the Jesuits there can be no doubt, from other works of the same period. The walls are of stone and the roof of cocoanut leaves. It was burnt in 1858, and with the assistance of the present governor, Don Philip de Lacoste, was restored.

"The soil of Meride is fertile to a most extraordinary degree. With four gantas of maize, indian corn, twenty-eight or thirty cavanes are sown. Four thousand souls may subsist, for the fecundity of the ground is so great that a kind of grass and trees deform the town, which would be very handsome, considering its situation on a point which on one side of it has the Cocos Island, and on the other the mountains of Guajan, called Massey and Ilichu. The rivers from Ahayan to the boundary of Umata are seventeen, reckoning brooks and mountain streams, the perennial fountains six, the water of which is most exquisite. There are three valleys full of cocoanut trees, betel, and others, and deer and hogs which feed on their produce, and they serve for our own food. The rats, however, are a plague, although not so great as they are said to be, and, in my opinion, there are less of them than there should be, considering the few inhabitants of the town and island.

"The grain of the island consists of maize, rice, tobacco, potatoes, and other similar produce. The fruits are plantains, cocoanuts, camanchiles, achiote, tamarinds, mangoes, and incanias. The farms have pigs, cattle, fowls, ducks and peacocks. The field birds are terns, pigeons, ducks, larks, and swallows. The coast is the best possible for fishing. The rivers contain middling-sized eels, trout, barbel, and shrimps. The poisonous reptiles are the centipede and scorpion. Snakes are unknown there. There are no alligators in the rivers, but there are iguanas, but in the sea about the shore there are plenty of sharks.

"The climate is good, and musquitoes few, but the disorders of the people of Merizo are many, in fact too many to name here, and in spite of the numerous afflicted families there are some almost without any disorder. The chamerros are more generally carried off by excesses, and sometimes in cases of small pox by the bad attendance they have. These people are so poor they have not even half a rial to pay their padre, and go about very badly dressed. But they are as proud as if they were millionaires, and consider themselves very wise although they actually do not know how to read. The deaths of the past year were five children, and the births fourteen. The town house was built in 1848, Don Gregorio Santa Maria being governor, and the curate the P. José Ferrer.

"The curacy of Umata is combined with the spiritual care of Merizo. It has a stone church thatched with straw, a government house, and two bad castles. The climate of Umata is humid and unhealthy, so that the population never increases. In the past year five were born and five died. The water generally of the rivers and fountains is very good. For fish the people of Umata come to Merizo, and also for seed of palay, as their ground is very limited and is not

good. They sow potatoes, &c., and maize, but they do not reap so much as this port. In fact its riches consist in its port, and this too in spite of the very small number of vessels that touch there. The people of Umata are very few but very united. When one of them falls out with one of any other town, if this one should have the misfortune to pass near Umata the people attack him and serve him very badly. This is the custom of the ancient chamorros, and they alone do so. The population of Umata is 120, and the causes of their sickness are the same as that of Merizo.

This ecclesiastic, named Faustino del Corral, had resided five years in Merizo, and I have been enabled from my own observation to ascertain that his account of their sickness is by no means exaggerated. They say that their leprosy is not caught by Europeans, but I took good care that none of my crew should have any contact with them in any part of the island.

It may be sufficient to say that here there is no medical man whatever. The only one in the whole of the archipelago resides in Agana; nor is there any chemistry except in the capital. The sick of these poor people remain in their houses attended by their families. There is an hospital at Agana, but no one scarcely ever goes to it, from that instinctive repugnance which is so general to an hospital, a repugnance much greater in poor people, and more to be found in the Indian. There is one for incurables established for some time in the island of Tinian, to which they are taken from that of Agana. It has now only three persons in it, when occasionally in cases of bad times there are three-fourths of the whole population of Inarajan, Umata, and Merizo.

But let us leave these miseries, which are related for the sake of truth, and by being known that they may be remedied. To lay open the beauties and conceal the defects may be very well for the sake of making a pretty story, but in treating of a Spanish colony it is right to expose all, especially as foreigners may go there and tell us of them. To suppose that everything is good and right when it is far from being so would be deceiving the government and the country, besides exposing oneself to be contradicted.

However, the interior of the island remains yet to be described, its roads or channels of communication, the land and its natural resources. But I was not much more than a month in the whole archipelago, and to speak of it from my own observations would make me appear as if I desired to be one of those travellers who said that he had gone through the Canary Islands, and afterwards spoke of the hospitality of its people! The padre Fr. Aniceto Ibanez, Vicar Apostolical of the Marianas, who has resided more than eleven years in Guajan, had the kindness to send me a memoir containing details and accounts of places which it would have been impossible for me to have made from my own observation in the course of my short visit. I shall, therefore, conclude this account of the principal island of the Marianas with the description which the P. Ibanez gives of his territory.

The principal roads, says the P. Ibanez, of the island of Guajan from one town to another are these. Leaving Agana for the West to visit

Anigua, Asam, and Tejeungan, as far as the territory called Mazo, which lies to the N.W., about four miles from the capital, the journey is over level ground, somewhat sandy, but fit for any kind of carriage, and leads over nine wooden bridges of good firm construction. From Mazo a southerly direction is taken leading to Agat, which is about 7-4ths of a league distant, and from Mazo to Atantano the road is of the same quality but only fit for carriages, and from Atantano as far as Abo, the road passes among thickish woods, fit only for horseback, and from the height Abo, from which the two seas are seen North and South as far as Agat, with ponds in the road in the rainy season. The most part of it lies through the wood, and animals only can take it besides foot passengers. There are also on this road from Mazo to Agat eleven wooden bridges nearly new, but at the entrance of the town, over the River Alluja, there is a bad bridge formed of the trunks of three cocoa-nut trees, placed any how, which the people use with difficulty, and the animals take the river which, except in the rainy season, has but little water.

The road from Agat to Sumay goes from S.W. to N.W., about four miles. In the fine season it is good, but in the rainy one bad enough. The whole distance lies through wood, sand, and cultivation, but is on tolerably even ground.

The road from Agat to Umata runs from N. to S., and is a journey of about three hours. From Agat to the brook of Talaifac, which lies to the westward, several estuaries are met with, and streams running East and West which, although in the dry season are of small or no importance, yet in the wet season are of far more consequence, being then difficult to cross, and when much swollen are impassible The road is sandy and muddy and near the shore is passable, and the other parts by lanes cut in the brushwood. The streams of Talaifac and Popolo have bridges of a kind of masonry. The road from Point Chinan to Point Sagua is very fair. The rising at Point Sagua is easy, but the descent to the brook is very steep, and where nearly at all times of the year there is a pond. The brook runs East, with a deep channel, and the course of the road is between trees high and clear. Leaving this, the road continues by the side of the hill of Apoya which is very steep, with a broken summit, and all the road very bad. From the Apoya Hill to Point Chiz the road is not good; but Point Chiz, which is of a slimy friable rock, and which is lashed by the waves in heavy seas, it is impossible to pass. But this difficulty may be avoided by taking an old road over it, for although the hill is steep it is short, and the remainder of the road to Sejya is good. The road from Sejya to Fati, by which pass the streams of Sejya and Mafuas that run from N.E. to S.W. is good in the dry season, but somewhat difficult in the wet. The rise near Point Fati is very steep, the summit is fair but the descent to the brook Fuja is sudden. This stream, which runs East and West, had a bridge which was destroyed, and the stream must be passed without it, although in the dry season it has but one to three feet of water.

From Umata to Merizo is but two miles, and the road leads to the southward. Passing the place where the ships water, the road

runs near the foot of the high Point Chalan Aniti, of rather steep ascent, and its descent very steep along the extended ridge of the height. * * * Between the town and the beach runs a small river, crossed by two handsome bridges of stone called San Antonio and San Ignacio. The source of this river, which runs East and West, rises from a prolific spring at the foot of the height of Sinajana, some fifteen minutes' walk from the city. There is another spring in the hill of Pago similar to that of Agana, and as in the height of Mount Pungue there is an aperture, the depth of which is unattainable, the two springs are supposed to have a subterranean communication. Thus the water that flows in Pago, as well as Agana, is very pure, and is used for bathing and washing. The greater part of the population of Agana use various wells in the town. The governor of an aljabe and some of the principal persons of the place use the water of the brook of Asan, which is very good water. The people of Agat having a river near them use that of a well, being too idle to fetch it. Those of Umata, Merizo, and Inarajan, use the river, and those of Pago a well.

Although this island of Guajan is so small it would require an elaborate work to give a description of all the points, hills, and mountains of more or less importance, and, therefore, I confine myself only to note the topographical position of the most remarkable, and their distances from the city, or those places to which jurisdiction they belong. The most important mountains are, perhaps, about twenty-five or thirty miles from it in the wide sea, being Santa Rosa to the N.E. of the island, and six miles from the city in a direct line; but in consequence of the difficult and winding character of the road five hours are required to reach it. I am informed that the summit of it is extensive and even, and from it there is an excellent view of the whole island. Its height above the sea is not known, nor those of Lamlan and Ilichu. Mounts Lamlan is on the western shore of the island, and seven miles in a direct line from the city, but one has to travel four leagues to get to it.

Mount Ilichia is to the S.W., about eleven miles in a direct line from the city; but to go to Umata, seated at the foot of it, Agat is to be passed through, and then it requires eight hours on foot. The whole island is also seen from its summit, and there is a look-out house on it made of straw, from which notice is given of approaching vessels. The mountains of Tenjo, Alifan, Finacresta also are important, but the above are probably sufficient.

The geology of the island has not yet been studied, and it is therefore not known whether it contains any metals, but the following particulars have been ascertained. Alluding to the roads between the towns that from Inarajan to Pago was mentioned, which before entering a small wood crosses the brook of Sipal, the water of which is impregnated with iron In respect of earths, those of various colours may be mentioned at different points of the island, among which the red is most abundant, but that called cera is worthy of especial notice. In the hill of Buena Vista there are some nodules of a whitish kind of

earth like paste, which on the application of heat effervesces and throws off the earthy part of it, and then assumes irregular lumps which are soft like wax, which when left to the open air indurates very much, and, in my opinion, would form very good crucibles. There is also white lauca and green, and the fomon which is said to resist the action of fire; beautiful crystals also, gypsum, and a kind of diamond, and fragments resembling pummice-stone, and also veins of carbon de tierra or piedra.

The conchology and zoology of the island have no attractions whatever; respecting the latter the various classes are so very few and common as to be unworthy of mention. But although these subjects offer no attractions to their followers it is not so with botany which has them, for the effects of the rains and the power of the sun covers the ground with vegetable productions. Among them the natives find trees for their canoes—the tamarind, bilimbines, and the cocoanut, &c. The principal shrubs are the cotton, guayahas, manogles, bangoes, chinese lemons, &c.; and the most notable plants are rice, maize, camote, suni, dago, nicasmausa and cimarrona, mongos, chuchumecos, garlic, onions, berengenas, tomatoes, peppers, &c. The island exports nothing, for all that is raised is consumed on it; and if in good years passed by whalers from the United States came and took camotes, cajeles, lemons, plantains, &c., since the Japanese have opened their ports vessels are very few that come to these islands, and are like to be still fewer hereafter.

Whatever may be the future of these people if ships do not come and things remain as at present it is easy to forsee it. Whatever may be the means to be resorted to depends on the government. What is wanted to give impulse to the islands is colonization, which of itself will produce commerce. It is very well known that there are islands about Manila that require settlers; but the geographical position of these islands I really believe gives them a special claim to the attention of government.

British Neutrality.—*The Shenandoah.*

The old adage "Save us from our friends," &c., has a remarkable application to the case of the late American rebellion. Our friends, indeed, we do recognize in the Northern States! But what kind of friends were they of the South? They who in Charlton carried *rude* authority into our helpless merchant craft that went to trade there?* And yet their quasi-friendship comes to thicken the difficulties in which their rebellion has involved us with their northern neighbours who have brought them to their senses. As if the huge mass of Alabama implications arising out of their quarrels were not a sufficient

* See p. 169 of this volume.

legacy to bring on mischief, the farce has been enacted at Liverpool of another rebel ship delivering herself up to one of her Majesty's ships at that port. The announcement of this transaction thus appears in the prints of the day.

Arrival of the cruiser "Shenandoah" and her surrender in the Mersey.

Liverpool, Monday.

The career of the cruiser *Shenandoah* has at last come to an end. There was little or no excitement consequent on her arrival here to-day. It was known early in the morning that a large screw steamer was at anchor outside the bar, waiting for water to bring her over, and that she was a Confederate cruiser was evident from her flying the Confederate ensign. The *Shenandoah* (formerly the steamer *Sea King*) is certainly a fine specimen of naval architecture, and as she steamed up the Mersey looked exceedingly well. Her hull is long, finely moulded, and painted black, and as she is ship-rigged and rather heavily spanned, her whole appearance is that of a fast and good sea-boat. She had no guns on deck—all her armament being stowed away below in boxes. She lies anchored close to Her Majesty's ship *Donegal*, and we believe we are correct in stating that she will be in possession of the government officials—indeed, some Customs officers are now on board—and that as soon as matters are arranged she will be handed over to the United States government.

"Since the above was written we learn that the *Shenandoah* has been delivered up to Captain Paynter, of her Majesty's ship *Donegal*, and she is now in possession of some of the crew of the *Donegal* and a posse of Customs officers. The crew of the *Shenandoah* numbered 133 men all told, and, as soon as she was surrendered, Captain Waddell, together with some of the officers, separated. Since setting out on her work of destruction the *Shenandoah* has destroyed 37 vessels, the majority of which were whalers, and these were destroyed after the cessation of hostilities. To show how the operations of the *Shenandoah* affected the sperm oil market, we may state that her depredations amongst the whaling fleets have caused sperm oil to run up from £70 to £120 per tun, and it is likely to advance still further, as until the news of the surrender of the *Shenandoah* is known in the ports from whence whalers depart, the Arctic seas will certainly be bare of the customary amount of whaling vessels."

"Our readers will remember that several months since we stated that the steamer *Laurel* sailed from Liverpool for Modina (Madeira) with arms for the *Shenandoah*. Though this statement was promptly contradicted by the owner of the *Laurel*, yet in a very few weeks afterwards the homeward West African mail steamer soon confirmed the statement, for while lying at Modina (Madeira) the *Laurel* and the *Shenandoah* met, and the cargo of the former vessel was transferred to the latter, and the cruiser commenced work."

We have not been able to arrive at the reason for the *Shenandoah* being given up to the *Donegal*. There has been no war between this

country and the rebellious States of America. What could justify the *Shenandoah* flying into the arms of the *Donegal*? or, what orders justify the captain of one ship receiving the captain of the other and treating him as a prisoner of war? The fact carries absurdity in its face. Would not a far more honourable course have been for the captain of the *Shenandoah* to have found an American man-of-war to receive his sword? No. The same of the Alabama. A British yacht happens to be near her and the commander finds refuge there. Save us, we say, from such friends! In the case of the *Shenandoah* we should have been inclined to have referred her to the civil power, in the absence of all orders on the subject, until such legitimate documents had been received from head quarters. But perhaps the *Donegal* was right. It was, perhaps, judicious for certain reasons to waive authority and receive the proferred offer. And thus it may be said that "neither on sea nor on land is there now any symbol of the once powerful and warlike Confederacy of the Southern States of America. So long as the *Shenandoah* roamed over the high seas, there was still one little spot where the Confederate flag was the emblem of national independence, even after all the armies of the South had laid down their weapons, and the Government had ceased to exist. But on Monday last this solitary exception also followed the general rule, and the Confederate flag waves not now over a single foot of soil, or a solitary ship of war. The *Shenandoah* has ended her career as a cruiser on the spot where she first prepared to begin it. Her captain heard, little more than two months ago, that the Confederacy was overthrown, and—this at least is what he himself says—he immediately disarmed his vessel, and set sail for Liverpool. There he surrendered to the captain of her Majesty's steamship, the *Donegal*, and the career of the *Shenandoah* was ended."

"This is matter, so far, for gratification. It was certainly far from pleasant to hear of peaceable vessels, engaged quetly in their pacific callings, being borne down upon by this last of the Southern cruisers, plundered, and probably burned. Such occurrences, now that the war was over, could gratify none but the most vindictive feelings. And, undoubtedly, if Captain Waddell continued to do this after he had heard of the end of the war, he was nothing more nor less than a pirate and sea-robber. There is no evidence, however, beyond presumptions, notwithstanding the sneers and incredulity of the *Morning Star*, that he really did know; for it is quite possible to believe in the truth of his account of the matter—that he did not hear of the termination of the war until the 30th of August; and that, immediately on hearing it, he put his guns into the hold of the ship and set sail for Liverpool. Whether this be so or not, however, it is not a little awkward that he should have come to any English port. The escape of the *Shenandoah* from our shores has already caused embarrassing relations and perplexing questions between the governments and peoples of Britain and America. The Yankees are sure to demand the vessel, and perhaps they may even demand the surrender to them of Captain Waddell and his crew, as pirates. Now, it may perhaps be made out that Captain

Waddell is amenable to an English tribunal for having broken the laws of England in enlisting English subjects to fight against a friendly Power. But in that case he would fall to be tried by an English judge; and unless it were very clearly proved that he was a pirate the Americans have no grounds, whatever, for demanding his delivery to them. Yet the question, it is easy to see, may very soon become an unpleasant and perplexing one."

"However, there is one matter connected with the career of the *Shenandoah* which very naturally excites doubt as to the *bonâ fides* of the Yankees. As has been suggested by the *Daily News*, why did not the American Government send a portion of its large navy to stop the *Shenandoah's* course? It was well known in the United States that she was roving over the seas, seeking whom of American shipmasters she might devour; nay, her exact locality, in the neighbourhood of the fleets engaged in the whale fisheries, was repeatedly reported. Yet she was not pursued and captured; though it is almost impossible to believe that she could not have been captured had any dilligence been shown by the proper authorities. Indeed it does seem likely that the Government was not anxious to secu e her. And it is not improbable that her carelessness on the subject sprang from the expectation that England would compensate America for all the losses inflicted by the Confederate cruisers, which sailed out of her ports, upon American shipping. If this really was so, the claims of the States for compensation would lose any possible validity they might otherwise have had. For England could only be bound to compensate, because it was through the carelessness of her officials that these cruisers were able to get out from her ports to hoist the Southern flag. And any claim based on this is nullified when an equal and indeed a much greater amount of carelessness, on the part of the Americans, was the cause why they were able to continue their depredations. So far as the *Shenandoah* is concerned no blame can be laid at the door of England; for she sailed from Liverpool as a merchant vessel and converted herself into a war cruiser on the high seas. But it may almost be expected that the Yankees will show ther wonted unreasonableness, and that the case of the *Shenandoah* will become a new cause of complication and national embarrassment."

Now in reference to the foregoing extract relating to the dispatching of American ships-of-war to capture the *Shenandoah*, we have somewhere heard of this being done from San Francisco, on the shore of the Pacific, where her deeds of piracy were committed. But we all know the difficulty and here we have the proof of it, in a chase after a single ship, which has the world before her, and instead of being in the Arctic Seas is found in the the port of Liverpool.

It may be said that the proceedings to be adopted in this case are so clear as to leave no alternative, and it may be supposed we shall do what the commander of the *Shenandoah* preferred not to do. But there is more than this behind that leaves some unpleasant reflections on the effect that will follow this free use of friendship, as we may call it, of the rebel ship which has lately been engaged in acts that rather wear

the aspect of piracy, *said to be unknown* to her commander. The following sensible remarks on this subject that appear in the *Daily News* (8th November) are so apposite to the subject that we shall transfer them here for the consideration of our readers. And they afford more reasons still why we should exclaim, "Save us from friends!"

"The safe arrival of the *Shenandoah* in the Mersey, after a voyage round the globe, in the course of which she has almost ruined an important branch of industry, is calculated to make us consider whether we have done wisely in sanctioning those innovations upon the rules of war, hitherto recognised among nations, which the Confederate practices have introduced. This vessel, it will be remembered, bearing at the time the name of the *Sea King*, was purchased by Confederate agents in this country. To avoid the difficulties in the way of her equipment for her new service in either British or French ports, she was sent to sea without armament, and another steamer, the *Laurel*, was chartered at Liverpool to take out the guns, stores, and crew intended for her service. At Madeira these were transshipped, a Confederate commander declared her commissioned as a vessel of war, and she then set out on her career of destruction. Once at least in the course of it she came again within our power, for she was obliged to put into Melbourne for repairs and supplies. These were furnished, it is said, only to such an extent as to enable her again to put to sea, but nothing of a belligerent character was allowed to be taken on board, nor was recruiting permitted. The *Shenandoah* then sailed for the North Pacific, and from that period successive tidings of the havoc she wrought among the American sperm whalers have been received. It is now announced that she has destroyed not less that 37 vessels, and we ourselves reap some of the results of her ravages in an advance in the price of sperm oil from £70 to £120 per tun. On the 5th of August she spoke a Liverpool vessel, and then her captain alleges, what we find it impossible to believe, he learned for the first time of the downfall of the Confederacy, after which he suspended hostile operations, and made direct for England. Such is the outline of her history, and it is now for the people of this country to consider the moral which is to be drawn from it in so far as it affects ourselves."

"We shall not, looking at it from this point of view, discuss the question of the legitimacy of burning and destroying merchant vessels without any form of legal condemnation. But even if that practice were not open to exception, it may be defended by a very untenable argument. And such an argument is used when the Confederate apologists insist that the destruction was a necessity forced upon them by the absence of any port into which the captured vessels could be brought. If this argument is sound, it establishes that a nation not merely which has its ports blockaded, but which has no ports at all, nor any access to the sea whatever, may on the breaking out of a war buy vessels at sea, commission them at sea, and send them forth to prey on the commerce of its adversary with all the rights belonging to a legitimate navy. On this principle, whatever petty power in the

middle of Germany may choose to declare war against us may with impunity, because inaccessible itself, commission sea rovers to attack our merchantmen on every ocean. But this is nothing more than a legalisation of buccaneering, the latest form of which, privateering, has been emphatically condemned by the voice of the civilized world. For it is not public war which would thus be carried on by impromptu naval officers in extemporised war vessels. The men engaged in it would be subject to no code of regular service, and that last remedy against barbarism in warfare, the exercise of the right of reprisals, would be unavailing where there would in the nature of the case be neither regular fleet, nor even merchant vessels, on which reprisals could be put in force. This, then, is the position in which we shall stand, in any future war, by recognition of the new doctrine that there may be a belligerent navy established at sea without a port to which it belongs, and commissioned officers where there cannot be a regular service."

"Still more inconvenient, however, will be the precedent of the *Shenandoah* as regards our claims upon neutral nations. By receiving her at Melbourne we admitted that she had acquired belligerent rights. But she had none when she left Liverpool, and it would have been illegal to have attempted to confer them on her there. We admitted then that this illegality was evaded by the fact that what was necessary for her equipment was sent out from Liverpool in a different vessel. This at least is a new judicial doctrine on our part. In a very similar case the House of Lords in the year 1840 declared that when it is illegal to send out a certain class of goods in a vessel intended for a particular trade, it is equally illegal to send the vessel from this country without them, but to send them in another ship, and transship them in a foreign port. Such intention of evading the law it was held tainted the whole proceeding with illegality, and made it impossible to ground any action for breach of contract upon it. But departing from this wholesome and common sense rule, our authorities have now in fact declared that, though it is a breach of neutrality to equip fully a vessel for war in our ports, it is no breach of neutrality to equip her by halves, completing the operation by junction of the halves at a distance from our shores. It cannot fail to be recognized how serious will be the consequences to us of this doctrine."

"In a war with Russia it will be idle for us again to close the Baltic and the Euxine with our superior fleets; our enemy may buy a dozen fast steamers at New York, despatch their armaments after them in separate vessels, effect the transshipment at sea, and then hoisting the Russian ensign claim recognition, on the precedent of the *Shenandoah*, in every American and European port as legitimate Russian men-of-war. And if Russia may do this, so also, on the principles already admitted, may every state, whether it has a seaboard and a navy or not."

"Such are the perils to which our departure from the sound principle that every vessel, commissioned or non-commissioned, must have a port to belong to, and our admission that a fradulent breach of neutrality is

cured by the mere fact of its successful perpetration, expose us. It may, indeed, be hoped that some of these evils may be averted by the measures which Government may see fit to take against any British subjects who have formed part of the crew of the *Shenandoah*. There will be no desire here for vindictive proceedings in respect of a war which has been closed, and in which the victors are only occupied in pardoning. But it is important for us that our own laws should be vindicated. It is right that all our subjects should be made to know that they cannot at their pleasure break with impunity through regulations which are laid down with a view to the maintenance of peace and the support of national principle. And it is necessary that we should, by thus enforcing our own municipal laws, prove to foreign peoples that these are not retained in the statute book merely in mockery of their complaints, but that, while not only able but anxious to employ every legal power we possess for their protection, we too may, when our need comes, have a claim upon them to put their domestic laws in force for the purpose of saving us from injury.

Our Sailors' Wants, and How to Meet them.

(Continued from p. 586.)

Partial endeavours have been made to get up something of the kind since the failure of the Merchant Seamen's Fund. The Naval Reserve Fund has not succeeded, probably from being placed on too exclusive a basis. The Shipwrecked Fishermen and Mariners' Society have long been contemplating and collecting information for something of the kind, which they are now bringing forward because government has not yet acted in a more general way than is possible for a private society. There are also local funds or clubs in many of our ports, doing much good when well managed, and subscribed to chiefly by the men in the coasting trade who sail from those ports;—such local funds are a sufficient reason against *compulsory* subscriptions, for why should their members give a double sum for support in old age?

We think there are good reasons why our government could manage a pension fund and life insurance better than any private society:—

1. Because private societies are liable to mismanagement, as is well proved in the able speech by the Chancellor of the Exchequer on the subject, (to be found in the *Times* about the 7th or 8th of March, 1864,) in which he exposed the woeful mismanagement of many clubs, and how very few fulfil their promises. A sad instance of this was told me by the Rev. J. Patteson, rector of Spitalfields, who, on saying to a sick man, "I suppose you are receiving help from some club, now that you are unable to work?" received for answer, "I have been a subscriber to three clubs, but all have failed, so that I am getting no-

thing from them." The Chancellor of the Exchequer was led by the frequency of such failures as these to propose a *Government* Benefit Society for the use of the labouring classes of England, which, with a few modifications adapted to the peculiar circumstances of our seafaring men, would be a great boon to them also.

2. Goverment is already supplied with men for working such a plan in the shipping-masters, who mediate between the shipowner and the sailor; so that sailors look upon them as their friends, through whom they have been in the habit of paying large sums of money into the Government Savings-Banks, which experiece has shown them is quite safe.

3. The shipping-offices would manage a fund with a very trifling additional expense.

Again, it would be the strongest argument for those who wish to persuade sailors to be provident, to be able to remind them that if government guarantees them certain benefits for their money, they are sure to get them; and we feel sure that our seamen are of such great importance to the nation, and are, by the peculiarities of their profession, so helpless in the judicious management of their money, that it becomes the duty of our maritime country to do all in its power to help them towards it.

We will now say a few words on the modifications required to adapt a pension fund and life insurance to the circumstances of sailors.

1st. They are absent from England sometimes for years together, so that they cannot pay annual subscription, (I am now, of course, alluding to the foreign-going seamen,) so that for them tables should be calculated which would allow them to pay lump sums at any time and at any age. And for any lump sum a certificate should be given them, showing what benefits that sum will produce them; which certificate should be changed for another when another lump sum is paid in, or have that sum entered upon it, showing the additional advantages they are to get for their money. This should be made as simple and clear as possible, giving the sailor but little trouble to effect. All seamen to whom this method of subscribing has been mentioned have said that it would be the right plan.

We are inclined to think that for the coasting-trade and fishermen, the experience of the best of their clubs might be taken, and annual or even more frequent subscriptions might be received.

2nd. The young sailor would naturally be most inclined to subscribe to a pension fund. But if he should marry, he might wish to devote part of his early savings to his wife and family, in case of his death; so that a simple means for transferring part of his money to such a life insurance fund should be devised. This, I understand, would be very easy.

My late friend, Mr. Osborne Smith, ascertained for me that £10 paid by a sailor in ordinary health at the age of twenty-one would produce an annuity of £4 0s. 8d., to commence at fifty. Or, if paid as the single premium for a life assurance, would yield £21 7s. 7d. at

his death. Whereas £10 at thirty-one would give an annuity of £2 8s. 10d. at fifty; or at death, £19 9s. 3d.; showing the advantage of subscribing when young.

3rd. The age at which the pension might become due should vary from forty years to sixty years. Many would be induced to begin early, and subscribe for a small pension at the age of forty, who might think they would not live to sixty, which really is a great age for a sailor. We think that forty-five and fifty would be their favourite age to subscribe for.

4th. If after a sailor's death a certain lump sum becomes due to his wife and family, it would be well for the fund to be able to offer them all the advantages in the shape of an annuity which such a sum would produce, instead of their wasting it quickly, and becoming destitute.

The details for working such a pension fund, life insurance and annuity, would require the most careful consideration. But it is clear that if once a man was induced to put £5 or £10 into such a fund, it would have great influence upon him for good, by encouraging him to increase the sum, and save money. We have before alluded to sailors' ignorance of business habits: and we feel sure that they have so little confidence in any other way for investing their savings, that this is the only method in which they, as a class, can be persuaded to become provident; and it is to the vital interest of our country to help them. If arguments were needed to support these opinions, we need only point to the obstacle that having a little money invested in such a fund would raise to a man changing his name or leaving his own country to serve any foreign nation. Moreover, it is a principle of human nature, and a symbol of an independent feeling not to be despised, to value what we have paid for more than an equal benefit which is given to us; and we feel sure that our navy men would think more of working for themselves in such a fund as this, than of the pension which would eventually come due to them from length of service; which latter we hear they often sacrifice in a reckless way. We had a curious instance of this love of self-maintenance when our crew did not like to wear a uniform suit if given to them, but wore it with pleasure and pride when they bought it for themselves.

We have addressed sailors on the subject, about 300 in Calcutta and 200 in London:—by a show of hands they proved that they wished for a fund of this kind: and several were heard to say that they would subscribe £5 a voyage, or 5s. a month, to it. Nor is it only the men before the mast who need such assistance. Any one who will look into the details of the Merchant Seamen's Orphan Asylum will be surprised, as we were, to find that the greater number of inmates are the children of commanders and officers of ships. They, too, are prevented by their circumstances from acquiring provident habits; and, in many instances, do not know how to make the best use of their money. As was lately said at a public meeting on the subject, "If any one doubted the necessity for some provision being made for captains and mates in their old age, let them visit the Jerusalem, the Jamaica, the Baltic coffee-houses and similar places, and they would meet with men

of the greatest integrity and most unblemished reputations, who had commanded ships for years with credit to themselves and satisfaction to their owners, yet who, in their old age, have, perhaps, only the poor-house to look forward to."

It is said that government holds £60,000 or £70,000, the unclaimed property of deceased seamen. Surely the legitimate employment for this is, to help in supporting aged seamen and their families,—it might go to enrich the fund: but this is comparatively of little importance. We mainly look to get hold of that money which is spent in drink and vices which cannot co-exist with real Christianity, and thereby to advance the cause of religion and godliness amongst our seamen and the sad class of women who live on their money. The women are more to be felt for than the men; for the men do escape from these dens of filth during the time they are at sea, but the women never. We fear that but very few of them are recovered from their awful state. And there is the future also to be considered,—there must be thousands of young children who, consciously or unconsciously, are training for such work. Cannot, must not, something be done to stop this terrible regularity of demand and supply?

We would now endeavour to point out in what way our shipowners can meet the wants of sailors.

1. They can give them more space to live in, and see that it is well lighted and ventilated. They can also do much to make their forecastle dry by a few contrivances, as suggested by Mr. Mackay in his letter already quoted, in which he, as a shipowner, says that they often house their men worse than their dogs or pigs. Now, in such a case, how can it be expected of any human being that he will "identify himself with the interest of his employers?" In many cases, the shipowner gets as much out of, and spends as little on, his sailors as possible. Can we be surprised if the sailor retaliates, and does as little as possible for his pay, improving his position as soon as he thinks he can, without the slightest regard for the shipowner; in fact, sometimes rejoicing over the annoyance he is causing? On the other hand, numbers of instances might be produced of men behaving well who have been well treated, and actually staying three months at home that they might go out again in the same ship. This proves that our shipowners might do much towards attaching good sailors to their service, by employing them in their ships in dock; so that they might wait for their old ship, instead of being compelled to seek another, and to change their employers every voyage.

With a little contrivance we have no doubt that all dock-work might be done in this way. The more sailors can be induced to go in the same ship the better for them and their employers. We may see the good effect of long service on household servants, and the attachment which grows up on both sides; while the bad effects of short service, and the reckless feeling of

> "I care for nobody—no, not I—
> And nobody cares for me,"

require no comment.

Another direct act needed from our shipowners is the improvement of sailors' diet. They should be fed as well as the private soldier and English farm-labourer when these go to sea. For, as we have before said, these people get suet, pickles, preserved potatoes, fresh meat, and compressed vegetables; coffee or cocoa, and beer instead of rum, besides the salt food. If sailors were better fed, and allowed a choice of cocoa or coffee instead of grog, they would probably be better without spirits. This opinion seems to be gaining ground; and I do not speak without experience, having been lashed to the pumps off Cape Horn, the sea washing waist-high over us, taking quarter of an hour spells; and those who took only tea and arrowroot worked longer than others who took rum, several of whom had to lie down from exhaustion. Drinking spirits, like flogging a horse, gives no additional strength; and though it may enable us to make greater exertions for a short time, we tire the more quickly for it.

Can it be expected that sailors will think much of or for their employers, who house and feed them so much worse than they do soldiers and farm-labourers, people who spring from the same class as themselves, and this at a time when an immense amount of property is intrusted to their care, and for the safe passage of which they often work day and night in the worst of climates.

Having cared for his men whilst at sea, the shipowner can do much to help them when they come on shore. Crimps and bad characters come down upon them like hawks, with the one object of getting them to waste their money. Might not some of our "gentlemen who live at home at ease" be equally ready to come forward to show them the way to a better and a higher life?

One great duty to the sailor is to carry out the Act of Parliament, and give each man a part of his pay directly his ship is fast in dock. Now, it is customary to keep them four or five days without any money, so that they are driven to borrow from crimps and Jew tailors, who are interested in getting them to run up a long bill, so that thousands have spent their money before they get it. My friend Captain Clint tells me that in Liverpool some shipowners give their seamen an order on the Sailors' Home for part of their pay, immediately the ship arrives, when they are often persuaded to stay at the Home. With married sailors, whose wives are not in London, the Rev. D. Greatorex (chaplain to the Sailors' Home) tells me that waiting for their pay has a most baneful effect, for they are kept idling about London; and although they land with good resolutions, they are often unable to resist temptation. He writes,—

"Any one who has any knowledge of seamen and their difficulties, must at once perceive that if they are to be really benefited, some such suggestion as yours must be carried out. Since I last saw you, I have had several instances in which the wives and families of men have suffered most terribly from the want of such a home as you propose. One or two I will name:—

"1. A man had been absent about eighteen or twenty months. He arrived at the Home and entered as a boarder. He had not been in many hours before the crimp tailors had secured him;—the result was, he was kept continually in a state of intoxication; so that by the time he was paid off, his money was wholly mortgaged. His wife lived in Glasgow,—she wrote to him; but alas! he had *no money* to pay his fare home. His wife sent him three pounds (which she had to borrow) to enable him to run down. This even was spent without going to his wife, and he was obliged to reship without going home.

"2. A very decent seaman came to the Home to wait to be paid off. He went on well for three days; but he was led to go to Wilton's Music Hall. He took more than was good for him. The result was, he spent the night with some female whom he met there, lost the major part of his money, and *dare* not go home to his wife and family, who were at Liverpool. He sent them, I think, two pounds, after being absent some ten months without leaving them half pay.

"3. A man, whose wife lived some few miles from London, was seized by the crimps, taken to a lodging-house, and there kept in a continual state of intoxication, only being once, for some days, partially sober (sufficient to be paid off). He lost all, and was obliged to go to sea without seeing his wife and family or sending them a sixpence. I heard from the poor wife, who said she was starving. I traced the man to two boarding-houses, but was not successful in seeing him, and he went to sea before I found his last lodging-house. I need not mention more, as such cases are numerous, and well known to those who have any great acquaintance with seamen and shipping-offices. Scarce a week passes but some poor wife comes up to look for her erring husband.

"Now, I say, without fear of contradiction, that nine-tenths of the misery suffered by sailors' wives and families might be wholly avoided if their wives could meet them at their ships, and take them straight home. These homes must necessarily be close to the docks and shipping-offices.

"A sailor must not have to wait at a Sailors' Home or Boarding-House until he is paid off before he can go to his family. The chief mischief arises within twenty-four hours of his first putting foot on shore."

This would be prevented if each man received part of his pay at once, and if married men were promised that the rest of their pay and papers should follow them home. How many wives and families would have reason to bless the shipowner who took this little trouble on their account!

Many more sailors might be persuaded to frequent well-conducted Sailors' Homes; and it would be a boon if our shipowners would take them in hand and build more of them, instead of leaving them to be established by any kind-hearted persons who have the wants of seamen forced on them. These homes should be conducted on business principles, and made self-supporting. For, eagerly as we would claim

for our sailors that charity that "suffereth long and is kind, and that seeketh not her own," there is no good done, but much harm; by considering them as objects for mere alms-givings.

But excellent as are the homes for single men, they are not all that is wanted, and we hope ere long to see homes for *married* sailors also. We know that from the day a boy goes to sea, and so long as he remains there, even if up to fifty or sixty years of age, he has everything provided for him, so that the idea of buying his daily food and paying house rent is so little in his line, that he is quite ready to trust himself in the hands of any one who offers to do it for him as soon as he steps on shore. Suppose such a man to marry a girl, brought up, as only too many girls of the working classes are, ignorant of household management, marriage will not give them that knowledge by inspiration, though it greatly increases the necessity for it. Then the husband, after a few weeks or months, goes to sea, while the wife is left to struggle on as best she may, often without half pay, and so entirely cut off from her husband that in many cases she does not even know how to address a letter to him, and thus even this small link with the absent one is omitted. Here we may remark that advance notes should be *discouraged*, and monthly notes *encouraged*. Many shipowners will not allow monthly half pay to the wives and families of sailors; this is a sad stroke at their moral and social improvement. The Rev. D. Greatorex finds it tells very badly. One case he mentioned where the mate of a ship (a steady man) wished to leave half pay to his wife and three children, but could not get it, even though Mr. Greatorex offered to stand guarantee for him.

To proceed with our former subject. We want our shipowners to build Married Sailors' Homes, where they might get the full value of their money, and have all the advantages of our model lodging-houses, such as baths, washhouses, lavatories, drainage, good cooking ranges, a play-ground for their children, a school master and mistress, and a superintendent and his wife, who could advise and assist the inmates under their trying circumstances, help to get them employment if needed and enforce a few simple rules for the good of all. Several shipowners were so convinced of the value of these homes that, after a meeting in the London Tavern on June 5th, 1863, they formed a committee, and issued a prospectus of a company to build a block of married sailors' homes. Names were soon very down for £4,000. Again, last year, a member of the Shipowners' Society clapped me on the shoulder and said, "We will build a block of married sailors' homes." But nothing has yet been done. Since the apprentice system was done away, England needs training-schools for young sailors; so that a training-ship or two in each large port for the children of sailors would be of use to the country, and of great advantage to the parents and children. We understand that Liverpool is establishing a training-ship for the children of sailors. The advantages of such a place would induce all respectable married sailors to seek to get their families located there; and even as things now are, most of our steady men are

married. One needs very little knowledge of human nature to enable one to perceive the reason why. If the great social evil is to be overcome, it will be by removing the obstacles in the way of marriage, and doing all that is possible to prevent excess in drink.

None will deny that vice is more expensive than virtue, and that if every man and woman in England were virtuous, and acting from Christian principles, her prosperity would increase wonderfully, even though there would be many thousand more married people in the land, and that the money now spent in poor rates, jails, lunatic asylums, the suppression of vice, the purchase of ardent spirits, excess of beer and wine, and doctors' bills, would be better employed in producing friends than in the present unproductive expenditure in suppressing or encouraging enemies. We too often forget the old proverb, "Prevention is better than cure," both in morals and health, and in both cases act on the principles described by Dr. Chevers, in his admirable lecture on *The Preservation of the Health of Seamen*,* where he says:—"Those upon whom devolves the expense of maintaining the sick and of feeding the widows and orphans of strong men dying in their prime of avoidable diseases, cannot yet be brought to understand that, to say nothing of humanity, the truest and highest economy is to furnish those who possess the knowledge with the means of preventing sickness. It is at present considered, by only too many, cheaper to pay a physician a guinea to stand by the bedside where a man is dying, than it is to grant the same sum to enable a municipal corporation to prevent a dozen such deaths. Depend upon it, mutes, and coffins, and palls, and hearses, and black horses, and plumes, marshalled by undertakers, are much more expensive things than scavengers, and brooms, and conservancy carts and bullocks, properly looked after by officers of health."

We may further ask, Is not the present prosperity of England in proportion to her virtuous inhabitants? has not the purity of the Christian practice of many of her children raised the moral standard of the whole nation? are not the vicious a dead-weight on the country, ever dragging it down, so that as they increase the country must sink lower? Let every lover of his native land, then, strive to elevate that class which is now so prone to vice, and they will help to elevate England.

Our shipowners would do good work if they would use their influence to get up a Government Life Insurance and Pension Fund, so that the young sailor might have an opportunity of providing for his old age, or for when he may become disabled, and also for his wife and family in case of death. No doubt the experience of shipowners would enable them to give government useful suggestions, and when something has been planned, they can request their commanders and officers

* *The Preservation of the Health of Seamen, especially of those frequenting Calcutta and the other Indian Ports.* By Norman Chevers, M.D. Calcutta. 1864.

to call the attention of their men to the advantages of such a fund; for sailors are very open to persuasion to good as well as to evil, though the good resolutions made when at sea often fight at fearful odds against grog and bad company on shore.

(To be continued.)

TORPEDOES.

Our last number contained an account of the experiments made in the Medway with torpedoes. The subject it is well known is by no means new, for the employment of this subtle, insidious mode of warfare dates above a century ago. It is said to have been employed in Europe, but there are many naval officers living who well remember it in the Chesapeake. Indeed the people of the United States who had taken it up with success in the war of the commencement of this century have also used it effectually in the late rebellion of the Southern States.* The Russians, also, laid down torpedoes which were to be exploded by electric discharge, and were so, but with feeble effect, in the Gulf of Finland.

Whether it is to become hereafter an engine of war to be employed by this country remains to be seen, and whether or not it is some matter of curiosity to preserve here what is on record about it. With this view we have had recourse to that valuable work the old *Naval Chronicle*, and have made from it the following extract. And we cannot do better than introduce it with the following early notice of it in the volume for 1808, which says:—

About three years ago, a man of grave and mysterious carriage of body, made his appearance in a certain class of fashionable society in London under the name of Francis. It was shortly whispered about that he was a Yankee American of some consequence, whose real name was Fulton, expatriated for reasons of state. He was, undoubtedly, an intelligent and ingenious man, which recommended him to the notice of several scientific persons in the metropolis, under whose patronage he was encouraged to lay certain projects before this government. Amongst the rest was the *submarine bomb*, which he palmed upon his official patrons as an original invention of his own, to be transferred exclusively to the use and behoof of the English nation. Trials were ordered to be made, under the direction of Admiral (then Commodore) Sir Sydney Smith, for the destruction of a stout brig anchored in the Downs, off Walmer Castle, near Sir Sydney Smith's ship, the *Antelope*, and of Captain Sir Home Popham, for the demolition of Fort Rouge,

* See an account in our last December number of the destruction of a Confederate ship most gallantly performed.

at the entrance of Calais harbour. The former experiment was most successfully performed by Lieutenant William Robinson of the Royal Marine Artillery, the brig most punctually vanishing from the eyes of the astonished beholders, among whom was the late Mr. Pitt himself. The latter was conducted by Mr. Bartholomew, master's mate of Sir Home Popham's ship, but owing to some nautical obstacles, did not afford the same satisfactory demonstration as the Walmer experiment. But now comes the result. Mr. Francis, alias Fulton, received a very liberal gratuity, and took himself off. (His name appears in some of the papers of public expenditure printed by the House of Commons.) He was hardly gone, when it was discovered he had been hawking his *secret* at Paris; and was hardly arrived in America before he publicly invited citizen Jefferson and Co. to make use of his invention and his arm against this country, affixing his name to inflammatory paragraphs to such effect. Meanwhile, the writer of this article (who always gave the gentleman credit for a tolerable share of impudence mixed with his ingenuity, but had no conception of so barefaced an imposture) has accidently stumbled upon an old American work reprinted in London, which contains the annexed history of this *invention* and proves it to be at least ten years old, and attributes it to a Mr. Bushnell. So that unless Mr. F. can make out a right to *that* name by an additional *alias*, he is liable to the imputation of having obtained our money under false pretences.

VULCAN.

EXTRACT.

Historical, &c., View of the American United States. By W. Winterbotham.

"*Inventions and Improvements.*

"Early in the war, Mr. David Bushnell, of Saybrook, invented a machine for *submarine* navigation, altogether different from anything hitherto devised by the art of man; this machine was so constructed as that it could be rowed horizontally at any given depth under water, and could be raised or depressed at pleasure. To this machine, called the *American Turtle*, was attached a magazine of powder, which was intended to be fastened under the bottom of a ship, with a driving screw, in such a way as that the same stroke which disengaged it from the machine should put the internal clockwork in motion; this being done, the ordinary operation of a gun lock, at the distance of half an hour, or any determinate time, would cause the powder to explode and leave the effects to the common laws of nature. The simplicity, yet combination, discovered in the mechanism of this wonderful machine have been acknowledged by those skilled in physics, and particularly hydraulics, to be not less ingenious than novel. Mr. Bushnell invented several other curious machines for the annoyance of the British shipping, but from accidents, not militating against the philosophical principles on which their success depended, they but partially succeeded. He destroyed a vessel in the charge of Commodore Symonds; one of

his kegs also, demolished a vessel on the Long Island shore, about Christmas, 1777, he committed to the Delaware River a number of kegs destined to fall around the British fleet at Philadelphia; but this squadron of kegs having been separated and retarded by the ice, demolished but a single boat. The catastrophe, however, produced an alarm, unprecedented in its nature and degree, which has been happily described by the late Francis Hopkinson in a song, entitled '*The Battle of the Kegs.*"'

We have not had the good fortune to meet with the song here mentioned, which is no doubt extant somewhere, for songs live through years which sweep away records that are less attractive. However, to continue our purpose, Mr. Fulton's letter to the French minister, which we find in the above work, is too long for our space. But we can preserve the following extract from the volume for 1810, which shows that Fulton was paid for his invention, besides which further mention appears of this. It is also mentioned in the volume for 1810 that Earl Stanhope in the House of Lords adverting to the experimental trial some years back off the French coast, and also that in America, by Mr. Fulton, brought forward a motion which was lost by a majority of seventeen, the numbers being twenty-five to eight.

This person was invited over here, and his lordship had seen an engagement between him, Mr. Pitt, and Lord Melville, agreeing, in certain events, to give him £40,000. After the failure of a trial at Boulogne, his claim was referred to certain scientific umpires, who awarded him £15,000; since that he has made experiments in America, when both Jefferson and Maddison were present, and had been voted 5,000 dollars.

There was also another and more ingenious invention for a more difficult object, namely, the cutting of the cables of blockading vessels, when lying off a lee shore.

The next mention we find of grave, mysterious Fulton, appears in the volume for 1811, when it seems that his double dealing was exposed as follows:—

Fulton's Torpedoes.

Explosion machinery, particularly that of submarine nature, has at various times been the subject of discussion and remark in the *Naval Chronicle.* The invention of the coffers, or catamarans, rendered memorable in England by the expeditions against Boulogne in 1804–5–6, has generally been ascribed to an American of the name of Robert Fulton, who, in the year 1804, was patronised to a certain extent by the British government. His claim to the invention has been contested at different periods, though he proferred his services successively to the American, British and French governments, from each of which it has evidently been his wish to obtain pecuniary remuneration.

A partial exposure of the nefarious conduct of this man has recently been made in an American paper, the editor of which has addressed an article to Mr. Fulton, proving that at the time he was receiving and expending sums of money for the perfection of his projects from his own government to whom, of course, the secret ought exclusively to belong, he was making an offer of it to Buonaparte through his minister M. Marbois. "Congress," says an American editor, "granted the petitioner, Fulton, (though the treasury was penniless) the sum of 5,000 dollars, to enable him to proceed with ardour in an enterprise of such importance to his country." This, it must be remembered, was just at the close of the session in the spring of 1809.

The proof that Fulton was at the same time offering to sell his discovery to France is contained in the following letter of his which is a singular one, and which, says the American editor, "the reader may consider as genuine, and puruse it as such; for, however it may have come into my hands, Mr. Fulton will scarcely have the hardihood to deny it."

This letter is too long for us, as we have already observed, but the next extract is important.

It is necessary to add but very little to the above. In Vulcan's letter in the volume for 1808, mentioned in a preceding note, Mr. Fulton, alias Francis, is charged with obtaining our money on false pretences; and, upon research, we find it to appear distinctly in the public accounts, that a grant to Robert Fulton of £1,653 18s. 8d. in full satisfaction of all claims, received the sign manual on the 9th of September, 1808, and a grant was made to Cutter and Co., for clockwork furnished to Mr. Fulton of £1,533 13s. 7d. on the 19th September, 1806.

The next extract which we shall make alludes to something more than the blowing up of a ship, and appears destined for cutting a ship's cable unknown to those on board, no doubt a very desirable process against blockading ships-of-war lying at anchor. In the volume for 1813 this is thus alluded to:—

This apparatus can be brought in contact with the cable by taking advantage of a strong tide and a dark night, without much risk on the part of the persons in the boat necessarily employed in such an enterprise. The thing is to be done in this way:—When ahead of the vessel, and at some distance, the machine, with a rope attached to it, is to be thrown overboard, and so as to float on one side of the vessel, while the boat with the other end of the line is pulled to the other; by this means it catches the cable, which is to be dragged on till the machine is brought up, and it is so constructed that the resistance of the cable to its further progress draws the trigger, when in an instant the vessel is adrift. Mr. Fulton has likewise invented what he calls his grand torpedoes, and these he proposes planting in the channel of the Narrows, viz., the entrance to the inner harbour of New York. It has been demonstrated

that if a torpedo can by any means be placed in contact and directly under the keel of a vessel, she may be blown up, or rather, so shaken as to founder; he therefore proposes sinking at given distances in the Narrows, upright frames of wood, proportioned to the depth of the water, and these frames are to present their sides to the stream, and on that facing the entrance of the harbour is to be placed a lever perpendicularly, to the lower end of which a torpedo is to be attached, while the other nearly reaches the surface of the water, and on any vessel passing over it gives way till it becomes horizontal; it turns on the upper and outer angle of the frame, so that the torpedo may be brought in contact with the keel, by the pressure of which on a spring it explodes.—*Naval Chron.* vol. xxx, p. 302, 1813.

We have not heard that such means of effecting the object of setting a ship adrift was successful, but we well remember the necessity of boats being employed to tow these missiles clear of ships at anchor in the war to which we have alluded. And the last mention we find is the following about the same time:—

American pilot vessels for towing torpedoes have been invented in New York for the purpose of impelling through the water the infernal torpedoes intended to blow up the British line-of-battle ships. A winch inside this vessel turns two wheels on the outside, and which are placed on the larboard side. These wheels impel both the pilot vessel and the pilot vessel attached to it at the rate of four miles per hour. Within the vessel are twelve men. The bottom of it is not much unlike that of a boat, but its top is arched. The scantlings are those of a ship of 100 tons; the planks are of inch and a half stuff, and these being cased over with iron plates of half an inch thickness are not to be injured by shot. On the top there is a scuttle for the crew to enter, and this opening is also the look-out where a sentinel is constantly placed. Two air holes, forward and abaft, give sufficient air to the crew. The vessel draws six feet of water, but one foot only is to be seen above the water, and this being painted of a dingy white is not perceivable. The torpedo is of course attached to the stern of this vessel, ropes leading to it from two ring bolts in the after part. The torpedo is filled with powder and combustible matter, and in its inside there is a gunlock, to which is fastened a string, which leads to a scuttle of the pilot vessel.

Having towed this infernal machine close to the vessel which it is intended to fire, this string is pulled the moment the torpedo touches her, and the pilot vessel, altering her course by means of a rudder attached to her, goes off in the general confusion.

We now come nearer to our own times, and the first notice that presents itself is Warner's invisible shell, about which so much was said at the time (1842). Our readers will remember the Downs experiment by which a vessel was destroyed lying at anchor there, an account of which is preserved in this work; and we shall now add what has recently been said on the whole subject by the *London*

Review, which we may dismiss with the observation that probably, (at least we may hope,) that the strength and weight of our iron ships may possibly be enough even to resist the effect of the torpedo. Has a little foresight, or a glimpse of this probability induced the American gentlemen to volunteer their torpedo and all its secrets to our government? Whether or not, here is what the *London Review* says of

Torpedo Warfare.

The recent display of waterworks at Chatham, under the auspices of the Admiralty, has not been barren of results if it has brought home to the official mind some of the teachings of torpedo warfare. To the scientific world there was little in Mr. Beardslee's performances not known and executed by our own countrymen years ago. Some seven years ago the very same locality witnessed several submarine explosions conducted on the same principle, and by similar means, by Professors Wheatstone and Abel. Since then the science of electricity, on which the explosions depend, has made rapid strides; and Messrs. Wheatstone and Abel have produced electrical agencies and fuses second to none in the world. The simple fact that 440lb. of powder exploded under water will produce a cascade, a water spout, or an aqueous tumulus, according to the depth at which it is exploded, had been demonstrated in this country long since, and might have been believed even without practical demonstration. The fact that 150lb. of powder ignited twelve feet beneath the keel of a sloop of war like the *Terpsichore*, would inevitably "break her back," and send her to the bottom, might have been judged from the fact that 112lb. of powder placed fifteen feet beneath a vessel at Toulon last June, produced similar results.

Little, therefore, has been learnt from the torpedo experiments at Chatham that had not been practically demonstrated before, or that might not have been more effectually learnt from the patient researches of the electrician's laboratory. The whole history in this American production appears to be included in the firing apparatus, viz., a magneto-electrical machine, the speciality of which is the use of cast-iron magnets, a galvanised indiarubber insulation for the conducting wire instead of gutta percha, a plumbago fuse, and a very ingenious ebonite connector. The value of these applications as compared with others now in use is a question for the laboratory, and the fact of their being inventions at all is a matter for the Patent Office to settle.

The great value of the Chatham torpedo experiments is that they draw public attention to what is no longer a speculative, but an actual weapon of war. The Americans, North and South, have in the late struggle largely employed this agent under organised bodies of men set apart for the purpose under the name of the Torpedo corps; and the peace leaves the North in possession of both a naval and a military Torpedo corps, who have also charge of the telegraphic and signal departments. Towards the conclusion of the war the corps were appointed to the charge of particular parts of the coasts and rivers, to

adapt the new arm to the requirements of special localities. In the North an important duty of the Torpedo corps was the removal of submerged obstructions, and the grappling of the enemy's torpedo wires. In a weapon of war of which so little was practically known before the civil war, the American officers, North and South, had to extemporise the modes of application, watch the results of actual trial against the enemy, and amend faults as they progressed. It is said that the first conceptions were so crude and innocuous that the Federals picked up unscathed some hundreds of Southern torpedoes. Even at the conclusion of a four years' war the subject could only be regarded as in its infancy, and beset with difficulties which skill, study, and experience only could decide. Thus it is by no means certain whether the powder receptacle should be a thick iron shell, a glass vessel, a wooden cask, or an indiarubber bag, or whether the shape, the air space, and the enclosing material have any effect whatever on the destructive powers of a given charge. Then, as to the best means of ensuring the consumption of the whole of a large charge of gunpowder before the surrounding water drowns the residue, we know that large guns will only consume a certain amount of powder, and that the remainder is thrown out of the bore unused, the quantity thus wasted varying with the delaying effect of the weight of shot placed outside it, and with the more or less instantaneousness of the ignition. Now, in the torpedo, if the charge be large, it is imperative that the ignition be carried as instantaneously as possible through the whole mass, otherwise much of the charge may be drowned on the bursting of the casing. This may be effected by compressing the gunpowder, by using very fine grained powder, or by employing a number of fuses in different parts of the charge and igniting them all simultaneously. This difficulty will most probably be solved eventually by the substitution of gun-cotton, a material which ignites with a very much greater rapidity than gunpowder.

To secure ignition at all after long submersion and under the influence of tidal currents, wind, waves, seaweed, and other disturbances, it is generally conceded that electricity applied under conditions which will enable the operator to test, at any time, the reliability of the fuses is the best agent; but there are circumstances requiring the substitution of mechanical agency to effect the same purpose. The best kind of electricity to be employed is in itself a vexed question, each having its peculiar value. Thus the voltaic, the frictional, and the magneto-electrical apparatus, have each their own advantages; the requirement being that volume and power shall be united in the generating machine employed. When these varying elements are practically decided, then comes the great difficulty of all, which may be known as "putting the salt on the bird's tail." As a mere "scarecrow" the torpedo will always be an invaluable arm of defensive warfare. But when we want to put it into active operation certain difficulties meet us. It could not have escaped those present at Chatham on the 4th instant, that unless a vessel was nearly vertically over the explosion no vital injury would have ensued; but how are we to discover when the advancing

enemy is in the required position? In the river operations of the American civil war this was easily discovered; the waters were narrow, and the torpedoes were usually placed at the bends, so that cross bearings could be easily obtained. We shall, however, be required to employ ours in the open spaces covering the *entrance* to our roadsteads, harbours, and rivers, at a considerable distance from the operator. In such cases there exists no means of rapidly determining to a few feet the exact spot covered by the hostile ship. Here we shall require self-acting torpedoes, made so at the will of an operator on shore that he can withdraw the electric current on the approach of a friendly vessel.

But the most serious application of the torpedo, and that which concerns us in this country most intimately, is its employment in offensive warfare. The idea entertained by the American inventor, Mr. Beardslee, of strewing torpedoes in the path of and in view of hostile ships in the open sea, is simply absurd. But Lieutenant Cushing, of the United States navy, in his destruction of the Confederate ironclad *Albemarle*, shows that such weapons can be successfully used in offensive warfare against a ship at anchor. And there is a report that the Federal monitors and other smaller vessels of war are to be fitted with projecting rods carrying torpedoes, in the manner employed by Lieutenant Cushing. Such vessels would in narrow waters be very dangerous foes, particularly if those waters were at the entrances to their own ports. If it be found, as is now supposed, that a charge of gunpowder which is exploded, say, ten feet under water, will not affect a vessel at a greater distance than ten feet, but expend all its powers towards the surface of the water, it will follow that any ship of war may carry with safety to herself, projected from her stem ten feet below the water-line, a spar or iron rod *upwards* of ten feet long, bearing a torpedo; and that if she can explode this *within* ten feet of a hostile ship, that vessel's minutes are numbered. Such an apparatus fitted to the tug-vessels and other steamers at our several sea-ports would turn them into locomotive torpedoes, for the defence of their own harbours; and, if fitted to our sea-going mercantile steam-ships, would save them all the delays of a convoy in war. Such are some of the "notions" imported into this country. To give them effect the details still remain to be worked out, and if the Americans conceive it necessary to establish a special bureau for torpedo equipment, and special corps for torpedo, telegraphic, and signal purposes, to devise and work these new weapons of war, we must be prepared to do the same.

Such an addition to the navy estimates is by no means pleasant to contemplate, albeit we are told that this is a most inexpensive mode of warfare, and that the greater part of the apparatus is equally applicable to military mining, and to maintaining telegraphic communication between the several divisions of an army on the march. No doubt many hundred torpedoes, with the requisite apparatus complete, can be provided at the cost of one 300-pounder gun, and that one of these taking effect would do the work of destruction and demorilization far

more effectually; but the fact remains for the tax-payer's consideration that by adopting torpedoes we do not therefore require a less number of guns, but that the torpedo corps and their apparatus are to be contemplated as additions to our artillery corps and weapons. Nevertheless, we cannot without danger to the country shut our eyes to what the Americans have done and are doing to constitute the torpedo a distinctive element of maritime war. It is consoling to know that our own electricians and the royal engineers have known these things since General Pasley's operations against the *Royal George* at Spithead, and that they did at Chatham seven years ago, by the same means, all that Mr. Beardslee did in the same locality on the 4th of October. It remains only for the authorities to listen to their own servants, who have so long since brought the subject before them, and not to wait until war is declared to begin to devise the means, and create the experience necessary to wield this little known arm. In the old naval fight the first broadside was said to decide the issue of the action; in all future wars the first campaign will have an important bearing on the final results. It is therefore imperative upon us to commence with an equality of weapons.

The Wreck Chart for 1864.

As we are now in the midst of the season of storms and shipwrecks it will not be inappropriate to devote a few moments to the consideration of the accompanying Wreck Chart.

In our article on the Wreck Register in the *Nautical Magazine*, of October last we briefly alluded to the character of the doleful shipwrecks on our coasts during the past year. When the bright sunshine leaves us, when the autumn breezes lose their softness, and the rain and fitful blasts shake our window panels, we look instinctively to bleak coasts for accounts of sad disasters at sea. There, if any where, will the change of weather produce fearful calamities, and bring with it stranded merchant ships, over which the waves will break like cataracts, and from which will come the piercing shrieks of strong men, who see the water hopelessly engulfing them, though they are probably but a stone's throw from the shore.

But fortunately, as well as death and despair, there is also heroism to make the scene often memorable. It is only at such times that the nobility of nature, the power of self-sacrifice, the defiance of death, which is so latent in the humblest of our kind, come vividly into light. Rough, unkempt, ignorant men, with wives and children of their own to provide for, are ready, and even eager, when the vessel is on the rocks, and the waves are breaking her in pieces, to leap into the lifeboat and rush through a wall of tumbling surf, in which it seems impossible for anything put together by human hands to live. Take the following as an illustration of our remarks:—

At daylight on the morning of the 29th of October last, the wind

blowing strong from N.N.E., with a heavy ground sea on, a vessel was observed on shore on the western spit of Hayle Bar, from three to four miles distant from St. Ives. The sea was making a clean breach over her, and the crew were supposed to be in the rigging. The St. Ives lifeboat of the Royal National Lifeboat Institution was at once launched. In crossing the bar, with the drogue or drag bag towing astern a tremendous sea struck the boat, and the drogue rope unfortunately breaking she was instantly thrown end over end; she soon however righted, and all managed to get on board. The crew lost two oars, grapnel, anchor, and rope, and the drogue, and had two crutches broken. Rowing four oars, she got under the lee of the vessel, which was found to be the French brig *Providence*, of Granville, 98 tons register, Captain Challis, from Cardiff for Dieppe, with 138 tons of coals. Rowing only four instead of six oars, with the heavy sea and strong under current, they found it impossible to get alongside. An hour passed in signalling to send a rope by means of a raft. When this was done, the coxswain signalled to haul on board the life-buoy, intending to take the men off through the water; but he could not make himself understood. Two of the crew now endeavoured to reach the lifeboat by means of the connecting rope. One was got on board safely, and the other was within four or five yards, when a fearful sea broke on the broadside and upset the boat a second time. She righted instantly, but the poor fellow was gone, and was never seen again. The one they had on board held fast, and the crew once more regained their seats without accident. The communication with the vessel had not been broken, and the lifeboat again hauled up as near as possible to her. The captain and two men then took to their boat, when the second wave capsized them. Through a fearful sea the lifeboat was hastily hauled ahead, and the three men were most fortunately picked up. The crew of the lifeboat landed at Hayle thoroughly exhausted. A more meretorious service has never been rendered by any boat. Most of the crew lost their hats and other articles of clothing. During the whole of the time that the lifeboat was on the bar, the shores and hills were lined with spectators from the neighbouring port of Hayle and the adjacent country.

The accompanying wreck chart clearly delineates the shipwrecks that occurred in the seas and on the shores of the United Kingdom during the past year. No one can look on that chart without being deeply impressed with the absolute necessity, as we have so repeatedly urged in the *Nautical Magazine*, of using every effort to prevent the fearful scenes that play out their tragedy on our shores every winter. As far as the saving of life is concerned it is satifactory and encouraging to find that noble and successful efforts are made on every occasion of wrecks by lifeboats to save life. But much, however, remains to be done by *shipowners* and others interested in this important matter by using every effort on board ship and otherwise to prevent disasters which in too many cases are clearly traceable to absolute neglect of some kind or other.

Wrecks and their Reckonings.

Falfield by Cupar, 8th November, 1865.

Sir,—It is a lamentable fact that the number of shipwrecks and consequent destruction of human life have become of late years truly alarming and most distressing to all who take an interest in sailors and their families. Can nothing be done to diminish so great an affliction?

I have for many years been a reader of the *Nautical Magazine*, where much is written in commendation of the valuable services of the Lifeboat Institution; but notwithstanding all that has been said and done by benevolent individuals, it appears to many, as well as myself, that even were it possible to increase the lifeboats to ten times the present number, and to stud the whole sea coasts of Britain and Ireland with them, that all the lives that could be saved by them, would ever be but a very small minority of the gross number of lives that annually perish by shipwreck.

Till some influential public body shall see it to be their duty to do something to render travelling on the sea less hazardous to life than it has of late become, I shall take the liberty to suggest a very inexpensive plan, which, if properly carried out, I am confident would often be a means of preventing a wreck. It is, that the charts of the seas bordering on the shores of Britain, Ireland, and the Baltic, be all subdivided into squares of, say, ten miles each, and numbered, by means of which vessels passing each other within signal distance would always have it in their power to compare their reckonings or places on the chart by one simple signal of three symbols.

I need scarcely make the remark to you that a considerable number of vessels trading to the Baltic are annually wrecked, caused by errors in their reckonings. Within the last three or four weeks several vessels from the Baltic, bound to Leith, have missed the Forth and gone on shore in St. Andrew's Bay and on different parts of the coast, as far North as Macduff in Banffshire. The same may be said of many vessels in the English and St. George's Channels.

I have no object in this matter but a sincere desire to be useful to a thoughtless and much neglected class of men.

Should the above suggestion be deemed worthy of notice in the *Nautical*, it will afford me much pleasure to furnish you with a further explanation of the plan, or, indeed, I could forward to you for inspection a chart of the Channel which has been subdivided and numbered by me, extending from the South Foreland to 9° West longitude.

An old naval officer, and
Your obedient servant,
B. J. Walker Morison.

To the Editor of the Nautical Magazine.

[Those who have known the pages of this work from its earliest day are well aware how often we have exposed and commented on this plot in our nautical character. Who cares for wrecks? is a question

which can only find an answer through the Englishman's pocket Fearful they were and fearful they continue to be. But what avails that? They are something like the spaniel dog, who, if he be chastised, loves his master the more; and the more ships are wrecked, the more they will be! Happily for their crews there are English hearts free from the hardening blight of money and their charitable feelings founded and continues to encourage that excellent society in the Adelphi, whose proceedings we delight in further making known than they are, through our pages, and to which proceedings our correspondent alludes. If England will not make harbours which nature has denied her coasting seamen, each year that the Lifeboat Society exercises its voluntary duties and publishes its chart, that chart is a reproach to her *nautical* name at home and abroad. Let it be so,—and may success attend the Society.

The proposal of our correspondent is simple, and would be efficacious in giving ships their positions anywhere, and in these days of compass difficulties any measure to reduce the number of wrecks, that are continually taking place, is desirable. But as long as our insurance laws remain as they are, we have no hope that any measure can be effective. Some time about 1840, we proposed in this journal courts of inquiry into wrecks, such as are now held by the Board of Trade, and one good effect of them is at least to expose the causes of those investigated. But is the proportion of wrecks reduced thereby? They seem to us to be increased, and as iron is coming into use, we must expect the loss of life to be even greater than it has been. Refuge harbours are opposed by shipowners. Why so, is best known to themselves, but is not much of a secret: but happily for our seamen the lfeboat has been established by a discerning and considerate public, and as wrecks have gone hitherto, many lives have been saved by that means. The iron age, however, is coming over them, and an iron ship will give the crew less chance of being saved than a wooden one. Let them look to it.—ED.]

ROYAL NATIONAL LIFE-BOAT INSTITUTION.

A meeting of this institution was held on Thursday, the 2nd of November, at its house, John Street, Adelphi, Thomas Chapman, Esq., F.R.S., vice-president, in the chair. There were also present Sir E. Perrott, Bart., Admiral M. C. Hardy, Admiral Bullock, Captain De St. Croix, Admiral W. H. Hall, C.B., Colonel Palmer, W. H. Harton, Esq., Captain Ward, R.N., and Richard Lewis, Esq., secretary of the institution.

The minutes of the previous meeting having been read, the silver medal of the institution and £2 were voted to Mr. N. Levett, chief boatman of the coast-guard and coxswain of the St. Ives lifeboat; and £16 to the crew of the lifeboat, accompanied by a vote of thanks in-

scribed on vellum to each man, in acknowledgment of their daring and persevering efforts in rescuing four out of five of the crew of the French brig *Providence*, of Granville, which had gone ashore on Hayle Bar, in a strong wind and heavy ground sea, on the 28th of October. This was a most gallant service. The lifeboat was twice repulsed, but her crew were determined to save the shipwrecked men under any circumstances.

A reward of £11 was also granted to the crew of the Newbiggin lifeboat for putting off and saving the crew of two men of the sloop *Robert Hood*, of Newcastle-on-Tyne, which had foundered off Newbiggin in a gale from the East and high surf, on the 17th of October. The shipwrecked men had only just time to take to their own boat, and a moment's delay on the part of the crew of the lifeboat would no doubt have been fatal, as the ship's boat could not have lived long in the heavy sea. This valuable lifeboat also went off on the 26th, and rendered important service to several fishing cobles, which were overtaken by a tremendous gale. One coble, the crew of which had just previously been taken into the lifeboat, was being towed behind the lifeboat, when she was hurled by a tremendous sea nearly on to the lifeboat.

Rewards amounting to £140 were also ordered to be made for different noble services by the following lifeboats of the institution during the late fearful gales of wind:—The Caistor lifeboat saved the brig *Kathleen*, of Hartlepool, and her crew of six men, and the brig *Harlington*, of Sunderland, and her crew of nine men; the Dunbar lifeboat rescued the crew of five men of the Prussian schooner *Patrios*, of Barth; Margate lifeboat saved the crew of nine men from the brig *Reaper*, of Scarborough; Brighton lifeboat rendered important services to the brig *Ringdove*, of Poole; Sennen Cove lifeboat brought ashore, during a gale of wind, one of the light-keepers from the Longships lighthouse, who had been taken seriously ill; Arklow lifeboat rendered important services to the screw steamer *Preston Belle*, of Dublin; Whitburn lifeboat rescued the crew of the brig *Anne and Mary*, of North Shields; Hayling Island lifeboat saved the crew of thirteen men of the barque *Atlas*, of Shields, and took an abandoned Norwegian barque into Portsmouth Harbour; Kirkcudbright lifeboat rescued the crew of four men of the schooner *Franklin*, of Belfast; Poolbeg lifeboat saved the crew of six men of the schooner *Emma*, of Barrow; and the New Brighton lifeboat saved the crew of five men of the schooner *Earl of Zetland*, of Amlwch.

Rewards amounting to £141 were also voted to pay the expences of the lifeboats of the institution at Ballycotton, Scarborough, Tynemouth, Whitby, St. Andrews, Rosslare, Holy Island, Barmouth, North Berwick, Winterton, North Sunderland, Lyme Regis, Kingsgate, Banff, Worthing, Brorke, and Bridlington, for going out in reply to signals of distress to render services to different vessels, which, however, had afterwards got out of danger.

A report was read from Captain Shaw, harbour-master at Ramsgate, stating that the self-righting lifeboat on that station, which was about

to be replaced by a lifeboat of the National Lifeboat Institution, had during the past eleven years saved about four hundred lives from a watery grave, in addition to bringing eighteen vessels safely to port.

The silver medal of the institution and £2 were grated to a youth named Thomas H. Frankish, in acknowledgment of his gallant services in rescuing a man who had been capsized from a coble in a heavy sea, at the mouth of Bridlington Harbour, on the 10th of October. The poor fellow had been washed the pier, and Frankish, with a lifebuoy and line fastened to him, was lowered over the pier into the boiling surf, which threatened every moment to dash him to pieces against the wall of the pier, and was thus enabled to save the man's life.

Various other rewards were also granted for saving life from different wrecks on our coasts.

Payments amounting to £1,670 were likewise ordered to be made on various lifeboat establishments.

The authorities at the Cape of Hope and at Bombay had requested the institution to have new lifeboats built for them by Messrs. Forrestt, and their request was readily complied with.

The cost of new lifeboats had recently been presented to the institution by Mrs. Colonel Vernon, in memory of her son; by Miss Hopkinson, in memory of her brother, the late Mr. William Hopkinson, of Brighouse; and by Peter Reid, Esq., of the London Stock Exchange.

During the past month the institution had sent new lifeboats to Caistor, near Great Yarmouth, and to Castletown, Isle of Man. The Castletown boat was exhibited at Sheffield on the way to her station, and the Caistor boat at Great Yarmouth. The latter boat, on her way to Caistor, was fortunately the means of saving a vessel and her crew.

A harvest thanksoffering of £3, collected in Newton Church after a sermon by the Rev. Dr. Wright, of Colchester, had been sent to the institution.

The committee decided to station a new lifeboat at Cullercoats, and an additional one at Tynemouth, on the Northumberland coast.

A report was read from the assistant inspector of lifeboats on his recent visits to different lifeboat stations of the institution.

The proceedings then terminated.

NAUTICAL NOVELTIES.

The most prominent feature of our nautical matters in the past month is the wreck of a fine ship, the *Duncan Dunbar*, on that contemptible islet of the South Atlantic named the Rocas, a mere rocky patch a few fathoms in extent, well known to our readers for its barrenness and uselessness. On this unguarded danger the *Duncan Dunbar* has been lost, the account of which, as given by a passenger, we preserve here, along with a letter addressed to her commander by his

passengers. What business this outward-bound ship had to be within danger of this islet remains to be decided by that inquiry which the government very properly now makes into these matters. Every one knows the current that is generally allowed for and the risk in even passing within hale of the island. But until this inquiry takes place we shall reserve our remarks as well as all allusion to accounts of it preserved in this journal. There can be no doubt that were a lighthouse built on it such an establishment would be a boon to navigation, and one that might be reasonably looked for in these days of progress and improvement from the Brazilian government, the coasts of which are not overburdened with these eyes to navigation. Another such as that on the Abrolhos would be a credit to that country. We have added another letter to it from the *Daily News*, all of which do much credit to the parties concerned.

The passengers and crew of the *Duncan Dunbar* reached Southampton on Saturday morning on board the Brazil mail steamer *Oneida*. It seems that the vessel struck on the reef Las Rocas at about 8h. 30m. p.m. of the 7th of October, and an awful night was passed on board. On the following morning they were all, 117 in number, landed on a little island or bank of sand, which was covered with birds. They remained in this situation, with the exception of the captain, one of the passengers, and six seamen, who started in a lifeboat to Pernambuco for aid, till the 17th, when they were fetched off by the *Oneida*. Though the sufferings, mental and bodily, were indescribable, not a life was lost or a limb broken.

The following is a detailed account of the wreck, drawn up by some of the persons who were on board the ill-fated vessel:—

The *Duncan Dunbar*, of London, Captain Swanson, master, which left London on the 28th of August, and Plymouth on the 2nd of September, with passengers and cargo for Sydney, was, on the 7th of October, wrecked on the reef Las Rocas, lying in long. 33° 45′ W., and lat. 3° 52′ S. She struck on the reef at about half-past eight in the evening. As soon as the alarm of "breakers ahead" was given the helm was instantly put to port, with a view of clearing the danger. The vessel, however, struck upon an outlying portion of the reef as she was answering her helm. Every effort was made to get the ship off, but in vain, as she went on at high tide, and, on its falling, became firmly fixed on a bed of rock. Cargo was thrown overboard with a view of lightening the vessel. The foretopgallant mast was cut away for the purpose of easing the vessel, which was rolling heavily from side to side as the tide fell and the sea struck her. The pumps were diligently worked, and kept the water under until the rudder was lifted and the sternpost broken away, when the water poured heavily into the hold, and pumping became useless.

Soon after the vessel struck, the captain had gone in one of the boats to take soundings round her, and see if there was any part of the reef on which a landing might be effected. He fancied, but could not be at all sure, that there was some part on which we might land. As the boats could not carry all on the wreck, the captain determined

to await daylight, and then land us if there was any available spot, and if there was not one, to take all from the wreck in the boats and on a raft.

Most anxiously did we look for the first streaks of dawn. It is impossible to describe the state of mind in which we passed the hours of that most awful and trying night. The vessel was rolling from side to side and striking most violently at each roll in a way which seemed to threaten her instant destruction. There were the unceasing roar and the white expanse of the remorseless breakers; above the din resounded the shrill and mocking cries of myriads of birds, and around us rolled the dark waters, in which it seemed that we must soon be engulfed.

It is impossible to speak too highly of the conduct of the ladies at the time the vessel struck, and during the whole of that most fearful night. Not a scream was heard, and with perfect resignation and quietness they awaited the termination of that trying state of things, whether it should result in there preservation or their being swept into the dark and horrid waters around us.

As day dawned every glass was used, in the hope of discovering some place uncovered by water, on which shelter, if only temporarily, might be taken. The captain again went in a boat, and succeeded in getting through the breakers to a landing place on one of the two banks or islets of sand which rise about seven feet above ordinary high-water mark. Preparations were at once made for landing. The passengers were lowered in a chair over the stern into the lifeboats, it being impossible to get the boats alongside the rolling vessel. By seven we were all landed. On landing we found that the little islet or bank of sand was covered with pig-weed, but there were no signs of water. During this day the captain directed the landing of water and provisions. Unfortunately four out of the five water puncheons got at were lost, being stove in by débris of wreck, or having drifted away; and our anxiety was lest we should fail in procuring a supply of water for the party on the reef, consisting in all of 117 souls. For the first two days we had only half-a-pint of water a-piece, although toiling in a severe and unaccustomed manner under a broiling sun, the thermometer being at 112°. On the day of our landing a tent was erected near some heavy pieces of wood, which were evidently part of what is given in the chart as the Syren Beacon, which appears to have fallen some time since. The island seemed quite covered with birds, which, from their very wildness, took no more notice of us than to move a few feet out of our way as we walked among them. The ground swarmed with a large species of earwig, and was in many places honeycombed by the holes of land crabs. Our meal on that first day consisted of a small piece of nearly raw meat, and a morsel of ship's biscuit. The ladies slept that night under the tent, and the men in the open air—at least slept so far as it was possible to sleep in the unceasing din of the screeching birds, and under the attacks of the crabs and vermin.

On Sunday afternoon the foremast and mizenmast were cut away, and on Monday the mainmast was also cut away. Again we worked hard at getting water and provisions ashore. On Tuesday an empty

400-gallon iron tank was landed, and in it we put our water as soon as it was landed in small vessels.

On the morning of Wednesday, the 11th, Captain Swanson, with one of the passengers, Mr. Galloway, and six seamen, started in one of the lifeboats, for which mast, sails, and rigging had been made and fitted on the reef, intending to try and reach Pernambuco, and there procure aid for us. Every day we worked at getting ashore as much provisions and water as possible, as we knew that at the first high or heavy sea the vessel must go to pieces. Most mercifully, the weather was throughout fine. We ultimately succeeded in getting four iron tanks ashore and a more encouraging supply of water. All the water and provisions landed were placed in a separate tent, which we denominated our "store," and most strict watch and guard was kept over them, as on their preservation depended our sustenance until we should be rescued. We managed to get ashore some wine and barrels of beer, which were most acceptable *to* keep up our strength.

Five vessels were seen by us passing the island; but our signals failed to attract them. At midday, on Tuesday the 17th, a steamer was seen approaching the island. It was distinguished to be one of the Royal Mail Steam Packet Company's vessels, and proved to be the *Oneida*, Captain Woolcott. Our hearts swelled with thanksgiving and joy as we observed the vessel making for the reef.

It turned out that Captain Swanson had, after having encountered heavy weather, been taken into Pernambuco by a vessel which he fell in with, and had, under the advice of Captain Doyle, her Britannic Majesty's consul at that port, sought the aid for us of Captain Woolcott, the *Oneida* being then on her homeward voyage to Southampton with the Brazil mails. Captain Woolcott, with the consent and approbation of Lieutenant Rainier, R.N., the naval agent in charge of the mails, readily agreed to go to our aid.

By two o'clock the *Oneida* was off our landing place on the reef, and at once we started for her. Most of us had lost all our baggage, having with us very little beyond the suit of clothes in which we landed on the reef. The *Oneida* had arrived at Las Rocas in 21 hours after leaving Pernambuco, a distance of 269 miles direct. By six o'clock the *Oneida* was again under way on her homeward voyage.

Our preservation and rescue were most providential. Our sufferings, mental and bodily, had been indescribable. Had we remained but a very short time longer on the reef a serious and desolating sickness would have broken out, as already there were serious signs of its commencement, which continued to develope themselves even after we had reached the *Oneida*. Not a life, however, was lost, and not a limb was broken, and it really seemed a special mercy that we should have been saved and preserved as we were.

In the chart of this reef a beacon, called there the Syren Beacon, is marked as being on the bank or islet on which we landed, and 30 feet above high water mark, and seven cocoanut trees as being on the other islet or bank. This beacon is no longer in existence, having fallen, and the seven cocoanut trees have disappeared, there being only

three very young, growing cocoanut trees, about four feet high. It is impossible that at high spring tides, with a northerly, or north-westerly wind, the water would rise to the level of the islet on which we took refuge, if not somewhat above it.

The following is a copy of a testimonial presented to Captain Woolcott by the passengers of the *Duncan Dunbar*, who likewise presented Captain Woolcott with a piece of plate in commemoration of their gratitude for their rescue from the reef Las Rocas:—

"*Royal Mail Steamship* "*Oneida*," *November 3rd*, 1865.

"Sir,—We, the undersigned, desire to assure you of our great gratitude for your prompt and ready aid in rescuing us from the reef Las Rocas, on which we had been wrecked in the *Duncan Dunbar*. Cast upon a reef in the Atlantic, with comparatively scanty provisions and means of subsistence, undergoing great toil under a burning sun, and with but slender protection from its rays for the ladies among us, and worn by great mental distress and anxiety, we had passed a most miserable and trying time from the day on which we had been wrecked to the time of your rescuing us. Had we remained for but a short time longer on the reef there is no doubt that very many, if not most of us, must have fallen victims to weakening and perhaps fatal sickness. From a prolongation of our deep anxiety and miserable condition, you, sir, by the activity, energy, and the great promptitude with which you came to our aid, rescued us, and made every preparation on board your vessel for our reception and comfort, taking upon yourself, and with the consent and approbation of Lieutenant Rainier, R.N., the naval agent, the great responsibility of deviating from your ordinary route, and approaching so dangerous a reef as Las Rocas. For such your timely aid and succour we can never sufficiently express our gratitude; never will be effaced from our recollection the high and warm appreciation in which we hold your rescue of us in that our most trying time of need. We take this opportunity of expressing our great appreciation of the general arrangements and routine of the vessel under your command. Accept then, sir, however feebly expressed, our most warm and hearty thanks and gratitude for your kind and active services on our behalf, and be so kind as to convey to your officers our deepest thanks for the readiness, activity, and despatch with which they seconded you in effecting our rescue and relief.

"We remain, &c."

(Signatures.)

To Captain P. M. Woolcott, R.M.S. "*Oneida.*"

48, *Fenchurch Street, November 17th.*

Sir,—Perhaps you will not object to publish the enclosed address, presented to our friend Mr. George Thornton (late Mayor of Sydney) by his fellow-sufferers, in ackowledgement of the services he rendered them during those ten perilous days spent upon the coral reef, waiting for the assistance which happily came before any lives sank under the hardships and intense anxiety they had to endure.

Mr. Thornton reduced to order a state of the utmost confusion and alarm. He placed a guard over the water tank. He distributed rations himself that there might be no waste of their little store. He took charge of the specie, and in thus serving others sacrificed the opportunity of saving any of his own effects.

Mr. Thornton was never before in Europe, but has held prominent offices in the colony, and we may be excused if we remark that just at this period, with such men in our colonies, we need have no fear for them.

We are, &c.,
BUDDEN, JENNINGS, & Co.

R.M.S.P. "Oneida," at sea, 3rd November, 1865.

Sir,—We, your fellow-sufferers at the wreck of the *Duncan Dunbar*, wish, before we separate, to express to you our very warm thanks for your untiring exertions on our behalf while on the reef Las Rocas.

In our condition on the reef, without water or provisions, excepting such as could be recovered from the wrecked vessel, it was absolutely necessary that there should be adopted a regular system for the preservation and economical application of our limited resources. In this emergency you came forward, and despite the many difficulties which beset the task, introduced system, and changed confusion into order. We bear in mind that this sacrifice of your time was not made without damage to your private interests, and that it prevented you from looking after the preservation of your own personal effects. It is impossible to over-estimate the value of such services. For what you undertook and did for us on the reef Las Rocas, accept, sir, our sincerest thanks, and believe that you will ever retain our lasting gratitude.

We remain, &c.
(Signatures).

To George Thornton, Esq.

It is with much regret that we hear of a Spanish fleet blockading the ports of Chili, it is said, on very trivial grounds. It appears that a meeting has resolved—"That after having deliberated on the detailed information just received from the West Coast regarding the questions in dispute between the government of Spain and Chili, the meeting view with surprise and indignation the course pursued by the Spanish admiral in the blockade of the republic, by which the interests of neutrals there greatly suffer.

And it further appears that, should the blockade of the Chilian ports be persisted in by the Spanish admiral, a fleet of blockade runners will be promptly despatched from Liverpool to run cargoes of produce. There are at present lying in the Liverpool Docks, and almost ready for sea, a number of vessels which are old hands at the blockade business.

It is stated that the amount of English merchandise at present afloat for Chilian ports is estimated at £1,000,000 sterling. The Chilian

navy comprises five steamers of 36 guns, one screw sloop with five guns, and two paddle steamers with two guns. The deputation of Liverpool merchants appointed to have an interview with Lord Clarendon respecting the Spanish blockade of the Chilian ports, were received by his lordship at the Foreign Office on November 18th. A telegram states that they had every reason to believe that the merits and urgency of the case were fully appreciated by the government, and that British interests in the Pacific would be duly attended to. The telegram also stated that the mercantie community of London would follow the example of Liverpool in publicly denouncing the conduct of Spain.

The subject of blockade reminds us of that mischievous craft the *Shenandoah*, about which we are glad to find the following statement:—

Mr. Dudley, the United States Consul at Liverpool, has decided to send the notorious *Shenandoah* to New York, and according to present arrangements this unwelcome visitor to our shores will leave the Mersey on the 21st of November, under the command of Captain Freeman—a good riddance too.

While on the subject of blockade, there is one more quarter where it is not very difficult to foresee trouble with our new friends the Japanese, arising from what is contraband and what is not. Our blockade runner which does not stand on trifles, will of course give the Japanese ships of war enough to do to keep them quiet, which it appears by the following notice of our foreign minister in the *London and China Telegraph* they will have to do:—

With reference to the Notifications issued by her Majesty's Charge d'Affaires and Acting Consul-General, on the 22nd day of June last, making known the risks and penalties which would be incurred by British subjects in resorting to the neighbourhood of Simonosaki for purposes of illicit trade, the undersigned has now to give notice to all subjects of her Britannic Majesty, that he has been officially informed by the government of the Tycoon that two Japanese ships of war have received orders to cruise in the neighbourhood of the Straits of Simonosaki, and to seize all foreign vessels which they may find engaged in unlawful trade, either in that neighbourhood or in the Inland Sea.

HARRY S. PARKES.

Her Britannic Majesty's Legation, August 8th, 1865.

Another foreign matter which very nearly concerns our mercantile shipping affords good grounds for satisfaction. The reader will remember the severe hurricane by which so much mischief was done to the mouth of the Hooghly in about November last year. It will be seen from it that out of evil comes good. We read in that valuable work, the *Mechanic's Magazine*,—

It appears that an English company is in the course of formation which

proposes the embankment of the whole river frontage of the Hooghly, from Prinsep Ghat to Chitpore Bridge, with landing wharves, steam and hydraulic cranes, and suitable landing sheds and warehouses. The cost of the undertaking is estimated at £3,000,000 sterling. If the works be carried out the trade of Calcutta will receive an immense impetus, which is much desired. We may add, and cannot fail to be most beneficial to the commerce of the whole world.

In reference to hurricanes we perceive that H.M.S. *Conqueror* has been under that scourge of the ocean and treated rather roughly. We cannot doubt that the "law of storms" was rigidly followed by her commander. It is stated by the *Hants Telegraph* that "The *Conqueror* arrived at Hong Kong on September 16th, with the battalion of marines on board, from Japan, *en route* to England. She was nearly lost on her passage, having encountered a typhoon off Formosa, which threw her over on her beam ends, where she remained some three or four minutes before she righted, without losing her masts. It is generally admitted that the ship, under Providence, was saved by the skill, judgment, and superior seamanship of Captain Luard, an officer second to none in his profession. The *Conqueror* will be ready for sea by the 7th of October, after having had a thorough refit, during which the marines were transferred to the *Princess Charlotte.*

One more foreign matter deserves notice and that of a scientific cast. Our Swedish and Norwegian neighbours have been busy at Spitzbergen in examining that outlandish place, from whose report it appears that the scientific expedition to Spitzbergen, at the cost of the Swedish Government and the Royal Academy of Sciences at Stockholm, has contributed an excellent chart of that island to our stores of its hydrography. Copies have been sent to England with translated Explanatory Remarks. The chart is by far the best and one on which navigators may depend as a generally trustworthy chart of the coasts and harbours of Spitzbergen. Astronomical observations made at eighty places on shore are the data on which it is formed, and it is considered not to vary a quarter of a mile from truth. Latitudes and longitudes are given, with notices of harbours which have good and safe anchorage.

There is a subject on which our foreign friends enter in their remarks on Spitzbergen that is worthy the attention of the friends of an expedition from our own government, direct from that island to the pole. The Swedish voyagers simply pronounce this mode of gaining the pole to be "impossible;" and they even say that such an expedition would not penetrate even to 78° North. And yet, notwithstanding Parry's failure, who we believe reached 81½°, or thereabouts, (it is on record in our own journal not now by us,) our own countrymen have been recently advocating this very route. They may now take the experience and profit by it, if they will, of our

Swedish neighbours. But whether they do or not we shall be very much surprised if our government should accede to their wishes. No: if a voyage in the Arctic basin should ever be attempted from this country with a view of reaching the pole and returning home, let it be made from the direction of the Mackenzie River. Starting North from some part of that neighbourhood *with the current*, there would be more chance (if there be any chance) of getting to the pole in our opinion from thence than any other. And should land intervene, in the way of islands, unless they can be used to facilitate the access to the pole by getting round them with the current, the attempt might as well be abandoned at once, for the current will set southerly, occasioned by the Asiatic and European rivers between Nova Zembla and Spitzbergen on one side, and the American continent and Spitzbergen on the other. But such a voyage, we say, would be hopeless, and that the pole itself is so completely hedged round with physical obstructions as to render all access to it by man impossible, and not only that but all speculation on it a mere waste of words.

But we have scarcely left ourselves room to notice an old complaint, the antifouling preparation applied to the hulls of our ships under water. The annexed notice is a rich *morceau* for Messrs. Peacock and Buchan, who no doubt will be highly entertained at the "considerable surprise" occasioned by the failure of any preparation for preventing oxydization, excepting their own. However, here is the notice for their information, as very recently reported of one of her Majesty's ships.

The condition of the bottom of the iron screw steamship *Agincourt*, 26, at Devonport, has created considerable surprise in the minds of the officers of the dockyard and others. About six weeks since she was removed from the Prince's Dock after having been scoured and coated with Hay's antifouling composition, and was placed alongside the sheer hulk in Hamoaze, where she received her five iron masts, and was otherwise prepared for the preliminary trial of her engines, which took place on the 12th of October. On Monday last the *Agincourt* was replaced in the Prince's Dock, and as the water was pumped out of her bottom below the line of flotation looked, as one of the artisans described it, "like a field of grass," so regular was the growth of the weed. Some was nearly two inches long, and it extended from stem to stern and down to the keel. It is supposed that if no composition had been applied vegetation would not have advanced to the same extent. There is no account for the extraordinary fact. While the ship lay in Hamoaze very heavy showers fell, and an unusual quantity of fresh water came down the harbour.

Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to Mr. Potter, 31, Poultry.]

Particulars of Lights Recently Established.

(Continued from page 610.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
62. Cape Katakolo, Greece	South Point of Bay	37° 38′ N. 21° 18·8′ E.	R.	149	17	Est. 17th September, 1865. Once every two minutes. (*a.*)
63. Position of *Bombay*	.....	.....	..	..	..	(*b.*)
64. Cape Tenez	Coast of Algeria	36° 33·1′ N., 1° 20·3′ E.	R	85	27	Est. 15th November, 1865. Once a minute.
Lipso	Salamis Bay	Altered to a	R.	..	17	Est. —. Once every two minutes.
65. Skervuile R., Jura Sound	South Entrance	55° 52·5′ N., 5° 49·5′ W.	R.	73	14	Est. 15th December, 1865. Once a minute.
Paterson River Clyde Firth	Beacon	.....	..	..	..	The former buoy removed.
66. Maseskar	Swedish coast	58° 5·3′ N., 11° 20′ E.	F.	114	12	Est 8th November, 1865.
67. St. Anthony's Point, England, S. coast	Falmouth	.....	..	..	..	Est. 15th November, 1865. (*d.*)
Kessingland, East coast of England	Pakefield Gat	.....	..	..	..	Now seen between N.W.b.W. and N.N.W.½ W.
Orford Ness	.....	.....	..	..	..	Painted in red and white bands.

F. Fixed. Fl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a) 62.—Description :—A faint light will be seen for 1m. 30s.; followed by a total eclipse for 10½s.; a bright glare for 9s.; and then a total eclipse for 10½s.

The tower stands at 779 yards within the south point of the peninsula.

(b.) 63.—Her Majesty's late ship *Bombay*, lies about 1½ miles south-west of the position formerly given, with Flores lighthouse bearing N. 9° 40′ E., and the Cerro lighthouse N. 60° 20′ W. (mag.)

On either side of the wreck there are 7 and 7½ fathoms water, soft mud; but no shoal is forming around, and only a slight coating of mud over it. With low river and smoth water the *Stromboli* steamed slowly over all parts of the wreck, and found least water 5½ fathoms, so that the wreck of the *Bombay* does not obstruct the navigation of the Rio de la Plata.

The bowsprit is about to be removed and replaced by a buoy, which is likely to be soon washed away.

This information, supplied by Mr. C. C. Scott, Master of H.M.S. *Satellite*, and Commander Phillips, of H.M.S. *Stromboli*, 21st of March, 1865.

(c.) 64.—The tower is 85 feet high, square, and stands about 2·4 miles northward of Tenez.

(d.) 67.—The seaman must be careful not to confuse this *fixed* light with the *revolving* light of St. Anthony Point, 37 feet above it, in which latter no alteration is made. The fixed light to clear the Manacles will be seen when bearing between N.N.E.½ E. and N.b.E.½ E.

Revolving Light of Skervuile or Iron Rock,—*Sound of Jura, West Coast of Scotland.*

The Commissioners of Northern Lighthouses have given notice that on the 15th of December, 1865, a light will be exhibited from a lighthouse erected by them on Skervuile or Iron Rock, a dangerous reef, near the southern entrance of the Sound of Jura, in Argyleshire.

The Skervuile Rock is distant about two miles from the entrance to Lowlandmau's Bay, in Jura, bearing from the entrance of the bay about S.E.b.E. (mag.) The light will be a revolving white light, visible all round the compass, and attaining its greatest brilliancy once every minute. The light will be about 73 feet above high water spring tides, and will be seen at a distance of about fourteen miles in clear weather.

Port Albany and Evans Bay.—*Queensland.*

The narrow strait which separates Albany Island from the main land is so straight in its general direction that it may be seen through from end to end. Its average width is three and a half cables, and the depth of water from six to thirteen fathoms. It is clear of dangers, with the exception of the rock awash, on a ledge projecting a quarter of a mile to the south-westward of Frederick Point, and from which shoal water extends south-eastward to the next point.

On the S.W. side of Albany Pass, and nearly opposite Port Albany, is a small sandy bay, with some low swampy ground behind the beach, where a never-failing supply of fresh water can easily be procured by digging ponds two or three feet deep, a few yards above high water mark. Water can also be obtained in small quantities on Albany Island.

A vessel from the southward proceeding to Port Albany, having cleared the shoal patches lying one and three-quarters of a mile to the westward of Z. reef, should bring the peak of York Isle—which is easily seen through Albany Pass—on with the outer extreme of Osnaburgh Point; this mark will clear the shoals extending to the south-eastward from Fly and Ulrica Points, and lead the vessel in mid-channel up to Port Albany.

In coming from the northward, and rounding Eborac Isle at a distance of about a quarter of a mile, a vessel will have Albany Pass plainly open, and may steer—making due allowance for the tidal stream—S.E.$\frac{1}{2}$E. for it, passing at a third of a mile outside Sextant Rock. When the centre of Ida Isle bears South, haul in for it until Albany Pass is again quite open, and by keeping it so the rocky spit projecting from Frederick Point and the edge of a shoal from Ida Isle to Osnaburgh Point will be avoided. If the west extreme of Albany Island touches Fly Point, the vessel will be too far to the north-eastward; and if the west extreme of the island approaches too near Osnaburgh Point, she will be too far to the south-westward.

Albany Pass being narrow, with high land on either side, a large

sailing vessel should not attempt it, except under very favourable circumstances, as the strong tidal streams would, with baffling winds, render her unmanageable; but, with a commanding breeze blowing through, a vessel may run against the stream, anchor in mid-channel abreast of Port Albany, and haul in and moor. A steamer or small sailing vessel would find but little difficulty in entering, and might anchor and moor as just directed for a sailing vessel.

The streams are very rapid in Albany Pass, and cause a confused sea when running in an opposite direction to the wind.

DANGERS AMONG THE JAPAN ISLANDS,—*West Coast of Kiusiu Island.*

A notice just published by the Hydrographic Office states that—

HIKI-SIMI* is a partially cultivated island, apparently a mile and a half long, about 280 feet high, with a coned shaped hummock at its south-east extreme, connected with the main body of the island by a long strip of shore; reefs appear to extend about three quarters of a mile off the north side of it. The easternmost of the Sumo-sima group is fully a mile and a half eastward of the other two rocks, with a clear deep water passage between.

Mr. J. E. Chapple, Master of H.M.S. *Tartar*, remarks, that in passing Hiki-sima in May, 1864, he observed a dangerous reef running parrallel to and distant about one mile from the north side of the island. The reef appeared to be about a mile long, and to be nearly covered at high water, three or four bolders remaining dry.

The steamer *Corea*, when passing at two thirds flood inside Hiki-sima, discovered a small detached rock on which the sea was constantly breaking, three cables E.b.S.½S. from the centre of the island. Both the outer and inner of the Sumo-sima group are pinnacle rocks.

Caution.—There may be many dangers in the vicinity of the numerous islands and islets off the coasts of Japan that are not marked on the admiralty charts, and these should be passed at a prudent distance until such dangers are discovered and their positions ascertained,

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ENTRANCE TO THE RIVER MIN,—*China, East Coast.*

Information has been received from the Commander-in-Chief on the China station, respecting the existence of new shoals at the entrance of the River Min, and also of the discovery of a shoal in the northern part of the China Sea:—

Mr. Shay, pilot for the River Min, states, that since the survey of that river by Mr. J. Richards, Master, R.N., in 1854, new shoals have formed at the entrance, and the mark for large vessels to enter, High Sharp Peak open southward of Sharp Island Peak, N.W.¾W., now leads in 3 fathoms water (the chart sdows 4 fathoms) over a bar which extends across from the South Breakers to the Outer Knoll; and it

* The outer rock of the Sumo-sima group, a pinnacle rock with an arch has been wrongly named Hiki-sima in the China Pilot, p. 518.

also leads close to the southward of the south extreme of a shoal of 7 feet water, extending about S.W.b.S., three quarters of a mile from the Inner Knoll.

Sharp Peak and High Sharp Peak in line, lead in 7 feet water (the chart shows 2 fathoms) over a bank extending from Rees Rock to Nine-feet Patch.

The channel between the Inner Knoll and North Breakers is rapidly filling up with knolls of sand, and is not navigable. Where the chart has 4 fathoms there are now only 2 fathoms.

Rees Rock is marked by a stone beacon; and a beacon has been placed on Middle Dog Island.

China Sea.

The commander of the Bremen steamer *Singapore* reports, that on his passage to Hong Kong, 13th May, 1865, his vessel passed over a rocky shoal, on which soundings were obtained in 10 fathoms water. its position is lat. 19° 10′ N., long. 113° 53′ E., which was obtained by noon observations, and by three chronometers nearly agreeing. The weather was nearly calm at the time, and the vessel was about an hour and a half over the shoal, which was considered to be three miles in extent.

Caution.—As the above position places this shoal nearly in the usual track of vessels bound to Hong Kong in the S.W. monsoon, its locality should be navigated with caution, especially at night. H.M.S. *Princess Royal*, at 4h. a.m. on the 28th of June, 1865, passed three miles westward of its assigned position, but did not obtain soundings with leads going in both chains.

Charts and Books Published by the Hydrographic Office, Admiralty, *in November*, 1865.—*Sold by the Agent, J. D. Potter*, 31, *Poultry, and* 11, *King Street, Tower Hill, London.*

592.—Vancouver Island, Barclay Sound, Capt. G. H. Richards, R.N. 1861, (2s. 6d.)

854.—China East Coast, Swatow Port and views, Edward Wilds, Master, R.N., 1865, (2s. 6d.)

363.—Queensland, Australia, Keppel Bay and Islands, Staff-Commander Jeffery, R.N., 1864, (2s. 6d.)

Hydrographic Office Notice, No. 3, Dangers and Cautions on the West Coast of Kiusiu Island, Japan.

Edward Dunsterville, *Commander, R.N.*

Admiralty, Hdrographic Office, 21st November, 1865

LONDON: WALTER SPIERS, PRINTER, GREAT PRESCOT STREET.

INDEX TO VOLUME FOR 1865.

ENLARGED SERIES.

LIGHTS

To accompany Hunt's Yachting Magazine.

WRECK CHART OF THE BRITISH ISLES FOR 1864.

Compiled from the Board of Trade Register.

SHOWING ALSO THE PRESENT LIFE BOAT STATIONS

● *Signifies a Casualty*
Represents a Life Boat.

Scale of Nautic Miles
10 0 50 100

SUMMARY.

In 1864 the Number of Vessels wrecked on the coasts and in the seas of the United Kingdom was 1741.
Of these 386 were total wrecks, 82 sunk by collision making the number totally lost 468.
Vessels stranded and damaged so as to require to discharge Cargo 653, by Collision 620, total 1273 making the whole number of wrecks 1741 and the Loss of Life as far as can be ascertained 516.

	Life Boats	Mortar and Rocket Stations	
There are	142	167	in England
	20	32	Scotland
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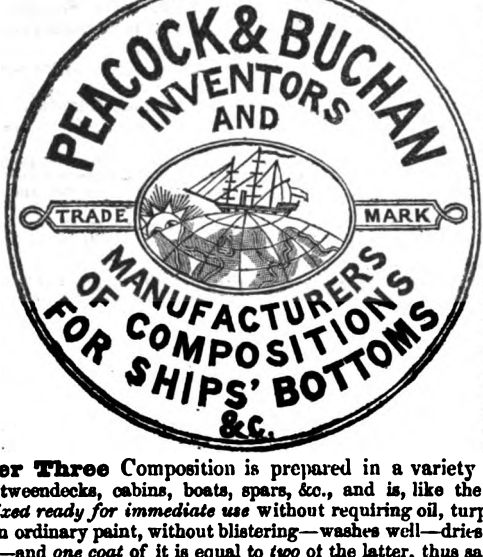

The **Number 2** Composition (pink) *contains no copper*, and is prepared exclusively for the bottoms of **Iron Ships** protecting the plates and rivets from corrosion or galvanic action, and from ordinary fouling; also giving additional speed as shortly after immersion the surface becomes slimy *like the back of a fish.*

The **Number Three** Composition is prepared in a variety of colours, for Ships' topsides, 'tweendecks, cabins, boats, spars, &c., and is, like the other numbers quoted above, *mixed ready for immediate use* without requiring oil, turps, or dryers; it stands better than ordinary paint, without blistering—washes well—dries quickly without unpleasant smell—and *one coat* of it is equal to *two* of the latter, thus saving labour and time: it keeps well in *any climate* being put up in hermetically sealed cans from 7 lbs. upwards, and does not deteriorate by keeping: it has been sent two voyages round the world and found upon examination to be perfectly good and fit for *immediate use*, and after being *ten years* in canister! upon being opened proved equally good, requiring no thinnings for working, and drying quickly with a beautiful gloss: it is equally efficient for the most delicate house purposes *either inside* or *out, enabling every man to be his own painter in any part of the world. The Royal National Lifeboat Institution* adopted it in 1862, and find it very economical and lasting. *See Pamphlet, page* 83.

The **Number Four** Composition (copper colour) is prepared for single bottomed vessels, ship's bends, the bottoms of lighters, barges, droghers, and boats; protecting them from worm and fouling; also for preserving railway sleepers, telegraph posts, gate posts, &c.

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The Peninsular and Oriental Co., the Royal West India Mail Co., the Pacific Steam Navigation Co., Royal Cape Mail Packet Co., Australian Steam Navigation Co., Panama and New Zealand Royal Mail Company, &c., &c., use Messrs. Peacock and Buchan's Composition on the bottoms of their magnificent Iron Fleets, in preference to all others,—after repeated trials. *See Certificates over.*

Shipowners are now alive to the importance of avoiding PREPARATIONS OF COPPER, after the fearful destruction recently evinced by galvanic action on the plates and rivets of many iron ships.

N.B.—It is about the same price as red lead, mixed for use, taking into consideration the difference of quantity required, weight for weight. It may be laid on over ANY *ordinary paint used for a priming coat or coats.*

The **British Admiralty** are now using Messrs. Peacock and Buchan's Composition on *many* of the Iron Ships of the Royal Navy, and the reports are very

PEACOCK & BUCHAN'S IMPROVED COMPOSITIONS.

Certificates, &c., Continued.

favourable in comparison with the numerous applications they are patriotically and periodically trying from other inventors: most of whom use *copper* or mercury as a base.

The **Spanish Admiralty**, after repeated trials of *copper preparations* and other pigments, which have proved destructive to the plates and rivets, have decided on adopting it exclusively in their Royal Navy, and Transport Service, and have entered into a contract with Messrs. Peacock and Buchan to supply the royal arsenals of Cadiz and Ferrol, to which ports large orders have lately been shipped.

The **Egyptian Government** adopted it in 1864, and the following letter has been lately received by Messrs. Peacock and Buchan:—

Egyptian Navigation Company, Azeeziah Musrrish.

61, Mark Lane, 7th July, 1865,

"Messrs. Peacock and Buchan.

Dear Sirs,—I have received orders to send to Egypt three tons of your patent Composition for ships' bottoms, same as supplied me in July, 1864. I now wish to know the soonest time you could have this packed and ready for shipment, as there is one of the Company's steamers will leave London about the end of next week. Please reply by return, and state price.

I remain, yours obediently,

(Signed) D. ABDUL HAMID BEY.

I. Fricken."

The "**Services Maritimes des Messageries Imperiales**" of France, after a series of trials against mercurial and copper preparations in India, have adopted it on their iron fleet, and large supplies have lately been sent to Suez from Southampton.

Competing trials in voyages to the West Indies and Egypt have been made during the last two years on the bottoms of several Iron Government and Royal Mail Steamers with various new preparations, *said to be* anti-fouling and anti-galvanic, against Peacock and Buchan's Composition, and the results have invariably proved favourable to their improved Number 2 Composition: the reports from India and Australia still continue very satisfactory, and large quantities have been shipped to their depôts in India, China and Australia during this last year, by order of the Board, for the use of the Peninsular and Oriental Company's magnificent Iron Fleet in the Eastern seas.

The following letters have also been received from the Marine Superintendent of the Royal West India Mail Company.

Royal Mail Steam Packet Company, Southampton, 24th Dec. 1863.

Messrs. PEACOCK AND BUCHAN, *Southampton*.

Dear Sirs,—In reply to your letter of this date I beg to state that we still continue exclusively to use your paint for our ships, which I believe to be the best composition at present in use for Iron Ships bottoms.—I am, Dear Sirs, yours truly,

(Signed) WILLIAM VINCENT, *Superintendent*.

Royal Mail Steam Packet Company, Southampton, 19th December, 1864.

Messrs. PEACOCK AND BUCHAN.

Gentlemen,—In reply to your letter I can only confirm the observations made in my last note to you, dated 24th December, 1863.—I am, Gentlemen, your obedient servant,

(Signed) WILLIAM VINCENT, *Superintendent, Royal Mail S. P. Co.*

The Thames Iron Works, Ship Building, Engineering and Dry Dock Company, Limited, Orchard Yard, Blackwall, E.

September 29th, 1865.

"Messrs. Peacock and Buchan.

Gentlemen,—I shall at all times have much pleasure in bearing testimony as to the value and superiority of your Compositions for ships' bottoms.

I have used the No. 2 extensively for the last fifteen years, more particularly on the bottoms of iron ships belonging to the Peninsular and Oriental Steam Navigation Company, and in every instance successfully. It is easily applied, economical, keeps the bottom *clean*, and also has the property of preserving the iron.

I visited in dock an iron *sailing* vessel, called the *Chile*, a few weeks since, and found her bottom perfectly clean, which had been coated with your Composition for upwards of twelve months, having made a voyage to New Zealand and back, and in salt water the whole time.

I have also used your No. 1 Composition for the bottoms of wooden ships, coppered, and found it most advantageous, making the copper last double the usual time, and then only taken off to recaulk.

I have at various times tried preparations of copper on iron ships, and in every case found the iron and rivets damaged.

I am, gentlemen,

Yours faithfully,

(Signed) J. R. ENGLEDUE."

From Captain George Grahame, of the Iron sailing ship *City of Madras*, belonging to Messrs. Smith, Shipowners, Glasgow.

London, 14th December, 1864.

Messrs. PEACOCK AND BUCHAN, *Southampton*.

Gentlemen,—Having this day, in Messrs. Fletchers' graving dock, examined the bottom of the *City of Madras*, under my command, which was coated with your Genuine Composition (Improved No. 2) nine months since, over red lead, I have to state that the bottom was found to be in a very clean and satisfactory condition—there were no barnacles or grass, merely a little slimy matter.

We have made very good passages both out and home to India; the bottom was also free from rust, &c., and the vessel is to be recoated with your Composition as before.—I am, Gentlemen, your obedient servant,

(Signed) GEORGE GRAHAME, *Commanding the City of Madras*.

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APPEAL.

The Committee of Management have to state that, during the past year, the Royal National Life-boat Institution has expended £19,531 on various Life-boat Establishments on the Coasts of England, Scotland, and Ireland. During the same period the Life-boats of the Institution have also been instrumental in rescuing the Crews of the following Wrecked Vessels.

Barque *King Oscar*, of Norway	15
Sloop *Annette Cathelina*, of Groningen	8
Barque *Hamilton Gray*, of Liverpool	2
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Schooner *Thetis*, of London	4
Brigantine *Boa Nova*, of Oporto—Saved vessel and crew	5
Schooner *Britannia*—Saved vessel and crew	4
Brig *Brothers*, of South Shields	7
Barque *Iris*, of Stavanger, Norway—Saved vessel and crew	13
Ship *Golden Age*, of Liverpool	13
Schooner *Water Lily*, of Pwllheli	4
Sloop *Barbara Hopeman*, Wemyss	3
Barque *Corea*, of Guernsey—Assisted to save vessel and crew	12
Cutter *Howard*, of Grimsby	1
Ship *Contest*, of Liverpool—Assisted to save vessel and crew	18
Fishing Boat, of Withernsea—Saved boat and crew	3
Schooner *Maria*, of Milford	3
Fishing Boats, of Southwold—Two boats and their crews saved	4
Brig *Governor Maclean*, of London	7
Brig *St. Michael*, of Havre—Assisted to save vessel and crew	14
Ship *Edinburgh Castle*, of Glasgow—Assisted to save vessel and crew	18
Schooner *Victoria*, of Teignmouth—Assisted to save vessel and crew.	6
Sloop *Liver*, of Carnarvon	3
Yawl *Hero*, of Teignmouth	1
Schooner *Kate*, of Liverpool	5
Lugger *Castletown*, of Belfast—Saved vessel and crew	7
Brigantine *Highland Mary*, of Fleetwood	5
Brig *Richmond Packet*, of Middlesbro'	6
Schooner *Agnes*, of Lossiemouth	3
Steam Ship *Ontario*, of Liverpool—Took off labourers to the number of	55
Chasse-marée *Eleanore*, of Nantes.	6
Barque *Arethusa*, of Liverpool	6
Schooner *Sarah*, of Waterford	6
Schooner *Heroine*, of Milford	5
Ship *Far West*, of Newport—Assisted to save vessel and crew	22
Sloop *Active*, of Carmarthen	3
Schooner *Fernand*, of St. Malo	5
Barque *Louis the Fourteenth*, of Dunkirk	15
Barque *Sea Serpent*, of South Shields	3
Brig *John*, of Hartlepool	6
Schooner *David and John*, of Montrose.	4
Barque *Devonshire*, of Liverpool—Assisted to save vessel and crew.	17
Fishing Boats, of Newbiggin, and their crews	40
Flat *Morning Star*, of Carnarvon—Saved vessel and crew	3
Brig *Zornica*, of Lucine, Austria	13
Barque *Jenny Lemetin*, of Quebec—Assisted to save vessel and crew.	9
Yawl *Bravo*, of Great Yarmouth.	7
Smack *Pearl*, of Carnarvon	3
Smack *Speedwell*, of Carnarvon	2
Schooner *Idas*, of Nantes	6
	432

During the year the Society has granted rewards to the Crews of Shore-boats, &c., for saving the following Shipwrecked Persons:—

Brig *Arthur Leary*, of London	4
Fishing Boat, of Tenby	3
Schooner *Ellen*, of Carnarvon, crew and others	28
Sloop *Susan*, of Swansea	3
Ketch *Four Brothers and Sisters*, of London	4
Pilot Coble, of Hartlepool	3
Sloop *Tredegar*, of Newport	1
Fishing Boat, of Aghada, Co. Cork	1
Schooner *Gleaner*, of Cardigan	5
Galliot *Cornelia*, of Hanover	4
Barque *Fifth of May*, of Stettin	14
Shore Boat *Nesting*, Shetland	1
Barque *Barbara Campbell*, of Glasgow	14
Schooner *Harmony*, of Drogheda	1
Ship *Royal Victoria*, of Liverpool	15
Galliot *Anna Maria*, of Cronstadt	8
Fishing Boat, of Portstewart, Co. Antrim	4
Fishing Cobles, of Staithes, Yorkshire	6
Barque *Undaunted*, of London	7
Lugger *Chasseur*, of Gravelines	5
Smack *Thetis*, of Jersey	1
Brig *Alice*, of Newcastle	9
Schooner *Britannia*, of Newquay	2
Brig *Palladium*, of North Shields	7
Sloop *Shamrock*, of Wicklow	2
Shore Boat, of Coningsberg, Shetland	2
Pilot Boat, of Lerwick	7
Brig *Jane*, of Wisbeach	6
Fishing Boat, of Portaleene	7
Sloop *Sykken*, of Stavanger, Norway	5
Fishing Boat, of Hilton, N. B.	3
Yawl *Rose*, of Ballycronhane, Ireland	6
Fishing Coble, of Cullercoats	4
Shore Boat of Cahirciveen, Co. Kerry	1
Shore Boat, of Great Yarmouth	2
Lugger *John and Ellen*, of Hastings	2
Shore Boat, of Weston-super-Mare.	4
Cutter *Phantom*, of Preston	2
Fishing Boat, of Inniskeragh, Co. Donegal	1
Boat *Garibaldi*, of Great Yarmouth	4
Fishing Boat, of Clogherhead, Ireland	3
Coastguard Boat, of Dingle, Ireland	6
Shore Boat, of Shetland	8
Shore Boat, of Lyme Regis	2
Galliot *Triton*, of Denmark	1
Boat *Blossom*, of Lossiemouth	2
Fishing Boat, of Portstewart, Ireland	4
Steamer *Magnetic*, of Liverpool	1
Schooner *Forest*, of Montrose	6
Brig *Albatross*, of Sunderland	6
Brig *Eliza Hall*, of Whitby	8
Steamer *Vesta*, of Liverpool.	1
Brig *Chimera*, of Liverpool	1
Brig *Oscar*, of Norway	9
	266
Lives saved by Life-boats	432

Total number of lives saved in the year.....698

For these joint numerous services in saving 698 lives from shipwreck, the Institution has granted rewards amounting to £1,515, in addition to 22 Silver Medals and other honorary rewards.

The number of lives saved either by the Life-boats of the Society, or by special exertions, for which it has granted rewards since its formation, is 14,266; for which services 82 Gold Medals, 742 Silver Medals, and £19,397 in cash have been paid in rewards. The Institution has also expended about £120,000 on its Life-boat Establishments.

Donations and *Annual Subscriptions* are earnestly solicited, and will be thankfully received by the Bankers of the Institution, Messrs. Willis, Percival, and Co., 76 Lombard Street; Messrs. Coutts and Co., 59 Strand; Messrs. Herries, Farquhar, and Co., 16 St. James's Street, London; by all the Bankers in the United Kingdom; and by the Secretary, Richard Lewis, Esq., at the Office of the Institution, 14 John Street, Adelphi, London. W.C.—*February*, 1865.

Royal National Life-Boat Institution,

For the Preservation of Life from Shipwreck

Patroness—Her Most Gracious Majesty the Queen.

President—Admiral His Grace the Duke of Northumberland, K.G., F.R.S.

Chairman—Thomas Baring, Esq., M.P., F.R.S., *V.P.* *Deputy Chairman*—Thomas Chapman, Esq. F.R.S., *V.P.*

Secretary—Richard Lewis, Esq., of the Inner Temple, Barrister-at-Law.

LIST OF THE LIFE-BOAT STATIONS OF THE INSTITUTION.

ENGLAND.

Northumberland—	1	Berwick-on-Tweed.
		North Sunderland.
		Boulmer.
		Almouth.
	5	Hauxley.
		Newbiggin.
		Cullercoats.
		Tynemouth.
Durham . . .		Whitburn.
	10	Sunderland.
		Seaton Carew.
Yorkshire . .		Middlesborough.
		Redcar.
		Saltburn.
	15	Whitby, No. 1.
		" No. 2.
		Scarborough.
		Filey
		Bridlington.
	20	Hornsea.
		Withernsea.
Lincolnshire .		Donna Nook.
		Theddlethorpe.
		Sutton.
	25	Skegness.
Norfolk . .		Blakeney.
		Cromer.
		Mundesley.
		Bacton.
	30	Palling
		Winterton.
		Caister.
		Yarmouth, No. 1.
		" No. 2.
Suffolk. .	35	Lowestoft.
		Pakefield.
		Southwold.
		Thorpeness.
		Aldborough.
Kent . .	40	King-gate.
		Margate.
		North Deal.
		Walmer.
		Dover.
	45	Dungeness.
Sussex . . .		Rye.
		Winchelsea.
		Hastings.
		Eastbourne.
	50	Newhaven.
Sussex		Brighton.
		Selsey.
Isle of Wight .		Brighstone Grange.
		Brooke.
Guernsey . .	55	St. Samson's.
Dorset . . .		Lyme Regis.
		Poole
South Devon .		Exmouth.
		Teignmouth.
	60	Plymouth.
Cornwall . . .		Fowey.
		Lizard.
		Porthleven.
		Penzance.
	65	Sennen Cove.
		St. Ives.
		New Quay.
		Padstow.
		Bude Haven.
North Devon .	70	Appledore.
		Braunton.

WALES.

Glamorganshire		Penarth.
		Porthcawl.
		Swansea.
Carmarthenshire . .	75	Llanelly.
		Carmarthen Bay.
Pembrokeshire		Tenby.
		Fishguard.
Cardiganshire. .		Cardigan.
	80	Newquay
		Aberystwyth.
Merionethshire		Aberdovey.
		Barmouth.
Carnarvonshire .		Portmadoc
	85	Porthdinllaen.
Anglesey . .		Llanddwyn.
		Rhoscolyn
		Holyhead.
		Cemlyn.
	90	Moelfre.
		Penmon.
Carnarvonshire .		Orme's Head.
Flintshire . .		Rhyl (Tubular).
Cheshire . .		New Brighton, No. 1.
	95	Do. No. 2. (Tubular)
Lancashire . .		Southport.
		Lytham.
		Blackpool.
Lancashire . . .		Fleetwood.
	100	Piel
Cumberland . .		Silloth.
		Maryport.
Isle of Man . . .		Castletown.

SCOTLAND.

Kirkcudbright . .		Kirkcudbright.
Ayrshire . . .	105	Girvan.
		Ayr.
		Irvine.
Argyllshire . . .		Campbeltown.
Caithness-shire . .		Thurso.
Elginshire . .	110	Lossiemouth.
Banffshire . . .		Buckie.
		Banff.
Aberdeenshire . .		Fraserburgh.
Forfar		Broughty Ferry
Fifeshire . . .	115	St. Andrew's.
Haddingtonshire .		North Berwick.
		Dunbar.

IRELAND

Co. Londonderry .		Greencastle.
Antrim . . .		Portrush.
Down . . .	120	Groomsport
		Tyrella, Dundrum.
		Newcastle, do.
Louth . . .		Dundalk.
		Drogheda.
Dublin . . .	125	Skerries.
		Howth.
		Poolbeg.
		Kingstown.
Wicklow . . .		Wicklow.
	130	Arklow.
Wexford . .		Cahore.
		Wexford.
		Rosslare Fort.
		Carnsore.
Waterford .	135	Tramore.
		Dungarvan.
		Ardmore.
Cork		Youghal.
		Ballycotton.
Kerry . .	140	Valentia.

The following are Extracts from the General Rules of Management:—

"Each Life-boat to have a Coxswain Superintendent, with an Annual Salary of £3, and an Assistant Coxswain with a Salary of £2.

"The Life-boat to be regularly taken afloat for exercise once every quarter, fully manned and equipped, so that the Crew may be familiar with her qualities and proper management. On every occasion of exercise, the men to be paid 5*s.* each in stormy weather and 3*s* each in fine weather; and on every occasion of going off to a Wreck to save Life, each of the Crew to receive 10*s.* by day, and £1 by night, these payments being doubled on occasions either of extraordinary risk or of long exposure.

"The Life-boat to be kept on her Carriage, in the Boat-house, with all her gear in her ready for use. Signals are agreed upon for calling the Life-boat's crew together; and immediately on intimation of a Wreck, or Vessel in distress, the Coxswain is to muster his Crew, launch his Boat, and proceed to her assistance.

"The Local Committee to make quarterly Inspection, and Report to the Institution as to the behaviour of the Boat during exercise, pointing out any defect that may be remedied, and offering any suggestion that may conduce to the efficiency of the service."

The expense of a Life-boat Station is nearly £600. Its cost is made up as follows —

Life-boat and her equipment, including life-belts for the crew . . .	£300
Transporting-carriage for the Life-boat.	100
Boat-house (average cost)	180
Total	£580