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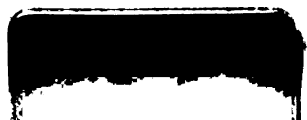






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THE  
NAUTICAL MAGAZINE.





THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle

FOR 1864.

A JOURNAL OF PAPERS

ON SUBJECTS CONNECTED WITH

MARITIME AFFAIRS.



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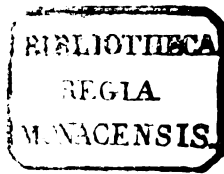
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THE  
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Naval Chronicle.

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JANUARY, 1864.

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MAULMAIN,—*Its Dangers and how to avoid them.*

*Maulmain, 21st October, 1863.*

Sir,—The approach to the port of Maulmain is by no means difficult if rightly understood; but that it is not well understood—in other words, that the directions for making it are not so clear as they ought to be—is proved by ships getting into difficulties and sometimes lost there. The object of the following remarks is to assist navigators until proper directions are published “by authority” and copied into the books of sailing directions. The compilers of directories being very properly cautious of giving their sanction to the desultory opinions of unknown writers on such subjects.

Nothing need be said about a ship that a few years ago left Maulmain bound to Europe, and after being out a few days put back, and returning with a fair wind, ran on shore on the coast or some of the islands to the southward in broad daylight; no directions or charts would have saved *this* ship. But other wrecks have taken place that may be fairly attributed to incorrect charts and improper directions: of these we will select two for examples. The first was a ship homeward bound from Calcutta, that proved leaky and bore up for Maulmain. The captain had never been here before, but made the land very properly about Kalagouk Island, about thirty miles to the southward of Amherst Point. Night coming on and the weather looking stormy, as it frequently is during the S.W. monsoon, he took shelter

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for the night in Kalagouk Harbour, a judicious proceeding, and safely carried out; but on consulting his chart and Horsburgh's *Directory*, no extraordinary danger appeared to his leaving that anchorage by the *North Channel*, and in attempting to do so he lost his ship. I would say of course it could not be otherwise but for the extraordinary fact that another ship, at the very same time anchored in this harbour and came out by the North Channel in safety. I should say she escaped by a miracle, for the channel and, indeed, the whole distance between Kalagouk and Double Island is so full of rocks and sandbanks that only small coasters venture on it. The writer had communication with both of these commanders, who were men of superior intelligence, and both were misled by their charts and directions. This took place about ten years ago.

Passing over some other accidents and narrow escapes, we come to the American ship *Greenwood*, which got on the rocks on the South side of the entrance to this river, covered at high water. The accompanying letter on the subject gives a correct account of this case, which it will be seen arose principally from the vagueness of the directions that the captain had on board. But in this instance the pilots, that is, the native pilots, seem to have been at fault, for the European pilots were all engaged. Nor does the European in charge of the station appear to have done his duty towards this fine ship by giving her sufficient warning, nor to have gone off to her assistance when on the rocks: but these are local matters, and will no doubt be properly dealt with. The *Greenwood* is so much injured that she had to be towed up to town and laid on shore to prevent her from sinking, and will probably be condemned.

Pending the publication of directions under authority, the following remarks will be found useful to commanders coming to Maulmain for the first time.

In approaching Amherst it is desirable to make Double Island,—where a lighthouse is now being erected but not yet finished,—or even to close in first with Kalagouk, about thirty miles to the southward of Amherst Point, either of which may be approached as close to as any one would wish to go. When sure of your position stand on to the northward until abreast of Double Island, when Amherst Point will be seen with its flagstaff, pagodas, and palmyra trees, all of which are very conspicuous, and probably the pilot boats will also be in sight; but if they are not to be seen and night drawing on, it will be best to anchor here, and they will be sure to find you on the next morning's ebb tide. Nothing will be gained by going further up, but an anchor may be lost by doing so, for the velocity of the tide increases rapidly to the northward of Double Island, and a spring flood tibe off Amherst Point will test the best of ground tackle. It may be added, that the coast and islets to the southward for a hundred miles or more, may be approached freely by daylight, there being no hidden dangers off them; but the soundings are not a sufficient guide to go by at night, and it is better to keep aloof after nightfall, and stand in with the land next morning.

To approach Amherst from the *westward* requires a few words of caution; but Double Island or Kalagouk should be tried for, as before stated, and when they are closed with the former remarks also apply. But there is an unseen danger in crossing over from Barague Point to Amherst that requires the greatest caution, that is the tides, which, after passing eastward of the meridian of Rangoon River, set right into the bight of Sittang, where it is almost beyond the power of anchor to hold a ship on a spring flood. The writer was once "caught napping" while crossing this "nasty bit," and had the *pleasure* of riding out a flood tide with three anchors down and the decks flooded by the water rushing in at the hawse holes, and got a fright that thirty years has not rubbed out of memory. Had the ship been laden she must have sunk at her anchors or been allowed to drift on shore.

To avoid this danger keep on the South side of an imaginary line between Barague Point and Amherst, and have a sharp eye to the flood tide until Double Island or Kalagouk is clearly made out. A *little further South* may not be amiss for a stranger, but not an inch further North; and if rich enough lay out two shillings on the purchase of No. 7 sheet of the chart of this gulf, *Admiralty*, not *Blue Paper*, with which and the above notes you may be considered to have a "good outfit" for Maulmain. Adding that the pilots are now to be found cruising in open cutters in the offing in daylight and I have done. But has all this not been written before! It has, and a great deal more about this part of the world; but being scattered over a period of twenty or thirty years in the *Nautical Magazine*, it is particularly useless and will remain so until it is revised and condensed and published in some sailing directory, where it can be found when wanted.

J. H. MILLER.

*To the Editor of the Nautical Magazine.*

*Note.*—The writer is unable to speak of the codes of signals in use at the present day. But the early editions of Marryatt's *Code* had no signal for warning against danger. Would it not be desirable to have a special single flag for a signal of danger, which might be shown by itself in a page at the beginning of the book, instead of being entered among sentences in the body of the work. Such a flag would soon become familiar to every one, and when displayed and accompanied with a gun would command immediate attention, and might have saved the *Greenwood* and some other vessels that have got on these rocks.

The reader will find more on this subject in our volumes for 1836, 1842, 1847, and 1848.—ED.

**JAPAN AND THE JAPANESE.—*The City of Yeddo.***

(Concluded from vol. xxxii., p. 632.)

It is not possible to state exactly the amount of the population of Yeddo, the Japanese government not having yet established any regular census. The number of citizens, merchants, and artizans is very well known, and these in 1858 amounted to 572,848; but the citizens, compared with the nobility and the clerical, are not, in a numerical point of view, of any importance. Yeddo is of all others a city of functionaries, officers, and priests; the extent of territory occupied by the dwellings of the princes and the temples sufficiently demonstrates this. It is known, again, that according to the laws which govern Japan, a half of the feudal population, among which the empire is divided, must live at Yeddo, and the other half must be represented by the nearest relatives and chiefs of families. The Daimios on quitting the capital draw after them their followers, and these are sometimes numerous, for they are not only composed of functionaries and servants of all kinds, but of a large body of troops, the number of which varies from some hundreds to many thousands. The army of the Daimio of Satzuma is stated to consist of 25,000 men, and from 8,000 to 10,000 generally accompany him when he goes to Yeddo. The prince who thus leaves Yeddo is in reality replaced by another, but the troops newly come may be more or less than the number of his predecessor. Thus perpetual fluctuation goes on in the population of Yeddo, which cannot be reckoned, for the great Daimios do not allow even the Tycoon to interfere with the number or quality of persons whom they choose to have in their retinue.

It is supposed that the principal and second class Daimios amount, with their men, women, and children, to about half a million of persons. The Tycoon's palace, reckoning all his functionaries, soldiers, and servants, it is said contains about 180,000 persons. By adding to these the numbers of citizens and artizans, 200,000 priests, monks, and nuns—which fill the temples and convents, 200,000 travellers and pilgrims, 50,000 parias (that is to say *hettas*—persons who work leather and touch the blood of animals, and regarded as impure, and consequently assigned particular quarters for residence), Christians, and mendicants, the entire population of Yeddo will not be less than 1,700,000 individuals. The Christians abovementioned are the descendants of the ancient Japanese Christians. They live at Yeddo in a particular quarter; they intermarry, and are sadly despised. The exercise of their religion is specially interdicted, and they are not even held in memory in Japan.

This amount of population is, however, inferior to that which some travellers—M. Siebold among others—have given, but I think may be adopted as not too small. It corresponds, indeed, with the extent of Yeddo,—with the intercourse in its streets, compared with that of towns of which the population is known,—and also with the peculiar

arrangement and area of the city. It is probable, however, that it will soon fail to convey a correct idea of the truth. The radical revolution which is preparing for Japan, and the origin of which is worthy of a special examination, is already showing itself by some striking symptoms. The chief of the executive power, the Tycoon, who is regarded as the representative of liberalism, has been summoned to appear before the Mikado, the legitimate Emperor, in order to justify himself for having violated the constitution in forming treaties with foreigners. After having resisted this summons for some time, he has been compelled to submit to the orders of his sovereign. Nothing has been divulged of what passed between the two princes, but the foreigners resident at Yokohama and Nagasaki have observed with surprise the withdrawal of the families of the princes from Yeddo and the departure from Nagasaki of nearly all the operatives engaged in the construction of houses. It was hence soon concluded, and authoritative notices from Japanese sources have confirmed the supposition, that the seat of government would be transferred from Yeddo to Kioto; that the Daimios would in future not be required to pass half their lives in its vicinity and under the surveillance of the Tycoon; and that this chief, deprived of the *prestige* of sovereignty, would be reduced to a veritable office,—that of being the lieutenant of the Mikado.

As for Yeddo, it is easy to foresee the time when it will be nothing more than a city of merchants. No doubt, with the 500 merchants and artizans who live in it, it will still be reckoned among the principal of the empire; but in losing many hundreds of princely families, and their armies of functionaries, soldiers, and servants, which surround the Daimios, it will lose the most brilliant part of its population, the source of its opulence and political importance. It will become nothing more than the shadow of the capital which the treaties opened to western nations. Such, then, is the price which the Tycoon will pay for his alliance with foreigners. His new friends will have hastened his ruin, unless they unite with him some day to restore his power, and show the value of rights and prerogatives which he holds from the sacred laws of Yongen-Sama.

Since my first stay at Yeddo, the city had lost nothing of its *éclat* and animation. Its long streets were thronged by men of business,—labourers of robust frame, browned by the sun and hideously tattooed, drew their heavy carriages laden with merchandize of all kinds. They worked with deliberate and certain steps, giving forth songs at regular intervals for the mere exercise of their lungs. This mode of singing out is common in the East: at Shanghai especially, the sharp cries of the Chinese porter landing goods on the quay, and at the crossings, make a deafening noise. The street merchants and charlatans, with their open sale of spirits, the quality of which they proclaim with so much volubility, as well as the efficaciousness of their drugs. In the crossings were collected tumblers, jugglers, wrestlers, fortune-tellers, and beggars, who worked with pictures of grotesque figures, representing assassinations, incendiaries, and battles. A



crowd of curiosity seekers surrounded these spectacles. In the more retired streets a crowd of children, who could be seen by no one, sleeping or waking, playing or working, passed their lives before the houses in which they were born. Their principal amusement was that of the willing serf. Thousands of them passed their time in this amusement, and elder persons were not wanting who would condescend to the same pastime when the opportunity was favourable.

The aristocratic parts appeared deserted compared with the noisy streets of the city. In the palaces, which, with their gardens and their extensive parks, occupied whole streets, dwelt farmers: there one never meets any other but functionaries and soldiers, or the norimon of some great person, whose cortege passes by in silence, while the people respectfully make way for it. About the temples are seen no one but priests, monks, and mendicants, in a word, only idlers, who manage the Buddhist and Sintiste temples. Among the classes of mendicants there is one in particular observable over all others, called the wedding. These all belong to the class of degraded nobility, who, ashamed of the state to which they are fallen, wear a bamboo tube on their heads that rests like a hat that is too large and too long on their shoulders, and which completely conceals all their features. It is an act visited by severe punishment to penetrate into the incognito of these *lonines*.

In order to regain a sight of the life and busy scenes of the city, it is necessary to visit the outskirts of Yeddo, at Sinagawa or the northern and western suburbs. There the tea-houses and other places of abandoned society attract a crowd of pleasure hunters. There confusion and quarrels prevail. There foreigners do not voluntarily hazard their lives, and only go well armed, accompanied by friends or escorted by Japanese officers. With a bad grace people make way for them sometimes, but they are sure to be interrupted, and they are expressly forbidden to enter any of the tea-houses. At sunset these streets are enlivened by a very questionable society, and assume a most suspicious character. Everywhere one sees individuals with their faces concealed by a handkerchief, one hand on the shortest of their two swords, and appearing more like brigands than citizens. A stranger has no desire to see these villanous fellows by his side, ready for any work; he would quickly leave such persons, especially when he remembers the fate of Huesken, de Voss, Decker, and other victims of Japanese jealousy who have fallen by the hands of such assassins.

When night comes, these streets are lighted up with fancy illuminations. Every one carries a paper lantern, which has the name of the proprietor marked on it in bold characters, or else the arms of their masters painted Chinese fashion. The tea-houses are now all shut; but beyond the barrier of a thick gate the floors of the rooms may be seen where the djoros are held, adorned in the handsomest manner, and the *ghokos* who play and sing to attract for their companions the attention of the passing throng. By slow degrees the noise ceases, the number of lanterns in the street diminish: the gates

of the tea-houses are closed by walls of planks. At ten the streets are nearly deserted; at eleven a profound silence reigns around, and all Yeddo is asleep; but often awakened by the tocsin sounds of alarm produced by repeated and accelerating blows on a bell. A watchman in a small tower, such as may be seen by thousands in Yeddo over the temples and the large houses, sees a fire, and thus calls for assistance. The signal of alarm is repeated everywhere, and the scene of disorder and confusion of such signals may be easily imagined. The doors of houses are opened and out rush their inhabitants; they question the passengers, and run towards the supposed place of the fire; many are perched on the roofs so as to get a better view of the danger by which they are threatened. The fire, however, is yet far distant,—but fed by so much combustible material it soon reaches them. One house only may be on fire, but a whole street, indeed an entire quarter of the city is doomed. The means of extinguishing it are rapidly conveyed, but they are helpless before the all-devouring element. It is necessary to resign a large space to the fire, for nothing is capable of stopping its progress but a space in which there is nothing to feed it.

Thanks to the active care of the night guardians, and a well organised institution of firemen, as well as to the extraordinary frequency of fires that renders every one accustomed to them and how to deal with them, many such accidents are crushed in their beginning. Unless they are so, there is almost always some catastrophe to deplore. The masons, carpenters, and many other workmen are embodied by law as a corps of firemen; they are very clever in such cases, and acquit themselves with as much courage as zeal to subdue the fire. In every house of Yeddo there is a pump for fire, and nearly at every door are vessels of water kept on purpose in case of fire.

The principal cause of fire is attributed to the use of the *brasero*, which is kept burning in their houses day and night. But the inflammable nature of the materials used in the construction of Japanese houses explains their extensive character when they do occur. The warehouses destined for the reception of merchandise are built of stone and *pisé*. as well as the palaces of the daimios and other high personages. But the light materials are accumulated in such profusion in all the houses that they themselves are but poor protection from the fires that cause such frequent ravages. In 1859 the ancient palace of the Tycoon and that of the heir presumptive were entirely destroyed by fire. The following year a similar catastrophe covered with ruins an extensive portion of the city of Yeddo occupied by the palace and its dependent buildings of the powerful prince of Satzuma. In 1859 and 1860 Sai-kai-dsi, the seat of the French legation, only escaped destruction by the courageous exertions of the firemen to preserve the temple, constructed for the most part of solid materials; but M. du Chesne de Bellecourt was obliged to seek shelter often afterwards with Sir Rutherford Alcock. The ill will of the *lonines* was not unacquainted with the cause of this misfortune, and the representative

of France apprehended an attack on his person, on which account he took refuge with Sir Rutherford. M. de Bellecourt in relating afterwards the events of the night of the fire, did full justice to the Japanese firemen. His change of quarters had been effected in the twinkling of an eye, none of his effects were broken or missed, and he himself was treated with the utmost respect.

The government of the Tycoon has thus on many occasions given proof of its good intentions towards its new allies; but it has not yet succeeded in establishing real amicable relations. The fear of rousing the susceptibilities of the patriotic party, which has seen with regret the intrusion of strangers in the affairs of the country, has occasioned a reserve on the court of Yeddo which has been observed by all the functionaries appointed to deal with the representatives of the foreign powers. The persons, in virtue of their official character, do not make straightforward advances, and after having ascertained that the coolness with which they are received is the result of a party feeling, in their turn have adopted the same course, confirming, unfortunately, a state of things which renders their sojourn at Yeddo and their relations with the government more and more difficult.

No link of friendship is to be found between the foreign ambassadors and the functionaries of the Japanese, and the life which the former lead at Yeddo is most monotonous and cheerless. Up to the time, however, that Mr. Heusken was assassinated, that life was not deprived of some amusements. The attachés of the legations formed a tolerably numerous society of young persons, and their chiefs exercised an unbounded hospitality. They always had friends staying with them, either from Europe or America, at Sai-kai-dsi, at Foden-si, at Dsen-foudsi, and enjoyed the pleasure of showing them the town and its charming environs. Every day they had long rides on horseback, visiting their chateaus, travelling over the city, visiting the temple of Quannon in pleasure parties. It was no doubt necessary to be armed on these occasions and on their guard, but without any serious apprehensions; and they very properly at any hour of the day never went into the retired parts of the town. I remember a walk in company with the attachés of the British legation and Mr. Heusken. We set out from Toden-si early, with no other escort than that of our *betto*s (it was in 1860). We crossed the quarter of the town in which we were, Soto-Siro, and the whole city. We stayed a long time in the temples of their god of war, of five images, and of Quannon-Sima; and after visiting the aristocratic places as well as those frequented by the mass of the people, we arrived at the village of Odsi, a distance of nine to eleven miles from the seat of the British legation. Here we made a halt of several hours and were overtaken by night we were yet a long way from Toden-si. Our horses were tired, and we could only go on at a walk. We did not get home before midnight, having passed fifteen hours in the roads of Yeddo without anything happening to us.

Our excursions were not always so prolonged as this, and were generally not above three or four hours, and we would assemble after-

wards at Toden-si, either at the residence of the French or the American minister. At that time, as well as at present, the Dutch minister resided at Decima, the Russian at Hakodadi, and the Portuguese had only a consul, who was at Yokohama. Prussia, who has since concluded a treaty with Japan, had not ratified it at the last time I left Yeddo. But after our excursions we used to chat over them, lay out projects for the next day, prepare our despatches for Europe, or read the letters and papers which were brought to us by the Shanghai steamers. Full often it was necessary to hold our council of *Gorô-jo* (five members) afterwards, or to receive a visit from a native functionary of foreign affairs. Our time was then fully occupied, and the members of the several legations had nothing to complain of in their isolated positions. But the assassination of Mr. Huesken brought a change over all this. After this event the American minister only remained at Yeddo, those of the French and English left it for Yokohama. It is true they returned to the capital of the Tycoon; but the close surveillance which was kept over them was intolerable, and two attempts to assassinate the representative of Great Britain having caused the death of two English subjects and showed too evidently the proximity of serious danger, Sir R. Alcock and M. Chesné de Bellecourt decided on returning to their temporary residences at Yokohama. The minister himself of the United States, Mr. Pryne, in spite of his right which he maintained of residing at Yeddo, was obliged to leave it, his house being burnt down, and the governors of Yeddo having requested him to leave, because they could not protect him from the hatred of the people.

Artifice, crime, and political complications, which threatened Japan on the arrival of Europeans, have thus invaded the residences of foreigners in the capital of the Tycoon, who, after a contest of more than three years finds his ancient possessions restored entire to him. But it cannot be doubted that sooner or later our representatives will return to Yeddo. The West is too powerful, too much superior to the East, to allow its will to be anything but law; it has decided by extending its relations to Japan that the empire shall no longer remain in its ancient isolated condition, but shall join the civilized nations of the world, and that for this purpose it shall admit into its capital the presence of the representatives of its great powers.

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CHANGES IN COAST LINES,—*By S. M. Saxby, Esq., R.N.*

(Continued from vol. xxxii, page 670.)

The attempt to do justice to a subject having such strong claims upon us will be fruitless or profitable in proportion to the care bestowed in placing it before the reader. Indeed, whoever he may be, the peculiar nature of my task requires that I should have him fairly

“by the button” before venturing upon the argument,—otherwise, at the first serious encounter with a not very self-evident fact, he might relapse into indifference and indecision.

Were the readers of this magazine of one class only, the case would be different; but since it carries the varied contents of its pages into the house as well as into the ship, and interests so large a portion of the public, a few preparatory remarks upon the readers themselves might be useful.

Although the examination of the subject of existing coast lines will more generally be made in the quiet sea cabin, or in the ample library on shore, the application of precepts to practice must principally be made upon the coast itself. Now, perhaps, there is nothing more evident than that the air of the sea side specially affects the spirits of the sturdy Englishman who pays it a visit. For my part, bred amidst its stirring scenes, I, even now, when Time is beginning to stamp me with its “broad arrow,” can never pass the most commonplace incident upon the sea shore with indifference.

A group of children in a field or meadow, or by the road side, might play unheeded; but let even these, by the water side, be, for example, engaged in their oyster-shell architecture, or their devious canal-forming excavations in the sea sand,—in their castle building, with their tiny moats and ponds and mimic sea walls, able to bear for some few minutes the attacks of advancing Neptune,—in their hasty repairs of a sudden sea breach here, or the stopping the direction of an invading stream there, until the last stronghold and “castle keep” becomes levelled by the inevitable tide,—and one discovers that his mind has become interested until unconsciously ensnared.

And this we call child’s play! Is it? If so, we are all children, for it is the game which, when played upon a larger scale, history describes as winning a territory or losing a kingdom. By the bye, who are “we”—the best of us,—who propose or consent to the eager investigations of geological evidences, that in their antiquity immeasurably outweigh the few centuries which occupy so deeply the thoughts of the ordinary antiquarian?

Whether the epaulet, or the coronet, or the civic crown, or the solemn wig and the forensic gown, or the plumed helmet, at times gives dignity to our appearance, we—and it is important to my subject that we confess it—are individuals possessed of a certain inborn proclivity towards the enjoyment of trifles, when circumstances permit of our unbending from official and highly necessary demands upon our gravity. And precisely as effect is produced in a picture by the contrast of light and shade, so do contrasting occupations reburnish our faculties and produce a healthiness of tone, which gives vigour to the temperament and strength to the character.

Agreed, then, that sea-side employment is attractive to most of us: before proceeding it will be well to give an instance of the “evidences” and the “antiquity” above referred to. This digression is prompted by no unsteadiness of purpose, but it is absolutely necessary

to show the reader beforehand a glimpse of the rewards to be met with in the pursuit of the question proposed.

A few years since a labourer brought for my examination a mass of stone, weighing perhaps a hundredweight, saying that it was a pity to break up anything "curious," as, said he, "some people set 'count upon ever such odd things," and he could not make out some "ter'ble queer marks about it." On my cutting carefully into the stone, a magnificent crustacean of the lobster species (now known as the *Hoplopareia Saxbii*), measuring a foot in length, became gradually exposed. Every original mark of the shell was perfect, and it remains, perhaps unique in its beauty and value, as a treasured gem in our family collection. But the reader must not imagine that the mere sight of this relic of a remote antiquity conveyed an impression of singular intrinsic beauty, although we use the term conventionally; but let us briefly examine the associations inseparable from its discovery, and we shall find enough to lead to the loftiest speculations to which the human mind can aspire. (We discard as frivolous the mere term "handsome fossil.")

As an example.—The specimen was found in a stratum below the "free stone" of the upper green sand (the "fire stone" of Mantell); it consequently had lived in one of the exceedingly ancient seas. It had died suddenly and without violence, for not a limb nor a claw was distorted. It had been enclosed in a sudden envelope of very muddy water, and it thus became imbedded. In course of ages the mud became stone. Some terrific convulsion of nature afterwards broke this bed into fragments, which were rolled about and water worn through long succeeding ages; until, at some subsequent change in the earth's surface, the fragment in which our crustacean was inclosed became again embedded in strata that formed what is now called "green sand;" in which the said fragment was found as one of the isolated masses called "whil rag stones," the general carbonaceous matter found in which probably derived its origin from the destruction of other animal substances. It would, therefore, be saying very little to assert that this creature lived long before Adam was created—countless ages before,—for it was in the green sand strata, which existed long before the chalk hills were deposited, and therefore was much antecedent to that state of the earth's surface on which Adam was placed!

Such may be taken as a sample of the pleasant interruptions which will unavoidably vary our occupations upon the coast. Therefore, we will hope to indulge in cheerful talk, and dispose of incidents as they occur, for the mind is proverbially like the bow,—the more powerful as we judiciously relax it.

Never was a greater mistake than the prevailing notion that what is scientific is essentially difficult. If I wish to reach the roof of my house and have not patience to proceed by a staircase, why should I declare the attempt difficult or impracticable? I am afraid that in like manner our prejudices and opinions too often owe their origin to the nature of the means we use in attempting the hill of science.

It would be wrong to enter upon details of hydrography and geology for our special purpose without the assumption of only such an amount of preparation as is usually to be found in a general reader. This will be borne in mind on every occasion. The opposite extreme would be to deprive many an intelligent inquirer of his object. Especially will it be convenient first to refer briefly to a few facts connected with the earth's surface.

Those who enter upon the subject of geology are liable to over-estimate the knowledge which the human mind has hitherto acquired upon the subject. The most learned in the science will tell you that much has recently been done by English and foreign observers, but that still we absolutely know little of what is called the "crust of the earth." If we, as a parallel case, examine a rusty cannon-ball, the aspect of the outside would give a person unaccustomed to the appearance of oxidized iron but a vague opinion of the nature of the body forming its substance, inasmuch as the exterior would be a compound derived from the action of air and moisture thereupon. Now, this "rust" corresponds in some measure with that portion of the earth which is the object of our examination, so far as regards geology,—except that the geologist cannot penetrate so deeply into the earth's crust, in proportion to the earth's diameter, as he can into the rust of the cannon-ball. Certain protrusions of once molten rock reveal, it is true, the nature of a somewhat deeper portion of the earth's mass; but it will give a tolerably accurate notion of the state of our knowledge if we take the following into consideration.

The deepest mine in the world is considerably under, say 3,000 feet, and the highest known mountain is not six miles in height; the deepest soundings of the ocean have not, I believe, exceeded  $5\frac{1}{2}$  miles. Hence we may say, speaking broadly, that the limit of thickness possible to be examined by the eye of man is about a dozen miles. By reasoning on the accumulations of strata and their relations to each other, it is just possible to infer a knowledge of greater depths. But to our powers of visual examination there is manifestly a limit.

Now, adding the height of the highest mountains to the lowest depths hitherto examined, we are led to the following conclusions. If we lay our pocket card (vertically to the floor) along the circumference of a round table four feet in diameter, the thickness of the card will pretty accurately indicate the comparative depth to which man can observe the crust of the earth! And, further, this outer film was formed much in the same manner as the rust on the cannon-ball. "Air and moisture" caused it in each case alike; although in the earth's surface mechanical and chemical agencies,—such as action of and subsidence from water, and volcanic operations, &c, have displaced,—broken up,—again placed in mechanical suspension in water,—again deposited,—again and again, through countless periods, subjected it to alternate disturbance and repose, until at last, when consolidated by time into permanent strata, or "beds," as we call them, dominion over them was given to Man, made in the image of his Maker; and the riches of their varied materials, so wonderfully provided, were

converted by him into the necessaries and luxuries of life, and their surfaces contributed all that a beneficent Creator saw fitted for him and for animal and vegetable life. Of course the continued action of water modified from age to age the outlines of the portion existing as dry land. Now, hydrography treats of such outlines, but more particularly has reference to the submerged portions of the globe.

The most important of the recent discoveries connected with the depths of the ocean and the form of its bed, have been lately illustrated by me (under the word "Soundings") in the *Cyclopædia of Arts and Sciences*, where they are projected to scale. These bear so strongly on the question of coast lines and their changes, by indicating the main direction of certain currents and "scourings" of sea water near the coast, that attention to them is not only essential but exceedingly interesting. In my own experience, and as regards our own shores, two things have contributed greatly to the development and confirmation of the opinions and results about to be recorded in the *Nautical*.

In the first place, the very useful remarks printed in the *Tide Tables* issued annually from the Hydrographic Department, and calculated and inserted by Staff-Commander Burdwood, R.N., and headed "Set of the Tides along the Southern Coast of England," gave an unexpected and independent check upon deductions which I had arrived at from totally different data,—and it will be curious to see, onward, the scientific value of these; and, secondly, I have derived great benefit from the habit of colouring my charts in such manner as to read at a glance, in the depth or lightness of colour, the various depths of the sea bottom.\*

The shores of England are so varied in character, and evidence such extraordinary facts from the operation of the waves of the sea, that rather than attempt a vaguely general description of the changes which must have occurred in the whole circuit of Britain, it will better suit the purpose in view, viz., that of offering a few well digested remarks which will be available upon almost every coast, if we select some particular locality and endeavour to work out in sufficient detail what may have been the gradual progress of change which has given to such part of the coast line its present aspect and boundary.

Now, no part of the globe furnishes a district better adapted for illustration of the subject of changes than our own coast of the English Channel. Not only are circumstances connected therewith which show, to a great extent, the effects of constant tidal operations, but it is a portion of the earth's crust in which nearly all the principal strata of the globe, from the very lowest rocks up to the newest "tertiary," may be examined *in situ*, in their elegant sectional escarpments. We take, therefore, this appropriate coast for our investigations.

The very thought is suggestive of pleasure, for it will be the pursuit of science under favourable circumstances. During my rambles, scarcely a trifling pastime can be mentioned at which, while luxuriating in a cool and invigorating summer breeze, I have not noticed men

\* Vide word "Chart," in *Encyclopædia of Arts and Sciences*.



of years, and talent, and reputation, engage in upon a sea coast. When the mind is pleasantly absorbed in an outdoor pursuit it is all "holiday." What care we at such times for the exhibition of somewhat (in themselves) undignified hilarities, when our ostensible object is pleasant scientific inquiry? Inquiry, moreover, entered upon with a predetermined resolution of enjoyment! No sooner does the projecting angle of a cliff screen us from the eyes of fellow men than we are new creatures. Otherwise, for instance, how can we explain the fact that two middle aged and really respectable men were, on one occasion, seen playing at pitching heavy stones alternately at each others adopted stone, and following up the "game" for a mile or so along a quiet, unfrequented shore with all the delight of village boys? Who will declare that each might not blamelessly have been an M.A., M.D., or B.D., or possibly a C.B., or even a D.D.?

And, again, I remember, on another occasion, seeing, long before they saw me, four or five evidently young gentlemen, upon a beach, deriving screaming amusement from pelting the remains of an old weather beaten tin kettle,—the explosion of their mirth occurring at the precise moment when a lucky hit with a small stone struck the "target" from its position just in time to deprive a heavier stone of the honour of victory. Nay, I even remember the exclamation which broke from one of them as he, wiping his brow, loudly declared it "jolly fun."

Moving in our usual spheres, restraints and necessary formalities tie us to conventional precisions; but imagine a ringing laugh, a boisterous call, or a dodging race, indulged in by the serious looking frequenter of a London promenade! Verily, that which would there be a gross indecorum, becomes a legitimate amusement on the shingle beach of a coast, where nobody sees you. But I must not forget that eyes are upon me, and therefore resume.

It is worthy of note that dry land, as we now see it, is of very variable age. Long after the stratified beds were deposited, molten masses of granite forced their way upward, breaking through strata, leaving them changed, distorted, and dislocated. Some of the most remarkable mountain ranges of Europe owe their elevation to this cause, and are of a comparatively very recent date. This upheaval of molten matter need not surprise us when we learn that the crust of the earth surrounds a mass in a state of intensely heated fusion; nor need even this alarm us, since Mr. Hopkins seems to have proved that in consequence of the gradual cooling of the outer portions of the earth, such a terrific nucleus of fire is scarcely within a thousand miles of the earth's surface.

The examination of a coast line forbids the limiting of observations to the precise locality, for there we perhaps only see the effects of causes to be sought for hundreds of miles away. This is one peculiarity of the subject. Indeed the question of changes in the coast line seems to hold an uncomfortable berth between geography and hydrography. The want of a term of designation for the science which considers the wave-eating power may have deterred many geologists

who are inexperienced in hydrography, and many hydrographers who are but little acquainted with geology, from entering upon useful investigations,—why not give it a specific name? Until a better is found, I beg to propose, from the destructive action of the waves of the sea, to call it “Undavorology.”\*

I am prepared to show that the recognition of undavorology (or whatever we are to call it) as a distinct science is much called for. Our best writers on geology speak of the alterations in a coast line as a consequence of what has been, strictly speaking, geological disturbance, but they dispose of the question rather as regards the gain or loss in the *quantitative area* of land or sea, than with reference to any actual and detailed accuracy of outline or probability of change; while hydrography only notices the *position* of such outline as a local and isolated fact, irrespective of any geological considerations.

When hydrography forewarns the mariner as to decreasing depth of water on “bars,” or shiftings of an entire channel (as it did in the lamentable case of the *Orpheus*), the *cause* of such change falls not within its reasonable province. A branch of science is therefore needed to assist the two.

Now, what would not have been the value of the newly proposed science of undavorology, had it only been cultivated as such during the past half century? We cannot be always re-surveying at home and abroad; as things are, a correct chart, once produced, does duty for fifteen to thirty years, receiving such additions from time to time as accident or occasion may suggest; but the discovery of perfected changes often takes us by surprise when we have no data, and no previous especial investigations from which to expect such changes.

As an instance,—it is not five years since certain experienced nautical men and talented engineers of Liverpool were, with some anxiety, speculating upon the changes which were supposed to be in progress, threatening the very permanency of the depth of water in the important estuary of the Mersey. And again,—not fifteen years since, I carefully surveyed a few miles of shore on an exposed part of our southern coast, in order that posterity might possess a datum by which to test the action of the waves in that district. I selected, upon the shore, enormous blocks of solid stony rock from the toughest beds of the upper green sand, as what I then expected would mark for at least a century the “stations” of my survey. Last year, several of these were found to have gone altogether, from the encroachments of the sea—(I will again refer to this in its proper place). I could, of course, retrace their position. I took the precaution at the time, of depositing a copy of my survey with the clergyman of an adjoining village, for place among its parish records. Now, had similar records from various parts of our coast, during a period of, say fifty years, been in like manner preserved and deposited, invaluable would such now prove to both geologist and hydrographer. From their united evidences,

\* From *Unda*, wave, and *Voro*, eat into, devour.

every hydrographic fact would then have a distinct relation to future utility.

The well appreciated vigilance of our hydrographic department duly noted the change in the position of the Manukau Channel, but the *cause* of that change being in obscurity, who can tell the probable nature of its next variation? and why we may not even suspect the channel's ultimate annihilation? The question bears tremendously upon the prospects of colonization, and, as a general principle, the mercantile interests are largely involved in the consideration. Did we, in this instance (which, of course, is only used in illustration), know the *cause* of change, we might be led shortly to a detection of the general nature of the water-action operating stealthily upon the whole West coast of New Zealand.

And again,—The Trinity Board frequently see occasion to alter the position of their buoys, on account of changes in the situation of dangerous sandbanks. Were it the province of any science to examine into and record the causes of such shifts of sand, a regular system of valuable detection of expected changes would, in the course of a very few years, be developed,—a system which the ablest geologists of the age would feel interest in promoting and perfecting.

I hope the observations which I propose to have the honour of laying before your readers in succeeding pages will, from their very nature, absolve me from any possible imputation of presumption. But I look upon the word "hydrography, as indicating a merely infant condition of a rapidly progressive intelligence; while the science of "undavorology" (if such it may be called) is destined to extend beyond precedent the knowledge of those slow but incessant mutations in the earth's surface, which, however comparatively small in the daily or yearly progress, are, as local questions, of great importance to us, while they are existing analogies to nature's former operations upon the grandest scale, serving, moreover, as an impregnable basis for the structure of and support to the noble science of geology.

(To be continued.)

#### THE WESTERN DIVISION OF THE MEDITERRANEAN.—*Gales of the Gulf of Lyons.*

(Continued from vol. xxxii, page 654.)

Admiral William Henry Smyth, whose name, all the world knows, has long been connected with Mediterranean hydrography, has made some valuable observations on the winds and weather of this sea. In his work, entitled *The Mediterranean*, we find the following remarks on the gales of the Gulf of Lyons.

"One of the peculiarities of this gulf," he says, "is the sudden

rising of its waves, and their attaining a size not at all proportionate to the strength of the winds. Both their amplitude and elevation are greater than could be considered to result only from the action of the wind on the waters of the gulf; and their increase under a gale cannot be regarded as uniform. The absolute height of the waters from the trough to the crest of the wave in severe weather cannot be much less than thirty feet, even close to Provence, where Count Marsigli pronounced that in a very violent tempest they only rose to seven feet above the natural level of the sea. The waves of the Mediterranean, in general gales, may be estimated between fourteen and eighteen feet in height, and are often, from *want of range* in some parts of the short seas, called 'chopping.'

"Towards the close of the war many ships of our Toulon fleet were struck by the electric fluid while cruising off Cape Sicie; among which those fine three-deckers the *Hibernia*, the *Ville de Paris*, the *San Josef*, the *Union*, the *Ocean*, the *Barfleur*, and the *Royal George*, which, together with several of the two-deckers, besides having men hurt, received very considerable damage in gear and spars between 1811 and 1814.\* In the beginning of 1813 Sir Edward Pellew anchored off the mouth of the Rhone with thirteen sail of the line, and there watered: but they had to ride out a very heavy gale of wind with two cables on end and topmasts struck. Of this blockading force one half were damaged by lightning, and at least five ships were obliged to shift their topmasts.

"This gale commenced from the South and sent in a heavy sea; but on the 10th it blew violently from the North, and then the water was comparatively smooth: so far, therefore, it may be considered a veering storm; but though some other Mediterranean gales within my experience approximate even nearer than this towards the rotatory, the subject has not yet been properly discussed."†

Of this Gulf of Lyons the Admiral remarks—"The coast of France forms a deep bight between the Pyrenees and the Alps, which from its gusty turbulence, even in the summer months, has been immemo-

\* And which, we may add, is now a circumstance unknown to the Royal Navy since their protection from lightning by the ingenuity of Sir William Harris.—ED.

† This remark of the Admiral is worthy the attention of our Commander-in-Chief in the Mediterranean, and officers who might turn their attention to this subject, which "has not yet been properly discussed." We have no doubt that in the main many of the Mediterranean gales are rotatory, the centre being sometimes to the northern and sometimes to the southern side of that sea—a circumstance which the changes of the wind would indicate. But we quote the Admiral's hint for the attention of our officers, knowing as we do that Admiral Fitz Roy is ever ready to discuss their observations. The hurricane theory must be well known among our present naval officers, as it is to be found in almost every work, besides our own little *brochure*, entitled *The Storm Compass*, now in its second edition, published even in Spanish, at the hydrographic office of Madrid. The Mediterranean gales have not been "properly discussed." Colonel Reid seems to have been of opinion that the Mediterranean gales were rotatory.—ED.

rially designated the Gulf of 'Lions.' Here, when a breeze springs up in the afternoon and freshens as the sun goes down, it may be expected to blow strong at midnight. Hard gales are preceded by a heavy swell and surf, in character not unlike the rollers of the South Atlantic Ocean, though of inferior volume.\* In this notorious gulf, so proverbial for the treachery of sudden anemological changes, I have weathered some tough gales, and can therefore render personal testimony to the violence of its squalls and the furious ebullition of its waters.

"In March, 1795, a French man-of-war, falling into the Gulf of Lyons in a violent gale of wind from the S.E., which chopped round to S.W., was quickly dismasted and nearly torn to pieces: here she lay, utterly prostrate, for six days. It was in this gale that the *Illustrious*, a fine seventy-four, which had received damage in the recent battle in the Gulf of Genoa, having struck the shore, and there being no hope of saving her, was abandoned and burnt. Every seaman will recollect that on the 22nd of May, 1798, Nelson was assailed by a sudden storm in this gulf, which carried away all the *Vanguard's* topmasts, broke the foremast into three pieces, sprung the bowsprit, washed a man overboard, killed a midshipman and a seaman, and wounded several men. The ship, which acted her name at the Nile only two months afterwards, rolled and laboured so dreadfully, and was in such distress, that Nelson himself declared 'the meanest frigate out of France would have been a very unwelcome guest.' And in the winter of 1808, when his true and tried associate, Lord Collingwood, was blockading Toulon, with his flag flying on board the *Ocean*, a roomy new ninety-eight gun ship, he was assailed by a succession of hard gales. In one of these gales that noble three-decker was terribly crippled, and so nearly lost that I here give the words of a spectator, Captain Fead, who thus wrote to me in August, 1845:—

"I was standing on the *Royal Sovereign's* forecastle, and at the same time looking at the *Ocean*, which was then about half a mile on our lee bow and on the starboard tack. At that moment she was struck by a very heavy sea, which threw her on her beam ends,—so much so, that several of our men called out "the Admiral's gone down." But in a few seconds I had the pleasure to see her right again. We understood afterwards that the blow had completely disabled her; and that nearly all the bolts of her iron knees were broken. It was the most awfully terrific scene I ever beheld. Lord Collingwood told Admiral Thornborough, a short time after, that he thought the topsides were actually parting from the frame of the ship; and that the heavy guns were suspended so nearly vertical that the effect

\* This remark applies, we really believe, to all oceans. The gale which wrecked the *Reynard*, commanded by that excellent officer Captain Cracroft, was preceded by a heavy swell which came before the wind. And on the North coast of Spain the swell has been known commonly to precede the wind by twenty-four hours!—an interval certainly long enough for a warning; and, as might be expected, when it is N.W. it inundates all the ports on that coast.—Ep.

was alarming. This happened in December, and we must have been in about the middle of the Gulf of Lyons, with the wind at N.W.\*”

We think here is now sufficient warning for the navigator to take care how he gets into the Gulf of Lyons; but we must give the Admiral's last caution, bearing as it does on the proper use of the barometer in the gulf. He says—

“I afterwards visited the gulf in very passable weather; but on the 3rd of October, 1820, while standing for Marseilles, in H.M.S. *Aid*, the atmosphere became so very *transparent* as in itself to be of a suspicious character. Yet the peculiar beauty of the romantic hills before us, the glorious sun above, and the smooth, glistening fluid around, conspired to lull apprehension. But when, about three o'clock in the afternoon, the Lieutenant of the watch entered the cabin with, ‘Sir, a light breeze is springing up, shall we set topgallant studding-sails?’ I, having that moment looked at the barometer and found that it had suddenly fallen 0·3 of an inch, with a surface still extremely concave, replied, ‘No, turn the hands up to shorten sail, and we'll get the topgallant yards on deck!’ This answer surprised him; but all the officers being well acquainted with the reliance which, both from experience and reason I placed on my marine monitor, the preparations were briskly executed to the desired extent, although there was no other discernible aspect of mischief.

“Scarcely, however, was the canvas reduced, and the ship under command with close-reefed topsails, before a gust rushed so furiously upon us, that had we made sail instead of shortened it, the masts must have been carried away, if that were the least accident. As usual with northerly gales in this gulf, great numbers of birds were blown off, which, though of very opposite characters, were all subdued out of their several instincts, and laboured to find a common shelter on the decks. That same night we lay to\* (the wind), with the sea occasionally making fair breaches over us; but from the premonition thus obtained, excepting a boat washed from the quarter-davits, a jib-boom sprung, and the weather bulwarks stove in, we sustained scarcely any damage.”

Let the seaman, we say, among other warnings, attend to the behaviour of his friend the barometer, and profit by this lesson.

#### *Currents.*

The currents on the coast of Liguria are nearly periodical, excepting at some intervals in which the boisterous weather changes their direction. From the River Magra to the sand of Voltri they run S.E. and N.W. always; from Voltri to Savona they run S.W.; from Savona to Cape Noli they run South; from thence to Cape Male South; and from this last cape to Antibes W.S.W. These directions, almost always regular and constant, are sometimes modified and re-

\* We insert the word without the ellipsis of the expression “lay to” or “lay by,” common enough in our sea dialect, but sometimes, with awful want of perception written “lay-too,” and a misconception of the ready, flexible character of our maritime language which has been the admiration of great men.—Ed.

versed by the strength of the prevailing wind. Their general strength may be considered to be about five miles a day. But they are strongest in the summer months and least in those of winter; but off the points and capes of the coast their velocity is considerably increased, and off them they sometimes form *escarceos*.

Outside of the gulf they assume various directions, as impelled by the wind, for they are generally driven before it and attain their strength according to its force. And on this account, in order to cross them in bad weather, it is necessary to do so with the utmost rapidity, so as not to allow the vessel to get embayed without being able to extricate herself. This is a precaution which must be carefully observed with the winds blowing into the gulf, for they produce a very strong current, and a vessel crossing it should have good speed on her, so as to do it in the least possible time, and so avoid being set to leeward.

The fact has been established by observation that in all gulfs or large bays the winds blow from the centre towards the different shores, and that vessels which enter them close-hauled soon run free. And with this fact it is easy to take the Gulf of Genoa, and instead of being close-hauled, a vessel should run free, and although at first to leeward of her course, will be certain to make up for it afterwards. The same may also be done in the Gulf of Lyons.

On the coast of Calabria the anchorages must be considered as temporary, in consequence of the depth which prevails in them and the eddies and currents to which they are liable. Thus vessels only anchor there from necessity, either on account of a sudden change of wind or an unexpected calm, or even a stream of current setting the ship on shore. Vessels, if possible, should prefer anchoring off the town of Catona, East and West from Messina, or a little to the northward, in twelve, eighteen, or twenty fathoms water; also off Nuestra Senora del Arco, on the beach of Reggio, or off San Juan, between the tower of San Augusto and Cape Pellaro,—at all of which anchorages there is the same depth of fifteen and twenty fathoms at half a cable from the shore. And as the depth increases with considerable rapidity it is indispensable in some cases to secure a hawser to the shore, for which purpose there are pillars placed; and it is as well even to lay an anchor out on the beach, to avoid losing the anchorage. At all times it is necessary to be prepared to make sail the moment that the cause of anchoring has ceased.

The Strait of Messina must be considered as a part of a river subject to tides; for although these do not prevail in the Mediterranean, it has been observed that the currents from the midst of this sea preserve a uniformity with the moon's motion.

From these observations it has been concluded that the establishment in the strait takes place at 9h. a.m., that is, that the flood or current towards the North is at its highest elevation at 9h. It remains stationary nearly an hour, and then begins to fall, setting to the southward, until 4h. p.m.; beginning again to rise at 5h. p.m., and showing the same interval later as the ordinary tide. This uniform movement of the water observed in the middle of the strait is in every

respect opposite on its two shores, where a counter stream follows the contrary direction to the flood, spreading over a zone more or less wide, according to the configuration of the strait; but which is scarcely a mile in breadth. Therefore, when the current of tide in the middle of the strait is setting to the North, the counter-current is running on both the shores, and *vice versa*: from which phenomenon the pilots derive much advantage. The mean rate of the current is reported to be from three to four miles an hour, but is considerably increased when it runs with the wind.

It is easy to perceive what a variety of eddies are formed in the narrows of the strait by the three streams just described. And for this reason it would be imprudent to attempt the strait at night without a pilot, even with a fair wind. The wind may fall suddenly, or undergo such changes from the shores of the strait as would compromise the safety of a ship, from which only a pilot could rescue her, taking advantage of the counter-current.

A vessel from the westward or the northward will find a pilot a few miles to the northward of the Faro (light); and from the southward, will find him three or four miles South of Messina.

When the wind and current in the middle of the strait are favourable, vessels take the mid-channel without obstacle. But if the current is contrary, they adopt either one shore or the other for the counter-stream, generally preferring the Sicilian shore.

With a foul wind the difficulties of navigation increase; and when it is southerly they anchor to the N.W. of the lighthouse, or they keep under sail off and on the Sicilian shore, between the Faro and the Lipari Isles, until the wind changes. Again, if the wind is northerly, they bring up between Faro and Messina, off Nuestra Senora de la Grotta or the farm of Ganziri. And when the foul wind is manageable they work against it, preferring making short boards to keep in the favouring counter-current, but which can only be done by daylight or in fine moonlight nights.

It would be no easy matter to give a correct idea of the currents of the Tuscan archipelago. Those which are observed, and which sometimes run about half a mile an hour, frequently take opposite directions, and mostly that of the wind, and even in calm weather will precede the wind and the direction which it will take. Thus, when northerly and N.W. winds blow, and the water falls in the gulfs of Lyons and Genoa, the waters collecting in the channels between the islands run swiftly to the South and S.E., according to their configuration, increasing in velocity according to their breadth; while, if the wind is from the opposite direction, the currents are equally strong to the North, filling those gulfs. Fortunately for the navigator, most of the islands are high and conspicuous, and not far apart, giving the means, by cross bearings, for a vessel at all times to know her position, although the weather may not be very clear.

In the same manner the currents met with in the channels formed by the Ponza Isles originate from the same causes which produce those of the Tuscan archipelago. They generally run with tolerable ra-



pidity to the S.W., excepting in the months of August and September, when they take an opposite direction, but more or less deviating from the effect of the wind. Those which are the most prevalent are from S.W., which are also on shore winds along the whole Italian coast from Genoa to Messina, and are especially dirty and violent, prevailing nearly the whole of the autumn. During the wind they prevail alternately with off shore winds, which are also very strong, especially out of the gulfs and bays of the coast.

On the South coast of Sicily the currents are very variable, generally following the direction of the prevailing wind. Nevertheless, in normal times, and when the sea is quiet for several days, an easterly current will be observed running from half a mile to a mile an hour. In the Malta Channel the current runs to the S.E. with so much strength at times, that vessels beating to windward in it are obliged to carry a press of sail, so as not to fall to leeward; and those standing across from Valetta to Cape Passaro and back with N.W. winds, run a point to leeward of their course to secure their ground.

There is a phenomenon on this coast called by the natives *Marobia* or *Mare ubbriaco*. We give our Admiral's graphic account of it in his own words:—

“The Marobia is an extraordinary phenomenon, most probably deriving its name from *mare ubbriaco*, or ‘drunken sea,’ as its movement is apparently very inconsistent. It occurs principally on the southern coast of Sicily, and is generally found to happen in calm weather, but is considered as the certain precursor of a gale. The Marobia is felt with the greatest violence at Mazzara, perhaps from the *contour* of the coast. Its approach is announced by a stillness in the atmosphere and a lurid sky; when suddenly the water rises two feet above its usual level, and rushes into the creeks with amazing rapidity, but in a few minutes recedes again with equal velocity, disturbing the mud, tearing up the seaweed, and occasioning a noisome effluvia. During its continuance the fish float quite helpless on the turbid surface and are easily taken. These rapid changes (as capricious in their nature as those of the Euripus) generally continue from thirty minutes to upwards of two hours; and are succeeded by a breeze from the southward which quickly increases to heavy gusts. This phenomenon may be occasioned by a westerly wind blowing at some distance in the offing, towards the North coast of Sicily, and a S.E. wind at the same time in the Channel of Malta, the meeting of which would take place between Trapani and Cape San Mario. I advance this idea because the westerly wind most usually precedes, and the S.E. succeeds the Marobia.”

The Admiral adds to the foregoing, that—“It was during a turbulent Marobia that H.M.S. *Raven* was lost on Cape Granitola, on the 6th January, 1804; and that this was the unusual current of Captain Swaine's defence at the consequent court-martial of inquiry into the loss. When very violent its effects of action and reaction are felt even on the coast of Barbary.”

But, speaking of the great current, the Admiral makes this im-

portant remark,—“These *sea-motions*, as our early hydrographers named them, are everywhere sensibly affected by the prevalent winds; as is strongly instanced in bights, inlets, and channels:—of which the Gulf of Lyons, the Riviera of Genoa, the Faro of Messina, the upper portion of the Adriatic, the Gulf of Corinth, the Euripus, the Syrian Sea, and the two Syrtes are examples. Strong ripples, resembling breakers, are frequently caused in the vicinity of the larger islands by the waves of one particular division meeting those of another: often breaking in so confused a manner as to account for many of the ideal shoals which find places on charts, to the confusion of navigators.”

(*To be continued.*)

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#### CONTENTS OF THE BOOBY ISLAND NOTE BOOK.

Our friend Captain Kennedy has transmitted us the Note Book which has been lying at the post office at Booby Island for three years. We insert here the principal contents of it as curiosities in their way. Some of the notes of which will prove useful.



*Booby Island, Post Office.*

18th May, 1860.

Ship *Medway*, of Scarborough, James B. Kennedy, left Sydney on 1st May, 1860. Passed through the Coral Sea without seeing anything. From 15° S. followed the *Cumberland's* track. Saw the land of New Guinea from Keppel Point to Cape Possession. Struck soundings in 53 fathoms to the East of Bramble Cay on night of Sunday, 13th inst. Anchored at Stephens Island on Monday. Laid at anchor all the 15th; weather very thick, with thunder and rain; wind S.W. to N.W. Wednesday, 16th, anchored under Poll Islet, and on the 17th anchored at Booby Island. Whilst passing through Prince of Wales Channel saw the French ship *Chatillon* in difficulty near the reef opposite Ipili Reef. Hove to under Goose Island until she came clear and ran down to us. Bligh Entrance has everything to recommend it, and the last Admiralty charts appear to me perfect. I leave a chest, a *Prayer Book*, some newspapers, and sundry stores,—also this book and pens and ink.

JAMES B. KENNEDY.

Le navire Français *le Chatillon*, de Bordeaux, Capitaine E. Bounin, a mouilli sous Booby, le 17 Mai, 1860. Tout allait bien abord. Salut à mes confrères.

E. BOUNIN.

Pris la lettre déposée par mon ami Capitaine De l'Amelie.  
Allant de Newcastle à Point de Galle.

Le navire *la Confiance*, de Bordeaux, Capitaine G. Equin, a mouilli à l'île Booby, le 18 Mai, 1860. Venant de Melbourne et allant à Calcutta. Tout bien abord.

G. EQUIN.

Départ en même temps.

Le Capitaine Equin a vu a son entré dans le Detroit (Raine Island) un grand navire sur les récifs, noyant que son mât d'artimon et sa voile large, je n'ai pu le reconnaître et n'ai vû personne del'equipage il devait y avoir peu de temps qu'il etait a cette place.

G. EQUIN.

*June 12th.*

Ship *Thomas Ann Cole*, of and from Melbourne, bound for Calcutta. Left Melbourne 26th April; off Sydney Heads 29th; and entered the Barrier by Raine Island the 11th May at 7h. 30m. a.m. Saw a large ship ashore on the North side of the entrance, with fore and mainmast gone; mizen topsail and spanker set. Anchored off Cairncross at 4h. p.m.; and hove to off here at 4h. p.m. this day, having been only nineteen underweigh. Cargo horses (two dead). Passengers:—Mr. Murray, Mrs. Amoury, and Lowe, and Miss Berry. All well.

WILLIAM J. LOWE, *Master.*

Brig *Alma*, of Singapore, from Sydney to Singapore. Left Sydney May 30th, 1860. Entered the Barrier by the Raine Island Passage, June 13th, at 10h. a.m.; anchored at Bird Islands, 5h. p.m., June 14th; anchored in Blackwood Bay, 3h. p.m.; and Booby Island 15th.

F. S. PEARSE.

H.A. barkschip, *Josepha Louisa*, aangekomen te Booby Eiland, 12 van July, hebbende genomen Bligh Entrance, riuts byzonders waargenome.

A. MULJSFOR.

*Booby le 12 Juillet, 1860.*

Le navire Français de Bordeaux est sortie aujourd'hui hereusement du Detroit de Torrés.

Le Capitaine JULES CHAPERON.

Le navire du Capitaine Jules Chaperon s'appelle *le Gottfried*, (oubli).

*Booby Island, July 12th, 1860.*

Barque *H. E. Spearing*, of New Orleans, U.S., from Newcastle, N.S.W., bound for Singapore. Entered Raine Island Passage July 10th; anchored Cockburn Reef 10th, and Turtle Head 11th. Landed here at 4h. p.m. July 12th. All well.

JOHN ROGERS.

*July 19th, 1860.*

At 2h. p.m. the undermentioned ships anchored under the lee of Booby Island:—*Storm Cloud*, of Glasgow, commanded by Captain Campbell; *King Lear*, of London, commanded by Captain Crondace.

The former ship left Otago 27th June, 1860. Had contrary winds, and compelled to pass East of New Caledonia and Loyalty Islands. Thence shaped a course in the S.E. Trades direct for Eastern Fields. Which position was gained on the 16th July, at 5h. p.m., but no reef could be discerned; showers intervening, made it difficult to make out broken water. Hauled to the North, and thence shaped a course on the parallel of  $9^{\circ} 15'$  S. for Bramble Cay and Bligh Entrance; which was made, 17th July, at 11h. a.m., and the ship anchored same evening at Rennel Island, at 6h. p.m.

The *King Lear* sailed from Sydney, July 1st, and steered through the Coral Sea, following Captain Denham's, R.N., late instructions respecting the courses down on the meridian of  $157^{\circ}$  E., and thus proceeded on N.W. for the great N.E. channel called Bligh Entrance. Saw nothing on this track until the morning of the 17th July, at 8h. a.m., Anchor Cay Reefs were made out, and a course steered into the channel; and at 6h. p.m. same night anchored under an island (nameless) abreast of Dove Islet. 18th.—Wind southerly; did not way. When the *Storm Cloud* came up and anchored in company. 19th.—At 6h. a.m. wayed in company and proceeded through the channel by Bet Island and Ninepin Rock to Double Island. To our great astonishment, both ships passed a reef not marked on the most recent Admiralty charts of Torres Strait. The rough position of reef is nearly in a direct line between Mount Ernest and Double Island, and just a little to the northward of the course from Ninepin Rock to Double Island direct. It seemed about half a mile long, N.E. and S.W., very narrow indeed, and about four feet under water. The sea broke heavily on it; the wind was fresh at S.E. Passed through Prince of Wales Channel at 10h. 30m. a.m., and anchored at 1h. 30m. p.m. off the island here. Made this report at 2h. 30m. p.m. We have both much pleasure in subscribing to Captain Kennedy's remarks, of the *Medway*, in reference to the great facility of the navigation of the great N.E. entrance. All well on board both ships; and landed a little paper, tobacco, matches, &c. Found a good supply of stores in other respects.

WILLIAM T. CRONDACE, *King Lear*.  
JAMES CAMPBELL, *Storm Cloud*.

*Boobie Eil, 31 July, 1860.*

Brik *Zwaland*, Kapt Bloens, retrrokken van Nieuwcastle, N.Z.W.,  
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de 16 July, 1860, en posfurde den 28 July, 's na mid days ten 3° 30' en Vewamen ten 6° 30' by het mid del ref ten anker na ein koers ran Z.Z.W. ge stunedte hebben rer loor al daar en anker etrururde alhur den 31 July, 1860.

GEZAGO P. P. BLOEN.

Boby Is., Cap. M. Gantschaw, naw den Hamburg bark *Doratheä*, naw New Castle d 16 July, 1860. Passier te Rain Trisel dnen 28, 4 up p.m., und Boby I. e 31 July, 11 up a.m. Haf zimenharming Batavier. Ullar frast cru Leord.

M. J. GANTSCHAW.

21st August, 1860.

Ship *Margaret Mitchell* fourteen days at anchor at Booby Island. Encountered heavy gales on the coast of Australia. Found a small rock or reef about three-quarters of a mile from Cockburn Reef. All well.

DEWAR STILES.

September 4th, 1860.

Ship *Chinsurah* left Melbourne 16th August, bound to Kurrachee. Entered the Barrier Reef 2nd September. Anchored at Sir Charles Hardy Islands and Turtle Island. Reached Booby Island at 2h. p.m. this day. Saw no vessels coming through. Had fresh S.E. winds, and a heavy gale in 24° S. from the N.E. All well on board.

T. GIBSON.

Septembre 5, 1860.

Le navire français, *le Temmy*, de Bordeaux, parti de Melbourne le 15 Aout est arrivée à Booby Island aujourd'hui, ayant passé par le Bligh Entrance avec un tem superb. Rien de remarquable pendant sa traversé. All well on board.

A. PERRIN.

(Adieu E. Baudry, J. Barbeau.) (Compliments de Emerald hill.)  
(Les fruits étaient ils bons?)

H.M.S. *Herald* touched here on the 3rd of October, 1860. Left plenty of provisions in store for the careful use of the distressed. *Herald* had a very prosperous course of work, completing the chart of the Coral Sea since she left Sydney on the 17th August. Had the satisfaction of defining the Bowen Reef; touched at Raine Island, where she also left plenty of provisions. Made the middle passage from Raine Island to Mount Adolphus Island.

Found Flinders Reef to extend fifteen miles northward of those laid down. Called it "Herald's Surprise."

If this is noticed by a ship going to Australia, Van Diemen Land, or New Zealand, please to take and post the accompanying letter to Postmaster-General of Sydney.

H. M. DENHAM, Captain.

7, Octobre, 1860.

Le navire Français *Coromandel*, de Bordeaux, parti de Corner In-

let le 16 Septembre, est arrivé aujourd'hui 7 p.m. au mouillage de Booby Island. Tout allait bien à bord. Il a passé par Bligh Entrance avec beau temps. Il se dirige pour Calcutta, chargé de railway sleepers.

Il laisse une lettre pour Bruxelles qu'il prie le premier navire suivant de prendre. Il prend lui même celle laissée par le navire *Herald*, pensant qu'elle sera plus vite et plus surement rendue via Calcutta.

ED. BAUDRY, *Capitaine*.

Adresse de la lettre laissée, Mme. Ed. Baudry, Bruxelles.

Brig *Spec*, T. Eady, master, left Port de France, New Caledonia, bound to Batavia, on the 27th of September. Called at Captain Paddon's Station at Lizard Island; left Lizard Island on the 21st October. Called at Booby, coming in by the inner road, October 27th, leaving some provisions.

Passenger, Monsieur Camille Hoff, of Port de France, New Caledonia.

Pris les lettres adressées à—1. Madame Baudry, Bruxelles. 2. Madame Egaldemite, Podensac. 3. Barbeau, Esq., Mauritius.

Captain Eady intends to come back to New Caledonia by Bligh Passage in the middle of January next.

Cargo outwards, sandal wood and beche-de-merr. Cargo inwards, rice, sugar, &c.

T. EADY, *Master*.

For (Madras), India, ship *Bosworth*, of Sunderland. Left Cook Strait, New Zealand, on the 25th April, 1861. Entered the Barrier Reef by Raine Island at 9 a.m. May the 13th; at 4.30 p.m. anchored in 11 fathoms at the Bird Islands. At 6 a.m. May 14th, weighed anchor; at 5 p.m. anchored at Mount Adolphus in 7 fathoms. A few of the natives visited us and appeared inclined to trade. At 6 a.m. May the 15th, weighed, and at 11 a.m. anchored at Booby Island, being less than 24 hours under sail. Experienced very fine weather.

ALFRED NICHOLLS, *Master, Bosworth*.

Crew all well.

Barca Española, *Manuelita*, from Sydney to Singapore and Manila, May 25, 1861. Capitan ton peilotos seign (from el Estrech di Torres) por el Canal de Dagnel.

VIE. N. BURIAMANTEZ, *Capitan 1°*.

MARIAM ARECHAUAI A, *2° Piloto*.

MANUEL BURTAMENTE, *3° Piloto*.

*Ship Minden, Friday, 12th July, 1861.*

Entered the Barrier by Raine Island on Sunday, July 7th; passed through North Channel and Prince of Wales Channel; and owing to light winds did not reach here till to-day. Landed some water as found some of the casks empty. All well on board. Proceeding to Point de Galle.

E. H. MARSHALL, *Commander*.

John Pottage, chief officer, *Wrestle Castle*, John Wall, 2nd officer, ship *Agra*, Archibald Campbell, William Day, Thomas North, Alexander Macbeth, part of the crew ship *Wrestle Castle*, landed here on the 25th April, at 8 p.m., to look at the cave.

The barque *Mary Nicholson*, arrived here on the 24th July, and landed 2 casks of beef, 2 casks of pork, 10 tins of bread, 5 casks of water. The bread is landed at the N.E. side of the island, in a cave where there was a sandy beach. All well.

N. E. ROBINSON.

Brigantine *Carl*, 24th July, 1861, arrived in company with the *Mary Nicholson*. Entered the straits on Sunday, 20th inst.; had thick weather with rain all the way through. All well, thank God.

R. A. GUNN.

A. l. G. d. G. A. d. l'U.

Le 29 Mai, 1862, la barque Française *Celeste et Amélie*, de la Réunion, a mouilli sous l'Île Booby venant de Sydney et ayant passé par Bligh Entrance. Tout allait bien à bord,

Deux lettres ont été mise dans le livre, prière au premier navire qui les trouveras de les faire parvenir.

Le trois mâts Français *Marie et Louise*, de Bordeaux, Capitaine Bonnet, a navigué de conserve avec nous depuis Sydney. Tout allait bien à bord du dit navire.

AUS. ROSIERS.

Le Capitaine Malfoy, passager à mon bord, laisse une lettre pour ses collegues.

Adresse des lettres laissées,—M. Vial d'Aram, à Sydney; MM. Gaveaux, à Bourbon.

Barque Française, *Marie et Louise*, venant de (N. Z.), tenta la passage de Bass Strait et oblige de retrograder, retourné à Sydney et reparti de ce dernier port, en destination de Point de Galle, navigerant de conserve avec le navire Français *Céleste et Amélie*. Mouilli à Bramble Cay le 23 Mai, le 24 à Anchor, le 24 à Double, et le 29 à Boby. Ces deux navires partis de Sydney 28 Avril, '61.

G. BONNET.

September First, 1862.

Arrived here in the Bremen ship *Confucius*. Found everything in order, and wish all friends who ever should touch here to look out for food and necessaries. Leaving this for Macassar, I wish that every body may leave this place as jolly as your most obedient,

J. D. RASCHEN, *Commander Confucius*.

Barque *Jane*, of Jersey, from Port Adelaide bound to Madras, called here on July the 27th, 1861. Entered the Barrier July 23rd. Left 4 tins preserved meat on the East side of the cave.

THOMAS LE BAS, *Maseer*.

ED. LE GROS, *Chief Officer*.

*Booby Island, July 29th, 1861.*

Brigantine *Cheetah*, of Sydney, left Sydney July 10th, entered the Barrier on July 24th; July the 25th took on board the master, mate, four seamen, and three ladies, one gentleman, and two children, off Hardy Island, having been wrecked in the barque *Lady Kinnaird*, on the 17th July. The *Cheetah* is bound to Ceylon.

J. H. HOLFORD, *Master*.

*Booby Island, July 29th, 1861.*

Barque *Lady Kinnaird*, of Dundee, from Melbourne to Calcutta, with copper and horses, lost on Cockburn Reef, July, 16th, 1861. Got back to Hardy Isle, when she sunk in 7 fathoms. After being eight days on the island, espied by the schooners *Cheetah*, and *Marchioness*, of Sydney, bound respectively for Colombo and Mauritius. Twelve men to Port Louis. Myself, mate, three men, three ladies, two children, one gentleman, go to Colombo in the *Cheetah*. One of the ladies being confined on Hardy Island of a stillborn child is recovering fast, and will soon be well. Whoever reads this, report the same, and oblige your humble servant,

ANDREW CHRISTY.

*July 29th, 1861.*

Brigantine *Marchioness*, entered Barrier Reef by Steads Passage July 24th, 1861. Took half of the crew and passengers of the barque *Lady Kinnaird* off Hardy Island, which vessel was wrecked on 16th inst. The other half were taken on board the *Cheetah*. Left Sydney July 13th, 1861, bound for Mauritius. All well.

H. MORWICK.

*August 3rd, 1862.*

J. Martin, from Greenwich, barque *Clara Sayers*, and John Furn, two of the same barque, left water on this island.

Schooner *Native Lass*, of Sydney, entered the Barrier by Raine Island, August 19th, 1861. Thick, cloudy weather in the straits. Arrived at Booby Island 23rd August. Left Newcastle 1st August with 130 tons coals for the *Victoria* steamer, to be discharged at Sweres Island, Gulf Carpentaria. All well.

ALEX. PATON, *Master, Native Lass*.

Ship *Mangerton*, October 4th, 1861, seventeen days out, arrived here on Moreton Bay, bound to Moulmein. All well. Passed Raine Island on the last day of September. Landed some bread, meat and water. Took the mail bag of the H.M.C.S. *Victoria*, and a number of other letters.

J. PENNY.

H.M.C.S. *Victoria* arrived here, *en route* for Victoria from the Albert River, February 15th, 1862. Rockhampton and Queensland



Expedition started on tracks of Burke found on banks of Flinders River. All were well.

W. NORMAN.

*Friday, 9th May, 1862.*

Barque *Isle of France*, of Sydney, N.S.W., was at anchor here for 24 hours. Came through by Raine Island Passage; saw no wrecks. And now bound to China Sea.

M. ASHMORE, *Master.*

All well.

Brig *Wee Tottie*, of Hobart Town, Tasmania, called here on June 2nd, 1862. All well. Bound to Java. Wishes to be reported.

A. E. B. BROWN, *Master.*

P.S. Took two letters addressed, one to Sydney, and one to Bourbon.

A. E. B. B.

Ship *Theresa*,—Captain Kennedy passed through N.E. Channel, September 8th, 1862. Left in a cave on the North side, one barrel biscuit, 4 bottles rum, and 3 lbs. tea.

J. SPENCER, *Chief Officer.*

All well.

This book was taken off Booby Island on the 19th May, 1863, by me, just three years and one day after I left it there.

JAMES B. KENNEDY.



*Post-Office Cave on Booby Island.*

See further on Booby Island in our volume for 1857.

## THE PORT AND DOCKS OF BRISTOL.

A hundred years ago Bristol was only second to London in commercial importance. She traded with America, with the West Indies, with the coast of Africa, with the Mediterranean, with Newfoundland and Labrador, and had "Merchant-Adventurers," and "Trading Companies," little inferior to those of the City of the Thames. Bristol, in fact, had great advantages. The trade of England directed itself towards the west; and as the Bristol Channel opened itself into the Atlantic Ocean, Bristol traders saw good reason to believe that they would command the trade of Britain.

This anticipation has been disappointed. The port of Bristol during the present century has gradually, but continuously, declined. The foreign commerce of the port may be said to have been entirely lost. There is not at the present time a single ocean steamer sailing from the port of Bristol. Liverpool, Southampton, and even Galway, have been able to make and maintain a traffic under circumstances of disadvantage, which Bristol, with every advantage, seems completely to have thrown away. To explain how this has occurred it is necessary to enter into some explanations regarding the past and present state of Bristol.

If in ordinary society you should ask where Bristol lies, certainly eight people out of ten will answer "On the Severn." So old geography books used to teach, and so certainly a very large proportion of our population even at the present day imagine. But it happens that Bristol does not really lie on the Severn. Bristol lies seven miles up a little river which is a tributary to the Severn. This tributary, which is called the Avon, joins the Severn through a deep, precipitous gorge, in a narrow, tortuous, and romantic channel, in which the water rises at spring tides no less than fifty feet, and in which, as may therefore be well imagined, the tide runs with extraordinary velocity.

At the commencement of the present century docks were scarcely known. There were none in London, there were none at Bristol; there was only one, and that a very imperfect one, at Liverpool; there were none in any of the other British ports. At Bristol the greater number of vessels came up the River Avon with the tide, and discharged their cargoes alongside the quays. But there were many large ships the owners of which refused to allow them to come up the Avon, and to lie dry in the mud of that river at low water. These vessels, consequently, lay in the King's Roads, a secure anchorage in the River Severn, at the mouth of the Avon, and there discharged their cargoes into small craft, which carried the produce to the Bristol warehouses. The rise and fall of the tide in the Avon is so rapid that, except for an hour or two before and after high-water, ships of any considerable size cannot get into or out of Bristol, and this made it the more necessary to resort to lighterage.

At the commencement of the present century the Londoners, in consequence of the crowded condition of the Thames, obtained powers for the construction of docks upon the river. The Bristolians, in emulation of the London merchants, were not behindhand in their endeavour to obtain dock powers. In 1803 an act of parliament was passed (48 Geo. III., cap. 140) "for improving and rendering more commodious the Port and Harbour of Bristol." The preamble recited "that vessels are left dry at the quays, which prevents many foreign ships and others of a large construction from frequenting the port, and that there is not sufficient depth of water at neap tides to take vessels down the River Avon to sea, or bring them up on their return voyage, whereby favourable tides are frequently lost, and great expences, delays, damages, and losses are sustained, to the hindrance of commerce and the manifest injury of the port and city of Bristol." Legal documents are usually accused of being diffuse. It would probably be difficult to find a document of any sort which represented so graphically, or in so few words, the state of things which existed in the port of Bristol as does the preamble to this Dock Act of 1803.

Under this act a system of docks was constructed at Bristol. The River Avon itself, in fact, was what the Bristolians call "dockized;" that is to say, the main channel of the river was converted into a floating dock. The management of the Bristol Docks was vested by parliament in twenty-seven directors, one third of which number was to be elected by each of the three following bodies:—the corporation of Bristol, the merchant adventurers of the city, and the shareholders in the docks. But as each of these three bodies had very different interests, parliament also laid down a schedule of dock rates, from which, except under very special limitations, there was to be no variation. And "for the further carrying into execution the works and improvements aforesaid," parliament, with the consent of the citizens of Bristol, granted to the dock company a rate upon the then house and fixed property of that city amounting to £2,400 a year, or about 4d. in the pound.

By these provisions parliament thought to provide for the success of the dock company, and to interest the city of Bristol in its welfare. The result shows how much better it is to leave everything in commerce to the free course of trade and the effect of competition. These provisions have been most injurious to the prosperity of Bristol—commercially, socially, and politically. In consequence of the establishment of fixed dock duties it was for nearly half a century beyond the powers of the dock board to reduce their rates so as to enable Bristol to compete with other ports. But, besides this, the inhabitants of Bristol, who were not directly interested in its trade, soon began to complain of the fourpenny rate upon their property for the maintenance of the Bristol Docks. They considered it a great abuse, and even to this day parties are divided at Bristol into "dockites" and "anti-dockites,"—that is, householders and proprietors of property who oppose the payment of dock rates, and merchants and traders

who regard the prosperity of the Bristol Docks as of the first consequence to the city, and who consequently support the rate. But, naturally, under such circumstances, every attempt at dock improvement at Bristol has involved local agitation. The ratepayers have seen in every proposed expenditure of money the possibility of some unwelcome addition to their local taxes; and, hampered by this miserable rate, and the thousand petty local troubles and intrigues which it has occasioned, the dock managers have been unable to take those measures for the improvement of the docks and of the River Avon which the progress of commerce, navigation, and manufacturing industry has rendered absolutely necessary.

It is a remarkable fact that the decline thus brought upon the port of Bristol has occurred to it amid circumstances pre-eminently calculated to promote its prosperity. The Great Western Railway, unquestionably one of the finest lines of the kingdom, brought the whole trade of London direct to Bristol, and might have made Bristol, if it had not been for local difficulties, what the South Western Railway, in the absence of such difficulties, has made Southampton. The Midland Railway, if it had not been for the same miserable local dissensions, might have brought down to Bristol the whole export trade of Birmingham and the midland counties of England. These two great railway companies, singular to say, have no other port. Except at Bristol the Great Western, as at first laid out, does not touch another seaboard in the kingdom; and its attempts to reach Liverpool by way of Birkenhead, and to get to Weymouth and other places quite out of its proper district, have no doubt all been more or less enforced upon it by the commercial difficulties it has encountered at Bristol. The Midland Railway, singular to say, though it goes through so many manufacturing counties, and carries the trade almost of the length and breadth of England, does not touch one single seaport except at Bristol. So great has been its desire to get an outlet on the seaboard, that last session it actually assisted in promoting and obtaining a line to carry its traffic from Peterborough to the Wash beyond Wisbeach, where it proposes to form quays and docks in order to facilitate its export trade. Bristol, by the aid of these two great railways, might almost have continued to rival London itself as a port of export: but, in consequence of its paltry dock disputes, it has absolutely, for a quarter of a century, thrown away all its advantages.

Nor were the railroads the only special advantages enjoyed by Bristol. The city has the advantage of a most wealthy and enterprising body of merchants. She is placed in close proximity to some of our largest and best coal-fields. From South Wales, Bristol, in the course of a few hours, can bring by railway any quantity of the best steam coal to her water side; whilst Southampton has to coal every ocean steam-vessel which leaves that port with the same class of coals, procured by the seaboard with infinite delay, and with an addition of at least 5s. per ton to its cost. But, beyond all this, Bristol actually has been the port at which our greatest ocean steamships have been constructed; and yet, in consequence of the state of the river, her

docks, and her railway communications, she has had the mortification of seeing the *Great Western* and the *Great Britain*, both constructed in her harbour, taken away from their parent port, and employed, to the detriment of that port, in the commerce of her rivals. The history of the *Great Western* steamship, in connection with the port of Bristol, is really an affecting one. Its chief points are admirably related in a letter addressed by the directors of the Great Western Steamship Company to the directors of the Bristol Dock Company; and, as that letter may be almost considered historical, we will let it tell its own tale.

*Bristol, June 25th, 1838.*

Gentlemen,—The directors of the Great Western Steamship Company respectfully submit to your board that the company which they represent has, at cost and risk, established the first steam communication between the Old and the New World.

By fixing its operation at the outset at the port of Bristol it has opened a new source of general trade to the city, and consequently of revenue to the Dock Company.

The opinion entertained by the directors of the advantages offered by the Bristol Channel for western departure and arrival has been borne out by the late voyage of the *Great Western*; and they believe that, should the consideration of their memorial by the Dock Board lead to a determination favourable to the company, the permanence of its establishment in this port will no longer be a subject of doubt.

The great outlay attending the construction and maintenance of first-class steamships renders the closest attention to economy in their management indispensable; and their profit being chiefly earned in the form of passage-money, it is of the greatest importance that no circumstance involving inconvenience to passengers should exist.

The operations of the Great Western Steamship Company are subject to extreme embarrassment by the necessity under which their steam-vessel, the *Great Western*, is placed of lying in King's Road whilst discharging and taking in. Passengers are most objectionably exposed to the trouble and inconvenience of shifting from one conveyance to another, and to the chance of weather, whilst in small vessels or open boats; and letter-bags, together with bullion and fine goods, the value of which may be of immense amount, are subjected to risk.

The transhipment of heavy goods from small steamers and lighters, in which they must be taken down the Avon, may from rough weather frequently be impracticable. It will be necessary to take in large quantities of coal before departure, and this in like manner may be impossible. Punctuality of departure may thus be prevented, to the serious injury of the company, and to the destruction of the peculiar benefits which steam communication is calculated to render to the interests of trade.

The additional expences to which the vessels of this company will be exposed in consequence of lying in King's Road are of the most serious description. In cleaning, repairing, and replacing machinery,

parts of which are of great weight, in landing and shipping passengers, in taking in extensive assortments for their use of stores, and, generally, in preparing for their reception and accommodation, a constant intercourse with Bristol by hired steamers, vessels, and boats, is indispensable, together with great additional outlay for labourers' time in passing to and from Bristol, and for which no return is obtained.

The amount of dock dues claimed by your company on the last voyage of the vessel was £101 17s., which sum was paid by the directors, they being well aware that in so doing they should in no degree impair the grounds on which they now submit the interests of their company to the favourable consideration of your board.

Not only for this (amounting on six voyages to £611 per annum) is no benefit in any shape or degree afforded by the dock company, but, on the contrary, the construction of the dock works precludes the steam-vessel upon which these dues are levied from entering the floating harbour of Bristol, and by so doing subjects her to the whole of the abovestated embarrassment, inconvenience, and expence.

The directors are aware that all vessels entering the port are held to be liable to dock dues; but they beg to submit to your board that it could scarcely have been the intention of the legislature to give powers to the dock company to raise a revenue from vessels which their own works preclude from the general accommodation in return for which the exclusive privileges of the company were granted.

In the case of steam vessels this doubt may be allowed to have peculiar force. When the docks were constructed they were unknown; and had the new necessities which have arisen from their introduction been foreseen, it cannot be doubted that the requisite provisions would have been made.

The directors of the Great Western Steamship Company are induced to believe that the only means of permanently giving to Bristol the full advantage of its unequalled position as a point of arrival and departure, will be found in the construction of a new dock nearer the mouth of the River Avon, and more especially devoted to large steam-vessels. The object is of such deep importance to all, looking at the means now within the reach of Bristol drawing to herself a large share of foreign and colonial steam navigation, that the directors trust they shall stand excused when suggesting to the dock directors the expediency of obtaining parliamentary powers for the object.

And the directors would feel obliged by an intimation whether, in the event of the dock company being unwilling to undertake the extension of their works, they would consent to a bill giving powers to other parties to free such steam-ships within the limits of the port?

The Great Western Steamship Company seeks no monopoly. Its directors believe that its operations will, if retained to Bristol, be greatly and increasingly conducive to the interests of every class of the citizens. Any exclusive advantage would be consistent with the real interest of no party, and to seek it would be a most ungenerous

return for the eager unanimity with which the city has identified itself with the interests of the company.

(Signed) THOMAS KINGTON, *Deputy Chairman*,  
And by HENRY GODWIN, ROBERT SCOTT,  
ROBERT BRIGHT, and CHRISTOPHER  
CLAXTON, *Directors*,

*To the Directors of the Bristol Dock Company.*

This most admirable letter represents the whole case of the port of Bristol. It led to no useful result. The *Great Western* steam-ship was obliged to be taken away from her native port, as was the *Great Britain* after her. Neither of them, in fact, could use the docks, even if they could with safety get up the river Avon; and the practical result of this state of things is that Bristol is absolutely worse off at the present moment, with docks, than she was in 1803 without docks; for in 1803 large vessels loaded and unloaded in the King's Road, and sent their cargoes up to Bristol by lighter; whereas in 1863 large steam-vessels will not submit to the delay and inconvenience attending such a means of intercourse, and as they cannot get dock accommodation at Bristol, they do not resort to the port at all.

In 1848 the state of things at Bristol had become so bad that it became necessary to go for a new Dock Act. This was obtained after a great deal of local and parliamentary dispute. The Bristol Docks were thereafter vested in the corporation of the city, and they had power to reduce the rates, which they effected. But the Act of Parliament could not restore Bristol its lost trade, or place the Dock Company in funds. It did not improve the navigation of the River Avon, or enlarge the size of the dock gates, or place the railways in communication with the docks. The act of 1848 lowered the port charges, but it did little else. And Bristol remains, commercially, just where she was.

The disastrous consequences of this state of things has at length begun to be forcibly felt in Bristol, and a party has arisen there who are neither dockites nor anti-dockites, but men who desire the adoption of measures which will benefit the port. The consequence has been that the Dock Company have called to their aid the assistance of eminent engineers, and that a new company has also been formed for the construction of docks for large vessels at the mouth of the river Avon. Last session the existing Dock Company proposed to parliament the enlargement of their existing docks and other measures to straighten, widen, and deepen the river Avon, but the expenditure proposed was so great, and there was so much local difficulty as to the funds, that parliament would not grant the bill. Next session the independent company propose to renew their application for powers to construct the docks at the mouth of the river, as before described. It is proposed also by another company to apply to parliament for powers to construct railways from the railway station at Bristol to the existing docks, and by the line of those docks and

through the Hotwells at Clifton, to form a communication with the new docks, and to join a railway already authorised on the banks of the river, which will also join the "Bristol Port and Channel Docks," as well as with the "Bristol and South Wales Union Railway."

These measures are really of the utmost importance to Bristol, and they ought to be considered by the citizens without prejudice, and solely with reference to the general good. It is quite clear that, as at present circumstanced, neither the government, nor the post-office, nor the mercantile community, will encourage Bristol. Whether by improvements in the accommodation the port can afford for ocean steamers and vessels of large tonnage, any portion of the packet service, the emigration traffic, and the general export trade of England can be resumed by Bristol will remain to be seen. But if Bristol is in after times to have anything much beyond a coasting trade, the trial must be made—and the sooner it is made the better the prospect of success.—*Daily News*.

#### THE LAUNCH OF THE "MINOTAUR."

The First of the First-Rates of the Iron Navy of England was launched from the great iron ship-building yard of the Thames Company at Blackwall, on December 12th, and with a success which may in every respect be pronounced "brilliant." First, the weather, which with us is always nine points either to the good or the bad in the success of anything, was magnificently fine. The sun shone out gloriously; the wind was just fresh enough to display the flags that give life, colour, and expression to every picture of the sea and ships, and the glorious old river seemed to leap with joy and welcome at the approach of another of a new race of Old England's Sea Kings. Certainly this was a day of days for the middle of December, and altogether the scene was one to rouse one's confidence in the prowess of our navy, to inspire fresh energy, and sweep away the misgivings that will arise when on every side we see going on at the same moment the forging of those weapons which are to destroy these wonders of modern naval architecture.

Notwithstanding that Russian guns are being made by English hands, and proved sound and strong on our own proof-ground at Woolwich; notwithstanding we are made to listen to the boasts of foreigners at the possession of these guns that could pierce our iron-cased ships like baskets, and send shot and shell through earthworks thirty feet thick, the sight of the *Minotaur* is enough to rouse the old undaunted spirit of the nation. Even though we have seen a Russian floating battery of enormous strength lying side by side with the *Minotaur* in the yard of the Thames Iron Ship Company, and know that more than one cupola battery has been built in England



for foreign powers, nevertheless there is in beholding the launch of such a ship as the *Minotaur*, so noble and beautiful in size, strength, and proportion, something invigorating and inspiring. We feel it is impossible that the wealth, the skill, the science, and above all, the national energy represented by this ship, can ever permit a thought of decadence, or a doubt of danger to our shores.

The Thames Iron Ship Yard is, amongst the many vast undertakings of the kind in the kingdom, perhaps the most remarkable for having sprung into its present state of extraordinary power and completeness during the last six or seven years, and as the birthplace of the *Warrior*, the first ship of the iron navy of England; the *Perveenetz*—in English the "*First Fruits*"—of the Russian navy; and the first iron-cased ships for the navy of brave little Denmark. For some time past might have been seen upon the slips in this yard the *Minotaur*, first-rate, 6,812 tons; the *Valiant*, third-rate, 4,063 tons; the *Victoria*, Spanish frigate, of 4,862 tons; a Turkish frigate, of 4,222 tons; the *Perveuetz*, Russian battery, 2,812 tons; two large ships for the Peninsular and Oriental Company, or for the London and Mediterranean Company, besides other smaller vessels, making in all a tonnage of 35,000 tons. The company, which, we believe, consists of a few capitalists only, have a yard, which ought to be called a territory, of some thirty acres, with a population of artisans of near 5,000, to whom is paid from £5,000 to £6,000 a week. The *Minotaur* by no means represents the full capabilities of the establishment, for the largest slip could accommodate a ship of 12,000 tons, and the launching be effected with the greatest possible ease.

This is one of the best instances of the power of English enterprise in private dockyards, with which might be mentioned the neighbouring yard of the Millwall Company, where another first-rate and sister ship is being built—the *Northumberland*; Messrs. Laird's, at Birkenhead, where the third first-rate—the *Agincourt*—is building, and where about 4,000 men are employed; Messrs. Samuda's, where the *Prince Albert*, cupola battery, is being built; Messrs. Palmer's, in the Tyne, builders of the *Defence*, where twelve merchant ships of the largest size, from 1,000 to 4,000 tons, are now building, employing some 3,500 men; Messrs. R. Napier's, in the Clyde, builders of the *Black Prince*, the *Hector*, and a Danish cupola battery, now occupied with no less than three Turkish frigates, each of 4,221 tons, plated with 5½ inch iron all over, and teak backing of 10 inches, with other vessels. On the Clyde also are to be seen two iron-cased ships for the Emperor of China, and no doubt a place would be found for any potentate in the world who could pay for the work.

It is important to bear in mind the fact that all these enormous resources, to say nothing of the great metal-making factories of the country, at this present time full of foreign contracts for steel guns and armour plates, will assuredly be kept employed; and that while our government are setting up their plant for building iron-plated ships, and cutting away the magnificent granite docks to float out the monster vessels, all at enormous cost and sacrifice, our private

yards are actually building the iron navies for the foreigner at very much less cost to him. Unless the authorities have grown wiser, we shall probably see the very slip from which the *Minotaur* was launched speedily occupied by some first-rate foreigner.

If the saving of time and money is of such vital importance just now, we may see how these points have worked in the building of the *Achilles*, the first attempt of the government dockyards at iron ship-building. The *Achilles*, which is about the same tonnage as the *Warrior*, and rated in the second-class, was ordered to be laid down three-quarters of a year before the *Minotaur*, but it will be at least a fortnight before the *Achilles*, a much smaller ship, with not much more than half the weight of armour-plates borne by the *Minotaur*, will be undocked. When the one first-rate undertaken by the Admiralty—the *Captain*—will be ready, must depend upon the number of alterations that may be suggested by the new Chief-Constructor of the Navy, and the contingencies which at present surround the question of armour-plates, backing, and skin.

Much as the *Minotaur* is to be admired as a graceful and very powerful ship, we cannot pretend to congratulate the Admiralty much upon her invulnerability, if that is to be a *sine quâ non* of a first-rate. It stands proved beyond all refutation, even by Lord Clarence Paget, that the *Minotaur*, over the whole of her fighting deck, is a more vulnerable ship than the *Warrior*. She has, it is true, been exempted from the fault of having only the centre part of the ship protected, as the armour plates are carried right fore and aft on the main deck, covering all the guns; but in taking away the nine inches of teak backing and putting in its place the one inch of iron upon the armour plates, so as to keep the weight per square foot of the two arrangements equal, the *Minotaur* has been weakened. The target experiments have proved this over and over again, and it is remarkable that the 600-pounder Armstrong gun has never been fired at the *Minotaur* target, but at one constructed on the plan of the *Warrior*, showing that this was admitted to be a stronger target.

But the most astonishing thing is, that the Admiralty were well aware that the sides of the *Minotaur*, as designed, were weaker than the *Warrior*; they had their grave doubts from the moment of giving the order to build her on September 2nd, 1861, and very properly inserted a clause in the contract, enabling them to alter the combination of wood and iron forming the armour of the ship. When it was discovered at Shoeburyness that eighteen inches of timber backing was better than one extra inch of armour plate, the building of the ship was stopped, and the constructor of the Thames Ship-building Company was required to give an estimate for restoring the nine inches of backing. As the ship was then so far in progress that the shelf for the armour plates was made, it became a difficult and expensive matter to make so very important an alteration as this. It would have involved an additional cost of several thousand pounds, still more delay, and what was more awkward, an application to Parliament for more money, with, of necessity, a humble confession of a

gross blunder. All this was too much to think of, and so it happened that we have now a first-rate, magnificent to look at, swift, and powerful, and no doubt fit for ocean service, for in form she resembles the lines of the fastest and finest of the Atlantic packets—the *Adriatic*.

The *Minotaur* was intended to be finished by May of this year, according to contract; this time, therefore, has been exceeded by six or seven months; but besides the delay, for which the Admiralty are directly blamed, many other important changes and improvements have been ordered, for which it is satisfactory to be able to say the Admiralty are rather to be thanked than blamed. As it turns out, considering the large size of the *Minotaur*, no ship in the fleet has ever been built in so short a time. Of the two sister ships ordered on the same day—the *Agincourt* and the *Northumberland*, the first will, it is expected, be launched in the course of next summer, and the last will probably be ready by this time next year. If the slip vacated by the *Warrior*, in December, 1860, had been filled at once by the *Minotaur*, we should have her complete and equipped by this time. The most important alteration was made in constructing an entirely double bottom to the ship upon the cellular system, so that in case of such an accident as befel the *Africa* the *Minotaur* would be unhurt, or, at least, the chances of such vital injury are very much diminished. Another great improvement is considered to be in the addition of two masts to the three originally designed. These are, of course, made of iron, upon the plan now almost universally adopted in iron ship-building, whether for the navy or merchant service.

Although there have been these delays—which, no doubt, would have been most rigorously punished by fine and visited with rebuke had they been attributable to the contractors—the *Minotaur* floats now in the Victoria Docks, a much more finished ship than the *Warrior* was at her launch. The whole of the teak backing is fastened on to her sides, and the greater part of the armour plates are fixed. It is only about the bows of the ship that we observed any large portion remaining to be put on. The whole of the strong internal works, such as the compartments and the immensely strong plated bulkheads and decks, are substantially complete. The following are the dimensions of the new first-rate:—

	Feet.	Inches.
Length between perpendiculars . . . . .	400	0
Breadth . . . . .	59	4
Depth in hold . . . . .	41	7
Burthen in tons, builder's measurement, 6,814	18-94.	

The length of the keel for tonnage is stated to be 364 feet 5 inches. The *Warrior* is a ship of 6,176 tons and 1,250 horse-power; the *Black Prince* is the same: the speed of the two ships, however, differs, that of the *Warrior* being stated at 14·354 knots, and that of the *Black Prince* at 14·3, and by another trial at 13·584 knots. The *Minotaur* is to have engines made by Messrs. Penn of 1,350

nominal horse-power, that is, 100 higher than the *Warrior* class; and it is expected, with these superb engines, she will have a speed of at least 14 knots.

The form of the *Minotaur* is very different from the *Warrior*; she is not wall-sided at any part of her lines, and when the view is taken from her bows, where she tapers finely and gradually up to her stem, and swells again towards her bulwarks, nothing can be more perfect than the curves of her sides, and we should say she has the appearance of a very fast ship, if her engines give her the power. The stem is made to bulge out and then in again, in the line of a swan's breast, but in form sharp as a cleaver, comparatively speaking. This projecting prow is supported inside by a complicated system of cellular supports and bars, interlacing and extending back into the broader part of the ship, so as to give immense strength to this prow, and enable the ship to charge an enemy that was not nimble enough to get out of her way. We believe this structure and form is due to the invention of Captain Ford, the able superintendent of the Thames Company's shipbuilding. The stern of the ship is rounded with remarkable exactness, and thus carries the line of ports completely and symmetrically round the ship. These ports give the *Minotaur* a most compact and handsome appearance; in place of the usual square hole they are more like embrasures in a fort, being bevelled off inboard, but so narrow on the side as just to allow of elevation and depression of the gun—the training of the gun being allowed for by the slope of the portsides. Great additional protection is by this arrangement obtained for the gun's crew.

The armament of the *Minotaur* is expected to be fifty guns of the largest calibre, though, of course, not all 600-pounders, otherwise her armament alone would weigh above 1,000 tons, which, added to her armour, which is 1,850 tons (and the weight of the empty hull is nearly 6,000 tons), would leave little for engines, rigging and masts, coal, ammunition, stores, &c. The total weight of the ship fully equipped is estimated at 10,000 tons. To move this enormous weight against a heavy sea will require, of course, enormous power, but we observed that the ordinary screw propeller is trusted to for this, with a rudder of gigantic proportions. We presume, however, that provision has been made in this part of the ship for adapting either the double screw or additional steering power, if necessary, both of which have been found to be of the last importance in making the Atlantic voyage.

The launching of this immense vessel was a matter involving no small amount of practical skill and clever arrangement, yet it was accomplished with perfect ease, without a mishap of any kind, so far as we heard—certainly without any blundering whatever, and with a systematic and thoroughly well understood plan. There was no wild excitement of bewildered foremen at their wits'-end—no rushing to and fro, no noise, except the steady hammering of the army of men, each with his heavy hammer, who knocked away supports and wedges gradually till it came to the last man, a stalwart north countryman,

who felt the occasion, and had painted his hammer bright blue, and was standing ready for the last blow. At the head of the cradle on which the ship lay was a powerful jack, and her fore foot rested upon a small hydraulic press, not bigger than a hat, with which the whole 6,000 tons was to be first started.

The hammering ceased, and there was a general lull of attention, when we heard a gentle voice say "Success to the *Minotaur*;" a lusty old English cheer echoed the wish, and the towering form of iron started into life at the sound, and glided away to its new home, like some huge leviathan roused from its sleep. The great 8-inch cables held her back as she plunged into the water at high tide amidst the wreck of the cradle and a crowd of venturesome little boats. Four steamers awaited her, and at once took her in tow towards the buoy moored below the pier at Blackwall. It was just a quarter to three, and (to announce the launch, we suppose, to the Frenchmen), a number of most comic balloons, in the shape of monsters, were sent off, each with a packet tied to it.

There was a large assemblage of visitors of all nations, it would seem, to this cosmopolitan dockyard. The Duke of Somerset was present, with Mr. James Stansfeld, M.P., and Mr. Romaine; Admiral Robinson, Controller of the Navy; Captain Drummond, Sir John D. Hay, Mr. Reed, Constructor of the Navy; Mr. Watts, the late Chief-Constructor, during whose time of service the *Minotaur* was designed, and many other distinguished persons connected with the service. The ceremony of naming was gracefully performed by Mrs. Romaine. It only remains to say that, according to the opinion of the builders of the *Minotaur*, this formidable ship might by extraordinary exertions be got ready for sea early in the summer.—*Daily News*.

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#### NORFOLK ISLAND, 1853,—*As it is and as it was.*

Our visit to Norfolk Island was probably the last from a man-of-war before it was changed from a den of doubly convicted felons to an enlarged homestead for the Pitcairn Islanders—descendants of the mutineers of the *Bounty*. The retreat of villany was henceforth to be the receptacle of the most uncontaminated community; and as the island is by nature situated under the most genial influences as to latitude, climate, and isolation, the desire of philanthropists in regard to the future of these unsophisticated brethren must be amply satisfied.

Although they outgrew their own island, yet the change to a ready made abode—to a fertile and comparative level country, was not without its alloy. They became at first home-sick,—they sighed for their craggy cliffs,—they felt an indigenous longing for the home of their parents,—every association and tie were centered in Pitcairn Island.

Now they have become naturalized, and have derived inestimable benefit from the interest and personal visits of Bishop and Mrs.

Selwyn—the latter having resided amongst them for some weeks. Sir William Denison visited them, and enacted a salutary code of laws.

It is said these new occupants were dreadfully frightened at a monster quadruped,—a horse having been accidentally left on the island. It is probable they had never seen an animal larger than a goat.

But my business is with Norfolk Island as we found it when the convict exodus was gradually taking place.

The distance from the North Cape of New Zealand to Norfolk Island is 420 miles N.N.W., or, on an average, two days' run. A short period to meet with tropical productions, which will become a fruitful source of interchange for European clothing, &c. Vessels are almost always beholden to the islanders, who land passengers in boats adapted to the surf. A practical crew and perfect pilot are requisite; so the temptations to whalers and contraband traders to disturb the purity and harmony of our friends is small indeed. They may be considered as free from vexatious intrusions, as at Pitcairn.

We sighted the island from the S.E. on a hazy morning, September 11th, 1853; Mount Pitt, a conspicuous saddle hill, 1,200 feet high, being first visible. But the most striking objects, on nearer approach, are the well known pines, which, being free from underwood, are like groups of minarets. A small detached islet (Nepean), having only three trees on it, gives an exact resemblance to a ship at anchor in Sydney Bay.

Phillip Island, eight miles South, has pines of a more stunted character than on Norfolk Island.

On entering Sydney Bay an old ensign was hoisted on shore to indicate "Landing is safe." The government boat came off with the Commandant—Captain Deering, of the 99th Regiment. We found they had seen no vessel for fifty days, and we brought them English news of three months later date than they possessed.

Our landing was a source of some anxiety, for, though the weather was moderate, the rollers on the bar were heavy. Our crew and a skilful coxswain ran us through the surf, by desperate exertions, without capsizing; but so probable is this event, that there was a reserve gang at the end of the pier, stripped, with buoys and bladders attached to their bodies, ready to plunge in in case we were upset. Our safety was only mortification to them, as the saving a life would wipe off some of their forfeited existence. The officers who landed next day were very nearly candidates for the embraces of these amphibious felons. A sea broke completely over the boat and half filled it; but by skilful backing over the following roller before it broke, they reached the shore—drenched.

The Commandant escorted us on horseback to Cascade Bay, and we walked through the beautiful government gardens.

Cascade Bay, on the eastern side of the island, is generally the best landing-place, but much depends upon the direction of the wind. In an island so small the back swell is often as dangerous as that on the weather shore; therefore this landing seldom affords safe access for a ship's boat.

To return to the gardens. We found ourselves among lemon groves drooping with fruit, coffee in full berry, bananas, ripe pine-apples, peas, beans, and sweet potatoes, and an abundance of fruit,—all fully six weeks in advance of the soil we had left two days previous. But a severe gale in April, 1852, had left its blighting influence throughout the island.

The climate is too warm for our English fruit, but tropical plants flourish. Their chief vegetable is a very fine sweet potato, named by them Bucks. The island soil is red loam and very rich. Arrowroot is largely cultivated, and equals the best that can be grown.

Our landing was such an event that every free person was down on the pier to welcome us, and their hospitality was boundless. There were from fifteen to twenty ladies, married and unmarried,—all, of course, connected with the officials, and living in that happy bond of union which is, unfortunately, exceptional among small communities.

Balls and private theatricals were at once announced; but the limits of our stay would scarcely allow of our entering deeply into the gaieties so kindly provided for our gratification.

Returning from the gardens through a perfect park—for Norfolk Island and its prolific vegetation cannot be overrated,—we met at the mess of the 99th Regiment; and in the evening all the civil and military authorities assembled at the Commandant's residence to hear the news.

At midnight Captain Deering invited Major Hume\* and myself to visit the convict wards. It was his wish we should do so secretly; so we approached the gaol door on tiptoe, opening the gates with his key, to see that the constables were on the alert. We were to proceed quietly through the wards, to listen to any scheme that might be concocting for seizing the boat that was launched for our service.

Firstly, we visited the solitary wards. All was perfect silence, save the heavy clanking of chains as they moved in their huge wooden cages. Every ward is lighted during the night, and they are surrounded by galleries, where there are peep-holes for the warders' observation, or through which they may hear any conversation. The solitary wards are on the ground floor. Above were continuous galleries,—a hundred sleeping in hammocks, six feet apart. These beds are flat and in two tiers. We walked stealthily from end to end. All were, or pretended to be, asleep; but the clanking of their chains as the door was unlocked, betrayed some uneasiness.

The whole system is watch! watch! and the maxim "Set a thief to catch a thief" is carried out in earnest, for there was not even a single free man amongst the warders and constables, or within the walls of the gaol when we entered, including those who met us at the gate. The military are entirely separated from prison duties, but are quartered in such a position as to be immediately available in case of an outbreak.

Next morning we visited the workshops, the salthouse, the smithy,

\* A friend and passenger from the 58th Regiment, at Auckland.

the carpenters and coopers. Here also the superintendent was a ticket of leave man, armed with a cutlass and loaded pistol.

In the boat-house, which is purposely in the vicinity of the guard-house, are two launches, from eight to fourteen tons (built here); also two six-oared whale-boats, such as are used for landing.

Hanging to the roof is a specimen of what a convict will attempt to gain his liberty. Here we see a wicker boat, five feet in length, without a nail; but seized together by flax, and so frail that its suspension collapsed it. Three men had been surreptitiously engaged in framing this boat, with the intention of crossing to Phillips Island to construct a more seaworthy craft. It was intended to cover the wicker work with canvas,—but it is impossible it could have floated many minutes; and one of the intended crew being persuaded of this fact,—turned approver.

In visiting the gaol by day the commandant pointed out the worst characters. The various cells were opened, and all denoted perfect cleanliness and order. A mat, a Bible, and two other books comprised the furniture. As the turnkey opened, the culprit rose with his heavy chains suspended between his legs, and his arms extended on an iron bar two feet in length. There were about forty of these wretches, who had forfeited their existence over and over again. Before the padlock was removed from the door, I was informed of the nature of their last offence. A for trying to escape in a boat, B for biting a constable's nose off, &c. Offences all independant of the original crimes. More horrid villainous countenances one could not pourtray. The low foreheads, the arched eyes, the sepulchral expression, gave us the idea that such faces had never had the faculty of smiling. One man only violently banged his door on us. Another was confessing to a Catholic priest, who was within his cell. They are allowed to walk in courts for two hours a day.

Passing from this revolting scene, we visited the dining-hall and lumber-yard. The labourers here are allowed a stick of tobacco a week, which is considered a great indulgence. They have skilly for breakfast, and a pound of meat three times a week. Those closely confined, half that allowance, which soon reduces them to an emaciated condition.

The task work, by which a portion of the sentence can be remitted, is the only part of Captain Maconochie's system in vogue. We saw tailors, shoemakers, and tinsmiths at their various avocations in separate cells.

We witnessed the funeral of a poor fellow who died under amputation of the arm,—from a fall down a quarry. Six chained felons carried him to the grave, and a single constable was the mock mourner. In the churchyard we see gravestones,—“Sacred to the memory of John Smith, prisoner of the Crown, executed,” &c. There is no difficulty in finding a Calcraft; when eleven were to be hung in 1848, fifty of their friends volunteered to perform this service for them.

A few months since several men escaped by seizing a ship's boat.



They threw the constables overboard, who, however, escaped. They retained the coxswain as pilot, and made for Moreton Bay, N.S.W.: and they decided to devour the said coxswain for provisions if he did not land them on the Australian coast within a certain number of days. They did land, and all were recaptured. This and other circumstances rendered the occasion of our visit one of great precaution on the part of the Commandant. All conversation was to be listened to and reported, especially in reference to the boats launched for the use of the ship in the offing.

Our friends provided us liberally with sheep, vegetables, fruit, &c.; and we carried a thousand young pines to New Zealand. Some we planted on the North Cape, and others were dispersed among the gardens in Auckland.

Captain Cook, who discovered the island on October 10th, 1774, says, "We were undoubtedly the first that ever set foot on it;" but recent discoveries prove otherwise. A short time ago the skull of a savage was dug up. The cranium a medical officer told me was extremely narrow, most singularly so. A stone tomahawk had also been found, six feet below the surface near high water. But it does not appear that beyond stray visitors from the Polynesian Islands that there was ever any settlement until we made it a den of villainy;—those who reached it probably never returned to report their discovery.

#### *Hydrographic Notices.*

We first made Norfolk Island bearing W.  $\frac{1}{2}$  S., twenty miles, horizon hazy.

From the eastward Mount Pitt forms a ladelle. From the N.E. point to Cascade Bay the land is table faced by steep red cliffs.

Mount Pitt slope terminates at an abrupt cliff (Point Howe). The next point towards Cascade Bay has off lying rocks about sixty feet high, inside which Cook landed. Cascade Bay shows by a valley between precipitous cliffs. A house close to the shingle beach, and a small pier with a crane.

The latitude of government flagstaff,  $29^{\circ} 3' 7''$  S., longitude  $168^{\circ} 0' 46''$  E.

At 4h. 45m. a.m. September 13th, I observed a brilliant comet. The nucleus appeared twice the size of Jupiter,—but less bright. The tail,  $7^{\circ}$  in length, slightly curved, and extended about  $15^{\circ}$  South of the zenith. When first seen it bore E.  $\frac{1}{2}$  S.,  $5^{\circ}$  above the horizon.

There does not appear to be any bank connecting New Zealand and Norfolk Island. We tried deep soundings at 1,000 fathoms.

BYRON DEURY.

EVENINGS AT HOME AT THE NAUTICAL CLUB.—*The Fouling of the Bottoms of Iron Ships—Report of the Royal National Life-Boat Institution*

The age of iron, observed the Chairman, seems fairly established, for not only our royal navy are adopting it, but even our mercantile shipping are being built of steel! Strength being the motive of one, and economy that of the other. But how to protect either one or the other from destruction remains yet to be found. Now, he believed that several patents had been taken out lately for sheathing iron ships with yellow metal or copper, and whilst a ship so sheathed remains intact it will, if perfect isolation is preserved (almost amounting in practice to an impossibility) have the desired effect; but suppose a ship so sheathed touches the ground, or an anchor, on a foreign station, or on her outward voyage to a port where she cannot be docked for examination, although not necessarily leaky, or suppose she crumples up a sheet or part of a sheet of copper on her forefoot or bows by the friction of her chain cable, bringing up in a gale and strong tide in the Downs or elsewhere, or even strains the wooden casing under the sheathing so as to allow a mere film of salt water to touch the iron skin, her destruction in a few months would be inevitable, for here in the case of the *Royal Oak* we find the plates eaten in to the depth of five-eighths of an inch and upwards, in less than five months, wherever abrasion of the surface paint has taken place, and this thickness is greater than that of the plates of ordinary merchant ships according to Lloyds' rules. The following account of the state of the *Royal Oak* is from the *Standard* of October 27th, 1863:—

“On the water leaving the dock in which the armour-plated ship *Royal Oak* had been placed at Keyham on Friday, a most remarkable appearance presented itself, which created no small consternation amongst the authorities of her Majesty's dockyard. The armour plates adjoining and in contact with the copper sheathing were found to be eaten away by galvanic action, presenting a series of corroded holes running into each other from half an inch to five-eighths of an inch deep. Some of the plates contained no less than 188 of these, whilst none had less than 40. Several detached holes are of an oval form, as though gouged out with a steel tool, of all sizes, from that of the bowl of a salt spoon to that of a gravy spoon, and of equal depth, and some of the heads of the bolts had become recessed to the depth, size, and appearance of the bowl of a sauce ladle. Numbers of the holes had run one into the other to the extent of five or six feet, five-eighths of an inch deep, and upwards; altogether presenting one of the most remarkable appearances ever witnessed. This ship has only been about eight months in the water. She was commissioned last April. What will be done with her has not been yet decided. These holes and corrosion appear to have occurred wherever the red lead or under-coating had been rubbed or washed off.”

Captain Mackillop, R.N., has invented a machine for cleaning ships afloat, which will probably do very well for removing weeds and bunches of mussels, but unless a kind of toothed scraper be applied in the manner of a hog, no limpet-barnacles, or coralline worm shell, can be removed, and then "the remedy would become worse than the disease," as the composition is also removed, and the surface of the iron exposed to galvanic action where preparations of copper have been applied, or oxidation from the salt water with any other preparation. A glazed or enamelled surface, or a zincd or coppered ship might be thus treated when coated with barnacles and oysters, if not allowed too long a growth, like the bottles and broken porcelain fished up in tidal waters, from which the shell fish can hardly be removed without breaking the foundation; but the difficulty appears to be in finding a marine glue of sufficient tenacity to hold on glazed plates to the iron skin; both trials on the P. and O. ship *Ellora*, and that on H.M.S. *Resistance* failed; perhaps the patentee may have better luck with the *Royal Sovereign*, cupola ship.

[Our space does not admit of our following the interesting discussion which ensued, as we must make room for our lifeboat report.]

The Chairman, then, with evident satisfaction, called the attention of the Club to the great and valuable services performed by our lifeboats during the fearful storms of the 3rd and 4th of December. It was most gratifying to find that 246 lives were saved by the lifeboats of the National Institution, and the Ramsgate lifeboat, in that terrific gale. He felt assured that as old sailors the members of the Club would, like all who sympathized with shipwrecked seamen, echo heartily the sentiment conveyed in the following verses from our facetious friend *Punch*.

*Chorus of Jack Tars.*

Ye Gentlemen of England,  
Who live at home at ease,  
To save poor shipwreck'd sailors  
From the dangers of the seas,  
Subscribe unto the Life-boat  
Institution, if you please.

The Chairman further observed that he felt certain that the appeal which the society was now making to the country at large through Thomas Baring, Esq., M.P., its Chairman, and Thomas Chapman, Esq., F.R.S., its Deputy Chairman, would be responded to liberally, in order that the institution might be enabled to keep up its great life-saving fleet in a state of thorough efficiency.

He understood that at the present time an order had been given by the committee to sell out £1,000 from the small funded capital of the society in order to meet in part the great demands on its funds. He then called on the Secretary to read the report of the last meeting of the institution on the 3rd of December.

It was then stated that the new lifeboat which the National Life-

boat Institution had just sent to Filey, near York, and which was publicly launched there on the 26th of November, in the presence of the benevolent donors, the Lord Mayor and Lady Mayoress of York, had done some noble service early on the morning of the 1st of December, in rescuing, during a strong gale and heavy sea, two poor fishermen from an inevitable death. The expence of the service was £8 6s.

A reward of £4 was given to the crew of the St. Ives lifeboat for saving seven pilots, who, while entering the harbour of that place during a strong gale of wind on the 11th of November, were in a very dangerous position. The lifeboat had gone out in the first instance in reply to signals of distress from the brig *Benjamin Boyd*, of Bristol. On reaching her, however, the services of the lifeboat were not required. Thus it sometimes happens that a lifeboat remains by a ship for hours together, and finds ultimately that its services are not required.

A reward of £12 was also voted to the crew of the Hauxley lifeboat for going off and rescuing, on the night of the 26th of November, the crew of five men of the schooner *Theophilus*, of Aberdeen, which, during stormy weather, had got on the rocks on the Northumberland coast. Some fishing cobles had previously attempted, without success, to reach the wreck. This valuable lifeboat and four others of a similar class were placed some years ago on the Northumberland coast by the present Duke of Northumberland, President of the National Lifeboat Institution. Since that period those lifeboats have rescued 86 shipwrecked persons.

Rewards amounting to £15 were also voted to the crews of the Tynemouth and Blakeney lifeboats for going off in reply to signals of distress, but their services were not afterwards required.

A reward of £4 was likewise granted to a crew of Northumberland fishermen for going off and bringing on shore from the Prussian sloop *Maria*, seven men belonging to the schooner *Heinrich*, of Stralsund, which, during the fearful storm of the 1st of November, had sunk in the North Sea. After four hours and a half, wrote the Rev. F. R. Simpson, of North Sunderland, the crew of the sloop *Maria* succeeded in getting the men off the *Heinrich*, hauling them through the sea at great risk and danger to their own lives. They were kept on board from the 1st to the 7th of November, having been reduced, with their salvors, to an allowance of two biscuits daily.

A reward of £1 was voted to a young man named John Kerwan, and £2 5s. to some other men, in testimony of their gallant exertions in rescuing, at great risk of life, ten men from the Greek brig *Marietta*, from Lisbon to Cardiff, which was wrecked during the late terrific gales, near Tramore, on the Irish coast. The crew, ten in number, were seen on the top of a rock fully 100 feet high. The sea was frightful at the time, washing completely over the vessel. It appears that during the night, and when the vessel was found to be breaking up, one of the crew leaped into the surf, with a rope round his body, and fortunately, as the distance was not far, he succeeded in reaching

the rock above alluded to, and in climbing to the top of it, a feat that one would think next to impossible. He then pulled a heavy rope from the vessel and tied it round the rock, and by these means the crew got on to the rock in safety. The next matter was to get them to the shore, and this was done by the men on shore dropping a line over the cliff. The people on shore then, with the aid of the ropes, climbed up the rock and rendered assistance to the poor fellows, and in a few hours nine of the men were landed in safety. One man then remained who could not descend, as his arm was so severely hurt that he could not use it. A lifeboat of the National Lifeboat Institution was fortunately within three miles of the wreck. She was speedily brought round by her crew, who pulled her through the heavy surf in good style, and in a short time reached the spot. Kirwan then ascended the rock and placed a rope round the injured man's body, and assisted to lower him. The man then plunged into the sea, and the crew of the lifeboat picked him up and landed him at the Cove.

During the late gales sixty-four foreign shipwrecked sailors were saved from a watery grave by the lifeboats of this institution, and by other means for which it had granted rewards. The names of the vessels and the numbers of their crews, are as follows:—Barque *Tamworth*, of Skein, Norway, seventeen; Greek brig *Marietta*, ten; schooner *Guillia*, of Palermo, ten; barque *Providence*, of Dantzic, seven; schooner *Heinrich*, of Stralsund, seven; ketch *Snip*, of Amsterdam, five; and Italian brig *Camogliano*, eight men.

Various other rewards were also voted for saving life from shipwreck during the late gales.

It was reported that the Duke of Somerset and other Lords of the Admiralty had witnessed, on the invitation of the institution, some harbour trials in the Regent's Canal Dock, Limehouse, with two new ships' lifeboats. Their lordships were much pleased with the same, and had since decided to build one or two specimen lifeboats, which, if approved of, would be supplied to the royal navy.

During the past month, the institution has sent new lifeboats to Pembrey and Eastbourne, and to Arklow on the Irish coast. The Great Western Railway had given, as usual, a free conveyance over their line to the Pembrey and Arklow lifeboats. The latter will be sailed across from Milford Haven to her station, in company with a revenue cruiser. The cost of the Pembrey lifeboat had been collected in Bath, and the boat is named *The City of Bath*. The London, Brighton, and South Coast Railway Company had kindly conveyed the Eastbourne lifeboat to her station, free of charge.

Payments amounting to upwards of £1,300 were ordered to be made on various lifeboat establishments of the institution. £500 Stock was again this month ordered to be sold from its small funded capital to meet in part these heavy expences. The committee of the institution are therefore earnestly appealing for benefactions and annual subscriptions to help them to meet the large and increasing expences of the society's 125 lifeboat stations.

It was stated that the officers and friends of the First Middlesex

Engineer Volunteers had kindly promised to give an amateur performance at St. James's Theatre, on the 17th of December, in aid of the funds of the institution. Two concerts had also recently been given at Deacon's Concert Rooms, Sadler's Wells, with the view of raising the cost of a lifeboat, to be called the *Sir Hugh Myddleton*. The Rev. R. Sutton, of Rype, Sussex, and the Rev. W. Finch, of St. Peter's Church, De Beauvoir-town, Hoxton, had likewise kindly sent to the institution part of the collections made at their churches in thank-offerings for the late abundant harvest. Robert Whitworth, Esq., transmitted the institution £250 collected by him in Manchester to pay the cost of a lifeboat. The committee decided to station the lifeboat at Bridlington, Yorkshire.

The proceedings then terminated.

**THE LATE STORMS.**—Thomas Baring, Esq., M.P., Chairman, and Mr. Thomas Chapman, F.R.S., Deputy Chairman, have issued the following appeal on behalf of the National Life-Boat Institution:—In consequence of the liberality of the public, the institution has been enabled during the past twelve years to increase the number of its lifeboat stations from twelve to one hundred and twenty-five, so it may now be truly said that a lifeboat is to be found on every dangerous point of our coast where a sufficient number of men is located to work it. But this very extended field of the operations of the institution has necessarily involved a large and increasing expenditure, not only in maintaining its great fleet of lifeboats, but also in rewarding the gallant men who are ever ready to man them. But the institution does more than reward the men who go into its own boats; it also grants liberal payments to persons who, either in their own boats or by any other means, are instrumental in rescuing the shipwrecked sailors.

Thus it is that between 600 and 700 wrecked persons are now saved every year by the lifeboats of the institution and other means for which services it grants rewards. The perusal of the reports of the dreadful effects of the late storm, and happily also of the successful efforts of so many daring services of our lifeboats, which saved on the 3rd and 4th of December one hundred and twenty-five poor fellows from a watery grave, cannot fail to excite the sympathy of every one. We will only add that contributions are received for the Lifeboat Institution by all the London and Country bankers, and by its Secretary, Mr. Richard Lewis, at 14, John Street, Adelphi, London.

**THE LATE GALES**—The following is a list of the noble services rendered by the boats of the National Lifeboat Institution during the fearful gales of the 3rd and 4th of December:—Barque *Ina*, of North Shields, fourteen men saved; ship *David White Clinton*, of New York, eight; fishing-boat, of Tenby, three; schooner, *Margaret and Jane*, of Dublin, five; barque, *Duke of Northumberland*, eighteen; fishing-boat, of Filey, two; schooner *Economy*, of Portmadoc, saved vessel and crew of five; lugger *Vigilant*, of Peel, saved vessel and

crew of four; ship *Jupiter*, of London, eight; schooner *Maria*, of Amlwch, four; schooner *Harry Russell*, of Glasgow, saved vessel and crew, six; schooner *L'Espérance*, of Nantes two; schooner *Elizabeth*, of Whitehaven, four; barque *Elizabeth Morrow*, of Glasgow, nineteen; barque *Confidence*, of Liverpool, twenty-three;—total, 125. Making a grand total of 352 lives saved by the lifeboats of the institution during the present year alone. Besides these services, the lifeboats of the society at Walmer, Eastbourne, Aberystwith, Budehaven, Southport, St. Ives, Lytham, and Fishguard, put off on the 3rd and 4th of December, in replies to signals of distress, with the view of saving life from various vessels, but they were not afterwards required. These services are often attended with as much danger as when the lifeboat brings a shipwrecked crew ashore, the gallant men who man the boats oftentimes being thoroughly exhausted. Indeed, in the case of the Walmer lifeboat the crew were out eleven hours, and returned home nearly perished with cold. Altogether nearly 14,000 lives have been saved from various wrecks since the first establishment of the Lifeboat Institution, for which it has granted rewards. A boat, of its great life-saving fleet, now numbering 125 boats, is found on nearly every dangerous point of our coast where they can be efficiently worked. As each lifeboat requires about £50 a year to keep it up effectively, it will at once be seen that a large annual sum is indispensable to the institution's continued progress in its good work.

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#### LIFEBOATS FOR THE NAVY.

The importance of having all our men-of-war fitted with at least one lifeboat, if not more, is a question which has long occupied the attention of those scientific officers who form the progressive party in our navy. They have long been preparing the way for the introduction of these most valuable boats, and the services which they have rendered on all parts of our coasts, when connected at the same time with the fearful loss of life which was caused at the wreck of the *Orpheus* from the want of lifeboats, have lately had much effect in removing any scruples which the Admiralty might have entertained against their introduction into the navy.

To the mere looker-on it will appear an almost inexplicable fact that any of our men-of-war ever went to sea without lifeboats after they were once invented, especially since they have been brought to such complete perfection by the National Lifeboat Institution. The duties which men-of-war crews have suddenly to fulfil—to pick up men overboard in stormy weather, to land important despatches through any surf, and at almost any risk to render hazardous service to our wrecked merchantmen in the wildest and least civilized parts of the world—any and all of these duties may come upon them in a single day, and day after day, and have to be rendered in boats which are not only not fit, but are the worst fitted for such purposes.

The reason why our men-of-war have not been so fitted is that to this day a good lifeboat for service on board ships—that is, one easily

stowed, light to raise and lower, simple in its fittings, and strong enough to defy the rough usage of the most careless sailors—is yet to be designed. The boats of the National Institution, which now, fortunately, are to be found in most parts of the world and all round our coasts, are much too large for such a purpose; but the Admiralty, now seriously anxious to provide all cruisers with small lifeboats, have asked the officers of the institution to give plans and superintend the building of a lifeboat suitable for a man-of-war, but not to exceed one ton in weight.

On Thursday, the 21st of November, a trial was made with two such boats in the Regent's Canal Docks, London, in the presence of the Lords of the Admiralty and a number of officers interested in the solution of this most important question. The Lords of the Admiralty were brought down in Mr. Penn's beautiful little steam yacht, the *Engineer*. Among them were the Duke of Somerset, Admiral Frederick, Admiral Sir F. Grey, Captain Drummond, Admiral Eden, Commodore Sir F. Nicholson, Sir E. Perrott, Bart., Commodore Ryder, Admiral Sir George Sartorius, J. Luke, Esq., Captain Ward, Thomas Chapman, Esq., the Deputy-Chairman of the Institution, Richard Lewis, Esq., the Secretary, &c.

One of the boats tried was 32 feet long by 8 feet 10½ inches extreme width, capable of holding on an emergency as many as seventy persons, and of accommodating with ease forty-five or fifty. This boat, however, weighed 37 cwt., or very nearly double what is considered should be the *maximum* for a handy and useful boat for sudden emergencies. The second boat was 30 feet long by 7 feet 4½ inches wide, and weighed only 22 cwt. This would stow with ease twenty-five persons, and could take off thirty-five at a pinch. It seemed evident, however, that the Admiralty, in fixing the *maximum* weight at one ton, have adopted a standard which it will be found very difficult to comply with so as to make a really efficient craft for all weathers.

The boats were canted over to the water's edge in every way, and the largest, when emptied, was turned over by means of an hydraulic crane, and though in the still water of the docks it did not actually right itself, it remained on its side sufficiently buoyant to enable the men to turn it on its keel easily. In dense sea water, and especially in sea water with any swell in it, there is very little doubt that it would have righted of itself almost immediately. When it did right, the relief tubes in the bottom, which were opened, allowed the whole load of water in it to run off in less than a minute. The small boat, though not tested with this severity, was sufficiently proved to show that even when heavily laden with sailors, and with the relief tubes opened, it was still buoyant and as seaworthy as ever. The result of the trials seemed to show that if the Admiralty will only allow a slight addition of weight to their present standard—say from 20 cwt. to 25 cwt.—a perfectly efficient lifeboat, fit for any duty in any weather, may easily be obtained.

Some trials were also made at the same time with three shore lifeboats of the institution. These trials were, as usual, of the most sa-



tisfactory character. The upsetting of the lifeboats, and their self-righting and self-ejecting of the water shipped in the process gave much satisfaction to the spectators. The boats will forthwith be sent to their stations on the coast at Eastbourne, Pumbrey, near Llanelly, and Arklow, in Ireland. It was somewhat interesting to observe the names of the boats, two of them are called after departed relatives of their donors, and the other boat is called the *City of Bath*, its cost having been collected in that city. The National Lifeboat Institution has now 125 lifeboats under its management, and hardly a storm passes when some of them are not engaged in saving life. Altogether, nearly 14,000 lives have been saved by the society's lifeboats and other means, for which the institution has granted rewards, since its formation.

The trials altogether were most interesting, and the Duke of Somerset, before leaving, expressed his thanks to the Committee of the Lifeboat Institution for the care which they had bestowed in perfecting the boats which were tried.

#### MILKY SEA.

Captain Kingman, of the American clipper *Shooting Star*, has met with a remarkable piece of white water, in  $8^{\circ} 46' S.$ ,  $105^{\circ} 30' E.$ ; the account of which appears in his journal as follows:—

27th August, 1854.—At a quarter before eight in the evening the sea assumed a white appearance; hove to and sounded,—no bottom at sixty fathoms; kept course again. The temperature of the water was  $78.5$ , the same as at eight in the morning. Filled a cask of about sixty gallons with water taken from the surface, which appeared to contain luminous particles, especially when it was agitated. The whole cask seemed to be filled with bits of glass or insects in suspension, and presented the appearance of artificial fire seen at a great distance on a dark night. Some of the insects were serpentine and about six inches long, and very brilliant. On taking them in the hand they emitted light also; but they ceased to be visible when brought within a few feet of a lamp. With the reading glass of a sextant we could perceive a gelatinous coloured substance about them.

At length we obtained a specimen about two inches long and perfectly visible to the naked eye; it was about the thickness of a coarse hair, pointed at the ends. In bringing one of these ends near the lamp it attracted the flame when it was a quarter of an inch from it, and burnt with a red colour. The substance crisped up like a hair when burnt, and assumed the red colour before it was consumed.

In a glass of water I detected the presence of round bodies the sixteenth part of an inch in diameter, extending themselves to double their size and then contracting again; and when in their extended form, their external part was serrated, with the teeth turned towards the centre.

This patch of water was about twenty-three miles from North to South, intercepted in the middle by an irregular lane of dark water about half a mile across. I was unable to ascertain the extent of it East and West. Although I had seen patches of white water in various parts of the world, I had met nothing to be compared with this, either in its whiteness or extent. The appearance of the sea was that of an extensive plain covered with snow. Although sailing at the rate of nine knots, the ship made no noise in the water, either forward or aft. The sky, where it was perceptible through the clouds, appeared black to about  $10^{\circ}$  above the horizon, as in the most violent hurricane. Stars of the first magnitude could scarcely be seen, and the Milky Way itself was surpassed in whiteness by that which the sea presented alongside. The general effect was most imposing. It seemed as if Nature was preparing for that great conflagration which is some day to annihilate our globe.

When we left this patch of white water the sky became remarkably clear as far as  $5^{\circ}$  or  $6^{\circ}$  above the horizon, as if with the glare of the aurora borealis. We were enraptured with the scene, and enjoyed a beautiful night, without encountering any of those dangers which our imagination had anticipated.

There is no doubt that these appearances are the effect of organised maritime productions; but it has not yet been decided in a satisfactory manner whether they are vegetable or animal. The greater part of the specimens examined appear to be well defined animals, and colouring matter has also been found purely vegetable, especially in the Red Sea.

It is probable that the Red Sea owes its name to a similar effect to that produced in salts when the water attains the degree of saturation at which crystallization begins. Some observers attribute the colouration which then takes place to the matter of infusoriæ which perish while the saturation is going on. It is very well known how rapidly evaporation goes on in the Red Sea. Its shores are crusted with salt, and the causes abovementioned may communicate to the still waters of the bays and inlets of its coasts the red colour observed in saline marshes.

At certain seasons of the year, also, a red slimy matter is found, which Dr. Ehrenberg having examined with the microscope pronounced to be a species of marine algæ or weed of an extremely delicate nature. The Yellow Sea should present some analogous effect. It is not uncommon to meet with yellow patches on the coast of China,—but we have not met as yet with any analyses of this colouring matter. The colouring of the sea is frequently met with, especially in the Pacific Ocean, and most frequently red, but the white or milky sea is also found there, and many navigators have been alarmed, especially at night, by those appearances in it that seem to indicate the presence of rocks.—*Moniteur de la Flotte.*

The readers of the *Nautical* will have met frequently with these accounts and especially in our volume for 1800, where some of these marine insects are figured.

## Nautical Notices.

## PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from vol. xxxii, page 684.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
51. Harwich	East coast England	.....	F.	45	..	Est. 2nd Nov., '63. Two lights. (a.)
52. Cape Sacratif	South coast Spain	36° 41' N., 8° 29' W.	Ff.	320	24	Est. 31st Dec., '63. F. every minute.
Honda Cove	Point Llano	36° 41' N., 3° 26' W.	F.	44	8	Est. 31st Dec., '63. Red.
53. Sabinal Point	South coast Spain	36° 41' N., 2° 44' W.	Ff.	105	18	Est. 31st Dec., '63. F. every two minutes.
Roquetas	Ditto	36° 45 2' N., 2° 41 8' W.	F.	67	9	Est. 31st Dec. '63.
54. Mesa de Roldan	Ditto	36° 54 7' N., 1° 58 8' W.	Ff.	725	22	Est. 31st Dec., '63. F. every two minutes.
Port Colom	Majorca	39° 25' N., 3° 18 4' E.	F.	46	10	Est. 31st Dec., '63.
55. Guetaria	North coast Spain	43° 19 1' N., 2° 13 1' W.	F.	205	10	Est. 31st Dec., '63.
Santa Cruz	Tenerife	28° 28 5' N., 16° 14 9' W.	F.	34	9	Est. 31st Dec., '63.
56. Balandras Point	St. Domingo	18° 11 8' N., 69° 13 9' W.	F.	235	8	Est. 27th Aug., '63.
57. Spithead Shoals	Sturbridge and No-Mans Land	.....	..	..	..	Est. 7th Dec., '63. (b.)
58. Holyhead Harbour	Temporary green lights	.....	..	..	..	Est. 1st Dec., '63. Interior.
59. Monach Isld.	Shillay Isld.	57° 31 6' N., 7° 41 6' W.	Fl.	150	17	Est. 1st Feb., '64. Fl. every ten seconds.
60. Rosas	South coast Spain	42° 14' N., 3° 10 7' E.	Ff.	78	12	Est. 1st Feb., '64. Fl. every two minutes.
Cadaguan	Ditto	43° 15 5' N., 3° 17 2' E.	F.	116	10	Est. 1st Feb., '64.
61. Pescador Pt.	North coast Spain	43° 28 6' N., 3° 28' W.	Ff.	120	17	Est. 1st Feb., '64. Fl. every three minutes.

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

(a.) 51.—The lights are *fixed* white lights. The high light is placed at an elevation of 45 feet above the level of high water, and should be seen when bearing from N.b.E. northerly, round by North to W.  $\frac{1}{2}$  N.

The low light is placed at an elevation of 27 feet above the level of high water, and should be seen between the bearings of N.W.  $\frac{3}{4}$  W. and W.N.W.

The two lights seen in line one above the other bearing N.W.b.W.  $\frac{1}{4}$  W. lead between the inner Ridge and the Andrews buoys.

(b.) 57.—On and after the 7th of December, 1863, the lights shown from the scaffoldings on the Sturbridge and No-Mans Land Shoals, will be altered from blue to *red*; and the light on the Horse Shoal will be altered from blue to *white*.

THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle.

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FEBRUARY, 1864.

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JOURNAL OF AN OLD MAN-OF-WAR'S MAN.

*November, 1863.*

Sir,—A few months ago a relative made me a present of a journal that had been in his possession upwards of sixty years. The said journal was kept by my father while he was serving in H.M. frigate *Clyde*, from 1797 to 1802. I have copied a few days' work from different parts of it, and send them to you, thinking that the proceedings of a frigate, as seen from a "foremast man's" point of view sixty years ago, might be amusing to some of your readers. The writer of the journal joined H.M. service about 1786; he was in the *Impregnable* in the 1st of June; and was afterwards upwards of fifty years a warrant officer: as such he served with some credit in the *Arethusa*, the *Blake*, 74, and several other ships. I have copied the whole verbatim, merely changing the orthography in a few instances. If you should fancy that a portion of it is worth publishing I will send you a copy of it. I am much surprised at the almost total absence of flogging. Only nine men were punished during the five years, and six of them were punished for offences committed when away from the ship; the other three for "on cleanness," the journal states; I presume, for being dirty.

I remain, &c.,

J. B. K.

*To the Editor of the Nautical Magazine.*  
NO. 2.—VOL. XXXIII.

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*April, 1798, 13th, Friday.*—We got under way and put to sea, and fell in with *La Impereuse*. Our captain went on board her, and when he returned he called all hands, and asked us if we were willing to share prize money with her and the *Nymph* frigate that was along with her. All agreed: and made sail.

*14th, Saturday.*—In the morning our signal was made to chase to windward. At one o'clock the weather very dirty. We spoke a Prussian ship from Hamburg, bound to Oporto. [It was] blowing so hard that we were obliged to strike topgallant yards and masts, and reef the courses.

*15th Sunday.*—In the morning signal was made to *La Nymph* to chase to leeward. The vessel proved to be a French privateer that had been taken by some English cruizer. Then our signal was made to chase to windward. We spoke the vessels, one from St. Ube's, and the other from Gottenburg. Then we put about, and stood after the commodore. A large convoy passed us. At 10h. let the reefs out of the courses, and made the land; it was the Lizard. Then we put about and stood off,—the weather a little moderate,—the wind about S.S.W. The commodore made a signal to speak us. We went within hail. He told us to make the best of our way with the other frigate and he would follow us. So we both made sail and left him.

*16th, Monday.*—The first part of the twenty-four hours moderate breezes and hazy. At 8h. wore ship with her head to the S.E. At 11h., hard gales of wind, hauled the topsails, hauled up the foresail, reefed the mainsail, and bent the fore storm-staysail. The gunner's wife departed this life on board. At 4h. a.m. set both topsails, let the reef out of the mainsail, repaired the foresail and set it, and got up the top-gallant masts. At 9h. interred the gunner's wife; the weather then moderate.

*17th, Tuesday.*—In the morning got up top-gallant yards. Saw a large convoy going down Channel. The weather fine, the wind to the eastward.

*18th, Wednesday.*—In the morning little wind; saw a brig ahead. At 6h., brought her to with two guns. She was a Swede from Guernsey, bound to Rochelle. The weather fine. One man punished for uncleaness [I presume, for being dirty]. Shortened sail.

*19th, Thursday.*—In the morning made all sail we could, and stood on. At 4h. we made the island of Belleisle: then hauled our wind and stood off and on all night.

*20th, Friday.*—In the morning boarded a schooner from Nantes, bound to America, loaded with fish. At 12h., called all hands to reef topsails, in chase of another sail to windward; blowing pretty fresh, with rain. It came on dark, and we lost her. At 8h. called all hands; reef topsails; left off chase.

*21st, Saturday.*—In the morning still blowing fresh. Let one reef out and stood in for the French land and made it at four o'clock; then hove about and stood off all night.

*22nd, Sunday.*—In the morning saw a large convoy to windward. We made all possible sail after them. At 12h. made Belleisle; stood

close in and hove about. One small vessel came down to make us out. She stood as close as she dared, and hove about, and fired two guns to windward. The convoy extended as far as we could see; but was so close in along shore that we could not come up with any of them. We stood after some of them, but little wind. At seven they all got into the roads of Belleisle and anchored. We hove to, with our head off the land, bearing N.W.b.W., so kept off and on all night.

*23rd, Monday.*—In the morning we were close to them, so we bore up and went to leeward of the island. When we got to the other side, saw all the convoy getting under way. We made all possible sail to get up to them. At 8h. carried away our fore-topgallant mast, but soon got up another. They kept the main land so close on board it was out of our power to take any of them. They had one frigate, two cravats [corvettes], one brig, and one schooner. All five of them, after getting their convoy in, they put about and stood for us. We were all clear for action. We made more sail, and still stood on for them; but like cowards they put about and stood in for the harbour, under cover of their guns, although they had five to us, a single frigate. We stood into five fathoms water, and could go no further; so we were obliged to bear up and stand out. At 2h. saw a strange sail and gave chase to her, with French colours at our fore-topgallant masthead. She hoisted Spanish colours. We hoped to revenge ourselves of them, but to our sorrow she proved to be the *Mermaid*, English frigate, so both hove to: her captain came on board of us. After some time both made sail off the land; light wind.

[On Wednesday the 25th, in company with the *Mermaid*, they fell in with a cutter and a lugger. They sent the cutter to Lord Bridport with dispatches, and the three of them went next day and looked into the harbour of l'Orion. I change the cruising ground.]

*16th Friday, August, 1799.*—In the morning it blowed very hard, so close reefed the topsails, handed them, and hauled up the mainsail, and spoke the *Havhich* [? *Savage*] sloop of war. Her boat came on board of us, and then on board of the *Diamond*. After that made sail.

Several days passed without anything particular happening till Sunday the 20th of the month, when in the morning saw two large ships and gave chase to them,—the weather fine. They both looked very dubious [I suppose, suspicious]. But, at length, they finding that we [were] coming up with them and had a mind to *fight* them, they both made sail on different tacks. We chased the largest, and after some time came up with her, and fired a gun at her. At the same time we hoisted English colours. She soon returned the salute and hoisted French colours. Then a smart engagement commenced and lasted two hours and forty minutes. After which time she struck to the *Clyde*. Her name was *La Vestal*, a French frigate of 44 guns. We had four men desperately wounded, and one of them died under the operation of cutting off his leg and thigh. So we began to exchange men and put her in condition fit for going to England. She

had fifteen men killed and thirty wounded. She was a perfect wreck; but before night got all put to rights and made sail for England; the weather fine.

21st, *Monday*.—The weather fine. Another man died of his wounds. We steered our course for England, the weather being fair.

22nd, *Tuesday*.—Light wind and clear weather. We got our prize put all to rights, masts fished and sails shifted. Kept on. Nothing else.

23rd, *Wednesday*.—Light winds and clear weather. Another man died of his wounds, and we buried him. Still had the prize in tow.

26th, *Saturday*.—The weather fine. Saw three men-of-war to windward, supposed them to be French; but not finding ourselves in condition to engage, did not speak them, but kept on.

[The frigate anchored with her prize in Plymouth Sound on the 28th of August, 1799.

I have a most vivid recollection of my father's description of this action. If his account be true, it must have been one of the most spirited of the war. He says that the two frigates manœuvred a considerable time, and frequently exchanged broadsides when passing each other in opposite tacks, and that twice before they settled down to their work at a close cannonade, both ships cheered each other after delivering their broadsides when passing. Also, that after boarding her, they had a most desperate hand to hand encounter with cutlass and pistol, until more men came from the *Clyde* and enabled them to drive the Frenchmen off the deck. He was one of the first batch that boarded.]

14th *August*, 1800.—The ship cruising near Cape Finisterre.

In the afternoon gave chase to a brig, and there being very little wind we fired several guns at her, but she would not heave to. We got out all our boats, manned, and armed them, and sent them after her. She proved to be the *Earl Spencer*, privateer, from London. She came close to us, and her captain came on board and stood pilot, and carried us into a port in Portugal called Viana, where we wanted to water our ship. Both kept under way.

15th, *Friday*.—Weather fine and we close to the land. Saw a number of vessels; but being dubious of one nearer than the rest we put about and chased her. With three guns brought her to. She proved to be a Portuguese man-of-war. We left her, and took a pilot on board from the shore. At 12h. came to anchor off the town. A number of small vessels lay in the harbour. The town was situated at the bottom of a large hill, at one end of it was a convent. The land all around was very high and mountainous and covered with white sand and fruit trees of all sorts. The entrance of the harbour very narrow; on the left hand going in was a fort, and another stood on the top of the hill over the town. We had a number of fishing boats alongside with fish; and a number of row boats came and took all our empty water casks on shore. We was paid three dollars a man that was taken out of the Spanish brig.

16th, *Saturday*.—Weather fine. Had all sorts of things brought

off alongside to sell. Wine was remarkably cheap, and the natives civil. Nothing else happened.

17th, *Sunday*.—We watered our ship with all speed.

18th, *Monday*.—Light winds and clear weather. We had a large company from the shore. The Commissary and the English Consul-General of the Forces there, and the captain of the Portuguese man-of-war brig, and a number of their friends from the shore, all came to dinner on board, and after spending the day, retired on shore. After dark we let off a number of fireworks from the ship, which was answered from the shore,—as a piece of honour to both sides. Nothing else. [I again omit some.]

19th, *Friday, September, 1800*.—Fresh breezes and cloudy weather with squalls of rain. All the squadron in sight. They put about and stood in shore, we stood on. Nothing else.

20th, *Saturday*.—Fresh breezes and cloudy weather. In the morning saw a sail; gave chase. Blowing very hard, ship going twelve knots. At 11h. brought her to with one gun. She was under American colours but proved to be French, from Bordeaux bound to Gaudeloupe [Guadeloupe]. She mounted four guns, and had twenty men, passengers included, and one woman, and she was loaded with wine and merchandize. While we were taking the prisoners out of her, a large ship hove in sight to windward. As soon as she made us out she hauled her wind and made sail. We made all haste in dispatching our prize to England and made all sail in chase of the ship. We got so close to her that we could plainly perceive her to be an enemy's frigate; but the wind increasing, and it came on to rain, with the weather so close [thick], that we lost sight of her, but still kept our ship going thirteen knots. At 5h. p.m. saw her again ahead, distant two miles, but it came on dark and we lost her for good. It then blew a gale of wind. We handed all the topsails, fore sail, and main sail, and got the topgallant-yards down, and all made snug, and the storm staysails set, before we could bring our ship to the wind. When all was done, brought her to the wind and stood off all night. It was said that she was a French frigate from the Gold Coast bound to Nantze, but ran on shore after our chase, and that she was valued at two millions of money.

[I again pass over a few days.]

6th, *Monday, October, 1800*.—Fresh breeze and cloudy weather. At 6h. a.m. saw a sail and gave chase. With four guns brought her to. She was a French schooner from Senegal bound to Bordeaux, loaded with gum, ivory, and elephants' teeth. We made a prize of her, took her men out, manned her, and dispatched her to England.

The *Fishguard* came close to us and hove to. As we were hoisting up our boat she swamped. It was blowing very fresh, but by good luck none of us were lost. I was one of her crew. By the help of the *Fishguard's* boats all of us were picked up. The prize made the best of her way to England. At 12h. we passed the *Boadicea* and *Fisgard's* squadron. Made a signal to them and stood out of sight. It blew so hard that we reefed our courses, handed the fore and



mizen topsails, struck topgallant yards and masts, and stood on all night.

1801, April 19th, *Sunday*.—Off Brest. At 12h. our captain went on board of the admiral, [and] returned. We all kept laying to. Two frigates stood close up and had a look in. At 3h. a cutter from the fleet came with letters. Our boat went on shore in the morning for sand; returned, and was hoisted in. Some of the other captains came on board for their orders for the night. We lay to after stationing the other frigates for the night. Nothing else.

20th, *Monday*.—Weather fine. In the morning beat up and had another look at the fleet: our squadron in sight, so hove to. At 2h. p.m. a brig stood close past St. Matthews, and steered for Passage de Four. We made the signal for chase. All four made sail—*Clyde*, *Boadicea*, *Bowley* [I presume *Beaulieu*], and *Unicorn*. With one gun we brought her to. She was a French cartel from Plymouth bound to Nantez; so let her go, and stood out. All that night heard great guns and small arms firing in Brest and along shore.

21st, *Tuesday*.—Weather fine. In the morning beat up to look if there was any alteration in the enemy's fleet. Saw none: so stood out and exercised great guns and small arms. At 6h. p.m. came to anchor off the Black Rocks; the other frigates kept under way. Blowing fresh. Nothing else happened.

22nd, *Wednesday*.—Fresh breeze and hazy weather. In the morning one French frigate and a sloop of war got under way. We made the *Boadicea's* signal to chase them. She did, and the French made the best of their way in again. Our squadron all in sight. The *Liddy* [I presume *Liffy*], frigate, came in and hailed us; her boat came on board of us; after some time returned, and she left us. At night they all took their stations.

23rd, *Thursday*.—Weather fine. The French frigate under way again: the *Boadicea* kept her in. Our boats went all about the place, sounding; returned. The *Boadicea* came to anchor close to us. The weather fine; nothing else happened.

24th, *Friday*.—Weather fine. The French frigate still kept beating about the harbour's mouth, but so as none of us could come nigh her. We and *Boadicea* still lay at anchor, and sent boats on shore for sand and heath to make brooms. That night the *Unicorn* came to anchor. Weather fine. We shortened in cable and lay still.

25th, *Saturday*.—Weather fine. Sent boats away. The French frigate still beating in the harbour's mouth. Some of our fleet in sight. We set up our rigging fore and aft.

26th, *Sunday*.—Weather fine. *Boadicea* and *Unicorn* got under way. *Unicorn* came to again. *Boadicea*, in beating up to look into Brest, had some shell hove at her; but did no damage. Our boats still going on shore and a fishing.

27th, *Monday*.—Weather fine. At 11h. a.m. the *Excellent*, 74, stood close in to Brest. At 2h. p.m. we got under way; our boats on shore. That time they had chased French boats, but could not come up with them; [they] returned and were hoisted in. Our cap-

tain went on board the *Excellent* for some time, and she stayed outside of the Black Rocks, and hove to.

28th, *Tuesday*.—Weather fine. In the morning a cutter came to us from the fleet. We hove to and her boat came on board of us, and returned. So we made sail up for Brest. The French frigate under way in the harbour's mouth. At 8h. a.m. made signal to speak the cutter again, and for the *Boadicea* to repeat our signal. She did, and the cutter came to us. So we beat up, and one of the most daring and brave things took place that ever happened. For in a place called Camerat Bay lay, close to the mouth of Brest Harbour, two large French frigates. We beat up inside of the marks, for their shot and shell crossing each other; but still they did not yet fire at us, thinking to entice us under the muzzles of their batteries' guns; and for the same purpose one of the frigates got under way and stood out for us, but took good care not to come nigh enough for us to engage. All our ships were so far to leeward that all thoughts of assistance from them would have been useless if we had engaged. There was only the *Unicorn* beating up, and she was a long way to leeward. But, notwithstanding all this, we beat to quarters, cleared away for a close action, and hove to for them.

At length the French frigate gave us half a broadside, but, lucky for us, none of her shot came on board of us; and two of the batteries opened on us, and hove both shot and shell over and over us; but, thank God, done us no damage. At length the other French frigate got under way, thinking to frighten or chase us out of the harbour's mouth. But we made no further alteration than making the *Unicorn's* signal to form the line of battle astern of us, which she did immediately; and both of them stood us but for a short time; for seeing us both fully bent on engaging them, they both wore and ran into the bay, handed their sails, and came to anchor. We lay to for some time, and then both stood out a little way and hove to. We sent our boat and took up a set line, *belonging to them*, with some fish on it. The captain of the *Unicorn* came on board of us. At 6h. p.m. we came to anchor close to the Porquette Rock, and handed all our sails. We made the cutter's signal to come in and gave her some fireworks, and sent her close inside to alarm us if any of the enemy's fleet offered to move. So lay still all night.

29th, *Wednesday*.—Weather fine. At 6h. a.m. made the signal for the other three frigates to get under way and prepare for battle, and to endeavour, if possible, to engage the enemy. Our captain told the captain of the *Boadicea* that if any of them offered to move outside of the harbour's mouth, that he intended to run alongside of her; and at the same time desired that he would go on the other side, and, if possible, get some fire grapplings [grapnels] hove on board of her and make sail, and, if possible, tow her from under the fire of the batteries; and all the time we would continue a close action with her. So all four frigates of us got under way and beat up; but our ship, by sailing so much faster than any of the others, got a long way ahead of the other ships. Before we got up, one of the French fri-

gates had got under way, beat into Brest, and anchored among the enemy's fleet. The other was so close in in Camaret Bay that it was out of our power to come nigh her. The *Boadicea* carried away her fore topgallant yard, and got another up. At length we bore up and stood out a little way; they only hove one shell at us. We hailed the *Beaulieu*, and told her to anchor between the *Porquette* and *St. Matthews*, to keep the enemy from coming out. We sent the cutter to the fleet. All hove to, and the captains of the other ships came on board of us for some time; returned, and kept off and on all night. Weather fine. Nothing else.

On Sunday, the 3rd of May, she gave up the command of the squadron.

The journal states that all the captains came on board of their ship—I doubt not that many a hearty shake of the hand was exchanged,—and they took letters and sick men from different ships.

On the 6th May the *Clyde* anchored in Plymouth Sound. There they refitted and sailed for the coast of France, as commodore of a squadron, on the 18th May. But as there was little wind they anchored again, and had one man taken out of them to be tried by the civil power for the theft of a calf: poor fellow, I should have fancied that he was worth more on board his ship than half the calves in Devonshire. She sailed again at night.

*June 5th, Friday.*—Weather fine. At 7h. a.m. made the signal for unmooring, and at 8h. wayed anchor and sailed,—*Jason*, frigate, one gun brig, and the lugger with us. Little wind and clear weather; the schooner that we had spoke some days before went with us. Off Jersey the *Maidstone*, frigate, joined us. Off St. Malo the schooner left us; a number of fishing-boats beating off and on close to us. We all stood close in to St. Malo Harbour. Two French frigates lay in there with sails loose, and some merchantmen hove to for some time off the harbour's mouth, and then made sail along shore for Coucalle Bay; in which place we all anchored at 4h. p.m., and handed all our sails. Our captain went on board of the *Jason*.

Saw at anchor in Cacalle Bay, a large ship; and our captain gave orders to have three boats from each ship, and two from the brig, got ready, manned and armed, and to be alongside of us at eight o'clock at night, and the lugger to go along with them, and to endeavour, if possible, to cut her out from under the battery. One of the launches had a 24-pounder carronade in her. The number of men in all the boats about 140 total, marines and all. At nine all set off; then, being dark, at half past nine we all wayed anchor and bore down as close as possible to the land and hove to, keeping the lead going. At twelve at night saw several flashes, made by firing muskets. At that time they had been boarding her, and being heard and seen from the shore, they opened a very heavy fire on them from the battery, which was continued all the rest of the night and morning, as long as their shot would reach. For our men had taken her without any resistance from the crew, she being an American; but brought her out with only one being hurt,—the night favoured us for that. In the morn-

ing sent the *Jason* down to take her in tow; the forts were firing at them all the while they were working out of the bay.

12th, *Friday*.—Light winds and clear weather. At 9h. a.m. saw a number of vessels close under the land. All made sail in chase; but in spite of all we could do, they got into a port. There were thirteen sail, two brigs of war, and one lugger; so we hauled our wind and stood out. At 11h. a.m. carried away our main-topmast trestletrees. Got down our royal and topgallant yards, main topgallant mast, and main topmast, lifted the rigging and took them off, and got on another pair; rigged the mast and up masts and yards, and made all sail down along shore, and all in two hours; blowing fresh. Nothing else particular.

18th, *Thursday*.—Light winds and clear weather. In the morning hove to and sent our sailmakers on board of the *Jason*, to repair her sails, and sent her off St. Malo, while we kept up along shore. Stood close in to Chansey: one brig lay there belonging to our squadron. We sent the *Weasel*, brig, in ahead of us to sound, and stood after her all round Concalle Bay. The land looked very fine and in good order, and we had 5, 6, 7, 8, 9, and 10 fathoms water all over the bay. We came out close under the land. Two batteries opened on us; the shot went over us a long way, and we discharged our broadsides at them, and could plainly see our shot go into their fort. We all came out with our colours at the mast-head without any damage, in defiance of them all, and ran down to the *Jason*, and told her to look out for St. Malo, and we, two brigs, and one lugger beat up to Chausey. At 10h. p.m. all came to anchor off that island, and lay all night. Nothing else happened.

19th, *Friday*.—Light winds and clear weather. In the morning set up the topmast rigging fore and aft, and all the stays. At 11h. a.m. got under way and all sailed down along shore. At 1h. p.m. the *Valant*, lugger, joined us, and brought letters for the ship. We bore down for the *Jason*, and all hove to for some time. We sent the *Cockchafer*, lugger, into Plymouth with despatches, with speed. So left the *Jason* to cruize, while we examined our squadron all along the coast. Left her, and kept on all night. Nothing else.

24th, *Wednesday*.—Light winds and clear weather. At 11h. a.m. the *Hydra* wayed anchor and sailed. A number of French fishing-boats all round us; but we never offered to molest any of them, only in dealing fair with them.

26th, *Friday*.—Fresh breeze and hazy weather. At 9h. a.m. made the signal and wayed anchor. Saw a ship in the entrance of the harbour of Havre de Grace. At 10h. a.m. had a fishing-boat alongside, and told her we intended to have a full view of the harbour and roads; and likewise that if they fired one single shot at us from the shore, we would blow the town about their ears. So gave her time to carry in the news, and then stood within gunshot of the shore, and passed close under the ship's stern that lay in the mouth of the roads. She proved to be the You Nited States ship called the *Merry Land* [United States ship *Maryland*], come with the ambassador from

America to France, and waiting for his return from Paris. We sent a boat on board of her. So we stood in past the town, and they never offered to fire one shot at us, though so close in. A number of vessels lay in the harbour. When we had seen all, hauled our wind and stood out by the wind as soon as our boat returned, with surprise that we were not fired at by the enemy on shore.

28th, *Sunday*.—At 3h. a.m. wayed anchor; weather fine, light wind and clear. At 7h. a.m. we stood close in under the French land—a village being in that place,—and had some guns open fire on us; which we soon returned ten for one, till at length the enemy ran from both fort and town. So stood out and came to anchor again, it being calm.

30th *July, Thursday*.—Weather fine. In the morning we were close in to Guernsey, and seeing some of our squadron in there, fired signal guns and made the signal to come out. At twelve they did. It was the *Bloodhound*, and *Valiant*, lugger. We all hove to, and their commanders came on board of us and brought intelligence of the *Jason*, frigate being lost. We despatched the *Bloodhound* and the *Cockchafer* off St. Malo, and we made all sail all night; weather squally.

31st, *Friday*.—Weather fine, though squally. We passed Jersey, and at 3h. p.m. hove to, with the *Seagull*, *Weasel*, and another brig. All their captains came on board of us, and got some stores we had sent for from Plymouth to supply the squadron. But, to our grief, found it to be true that the *Jason* had got on shore close to St. Malo. We stood in and could plainly see her hull; but all masts and everything gone to the bare deck, and she lying on her broadside, with her starboard gunwale under water. We stood out again. Nothing else.

27th *August, Thursday*.—The weather fine. In the morning left Havre de Grace, and steered for Markau. At which place we arrived at 11h. a.m., and joined the *Maidstone*, frigate, and two gunboats. Our captain went on shore, while we lay to. That day the king's proclamation was read, for all deserters to give themselves up and have the king's pardon. I myself embraced the opportunity. In the evening all stood out and we left them in there to blockade a French convoy that lay in a harbour close by. That morning we had detained a galliot from Cherbourg bound to Havre de Grace, with salt; so brought her to Guernsey with us. Stood on all night. Nothing else.

For the next five weeks they are very frequently, four or five times a week, looking into Havre; and the journal states the reason for their keeping such a close look out on Havre was because there were five French frigates lying in there.

31st *October*.—Anchored in Guernsey. The *Cockchafer* joined us. We had likewise the intelligence of a boat belonging to the *Inso-lent*, gunboat, being stove on a rock; the captain and three of the boat's crew were drowned. The purser's daughter was in the boat, and one of the men got her on his back and swam for a great distance. At length, finding her clothes getting wet and heavy, he

told her that if she would consent for him to undress her, he would save her life; but virtue would not let her consent,—she would rather suffer death! He continued to swim with her on his back about two miles; at length, finding his strength quite spent, he was obliged to leave her to the mercy of the waves, and had the shocking sight to see her sink and expire. Had she consented for him to pull off her clothes, he would have saved her life.

The journal continues until the ship's arrival at the Nore, on the 7th May, 1802.

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CHANGES IN COAST LINES,—By *S. M. Saxby, Esq., R.N.*

(Continued from page 16.)

In the examination upon which we are entering one enticement is, to all appearance, wanting, viz., the opportunity of collecting evidences of our progress or discoveries. The mineralogist, and botanist, and the ornithologist, &c., add unquenchable fuel to their desires when they dispose of their captures or their specimens in their daily increasing cabinets. Their accumulations become tangible memoranda, registering pleasurable reminiscences and rescuing bygone days from blank oblivion. It might at first seem that the investigation of a coast line offers none of these temptations. Let me, however, remark that it is impossible for one who is desirous of advance in any one branch of science to confine his observations within strict limits to that branch. If endowed with a mind capable of easy deductions from surrounding facts, he will soon discover that the laws of nature, by whatever name we call them, or into whatever divisions we place them, beset us with their claims to notice at every step of inquiry; and these steal like a network over us until we are fairly captured, contented with the recognition of those unexpected charms which are the great reward, as they constitute the great enjoyment, due to persevering attention.

The merely book-learned are exceptions; the readers of the *Nautical* are, however, mostly men of action. They have even, generally, the habit of cursory observation. Seldom do naval men visit a foreign shore without bringing home mementos of their voyage. Friends ask for them beforehand. "Bring me," says one, "something to put in my cabinet, or in my *Hortus siccus*,—a leaf, a flower, anything, even the first weed you see after landing,—or even a pebble, or coral, or seaweed, or a shell from the rock." Well would it be if commissions of love or friendship were of such nature only. Our fair friends sometimes exceed this. I remember the time when an ivory fan, or a shawl, or a piece of China crape, or seed pearls, or Indian ink, or, in point of expense worse than all, real otto of roses were among such commissions. Perhaps the announcement (in my boyhood) of an old East India captain checked for a time this tax—for so it has been un-

gallantly called. On arriving at Whampoa he is said to have spread all his *written* commissions on the capstan-head of his ship, when suddenly a breeze scattered them. All those which enclosed the *guineas* for the intended purchases remained of course in safety, while the empty memoranda blew overboard, and their contents, as a matter of course, were forgotten.

The sailor has really opportunities for making the most interesting of all collections. I remember attempting, successfully, at Liverpool, some years since, to instil among merchant captains an interest in the objects which I knew were so easily procurable at sea. I sealed at one end several glass tubes, in which they might collect small objects obtainable by night in ocean water (to be preserved in brine rather than in spirit, because the latter destroys colour. On land we have our butterflies and our moths,—the one enjoying the light of day, the other the obscurity of night. It is just so with regard to the tenants of the ocean: no sooner does twilight succeed the glare of sunshine than upwards mount myriads of curious prowlers, who feed near the surface. These are but little known, and it was consequently with immense pleasure that I read the excellent details given by Captain Toynbee, in the *Nautical* for February and March, 1860, and admired his exquisite drawings therein published. Those who sketch with facility have great advantages.

Now, in examining a shore, not only are there specimens of the neighbouring rock to be collected and named, but in many places there are fossils and minerals to be easily obtained. I think it important to advert to this before entering upon the details of our particular subject, because a knowledge of what is before us will facilitate progress and enable some readers to better comprehend our purpose and descriptions.

I will just add one brief illustration of the abundance of satisfaction to be acquired when once we possess the habit of observation.

In the *Nautical* for August, 1861, the reader will have noticed my examination of the ancient bed of the Wautsum. I remember that when about to ride over that interesting district, some years since, I noticed the peculiarity of the Ramsgate walls, as composed of rich black flint; and while waiting at the inn stable door for my horse, and with the vague hope of finding in such flint a *xantheum* or two, I chipped, with the handle of my whip, a few splinters from a projecting piece in the wall,—wrapping them in paper for future leisible microscopic examination. Of *xanthidia*, however, I found none; but in one fragment of flint, about as thick as this paper and not more than quarter of an inch square, I found, to my delight such beautiful and perfect *foraminifera* as I had never before seen. Imagine, then, the value to me of a collection partly thus made by myself and sons. I would ask,—Need a man be a philosopher, or a bookworm, or an enthusiast in order to be successful?

I am afraid of deferring the promised subject, but am for the moment thinking what might not an observing yachtsman, owning a "comfortable craft" and possessed of ample income, accomplish in a

single summer? I trust your yacht-loving readers will perceive the great advantages within their reach, and the pleasure they might secure for winter in having a source of unobtrusive rational amusement always to fall back upon at that season.

How often do we in our travels pass through districts in total ignorance of the natural wonders which lie near our road,—marvels which the most enlightened philosophers travel a distance to visit and examine. Thus it is with us when we pass along many a shore in mere enjoyment of a “scene.” For what would not that enjoyment amount to if the telescope brought into view the very drawers and shelves, as it were, of nature’s well recognized and great open cabinet, with its contents plainly visible and only waiting to be appropriated?

We are never so fitted to enjoy the wonders of nature as when rambling upon a coast. “A run on shore!”—What do not these four words convey to the mind of the mariner weary of confinement and monotonous duties?

Perhaps it is hazardous to indulge thus while writing upon a serious subject. These discursive pleasantries will scarcely pass muster with those who conceive it beneath their dignity to “whistle” at their “plough.” To them, therefore, I respectfully offer my apology. But, my very good friend, the man of leisure, who also is so likely to read this, now confess to me,—Do you not at times leave your home and your occasional occupation or engagement in order to let your thoughts “run wild” for a little, so that your round of duties, on your return to them, may be the better performed from the refreshment of a change? I thought so. Well, then, I am only leaving the serious business of my work to run with you,—perhaps running a little wild, too,—but will now smooth my features and adjust my thoughts for the consideration of my self-imposed and pleasant task,—for I see we are at the “foot of the cliff.”\*

The present general boundary of Great Britain was formed very long subsequently to those mighty convulsions which originally formed what we call the continent of Europe. Its form has been so modified by a continual boring of the waves that its greatly diminished coast line is what we now see it to be on our charts. But vast has been this gradual aggression of the sea, and consequent change of coast line, even in the past thousand years,—as we shall see onward.

The area of England alone has suffered very considerable diminution from this cause, and in the part we have selected for consideration we shall find so much to interest and instruct that it will be difficult to judiciously condense illustrations as befitting the pages of the *Nautical Magazine*.

Geology tells us that the crust of the earth is composed of strata of rocks of different degrees of hardness, and that these strata or “beds” are found in the same relative positions, as a rule, throughout the globe. Not that the same bed extends like an envelope around its

\* *Vide Nautical Magazine* for December, 1863, page 670.

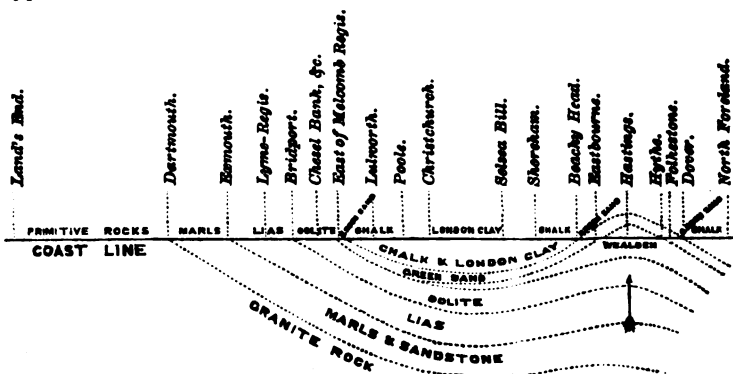


circumference, for we frequently see, in parts of the series, instances of beds "thinning out," and even of being absent altogether.

Now, in my last paper it was remarked that the South coast of England offered peculiar advantages to the student in undavorology, from its exhibiting nearly all the principal strata of the globe, from transition rocks up to the newest tertiary.

This has arisen from the circumstance of there having occurred, at some vastly remote period of the earth's history—but still subsequently to the great upheaval of the western part of the continent of Europe,—some volcanic action which threw up above its natural level that which has since formed the western part of England. In fact, all the strata of the south coast, which were deposited from water at a former dead level, are now to be seen "dipping" to the eastward; so that the same level of sea is washing (along a continued line of coast) the very lowest beds as well as those of more recent formation.

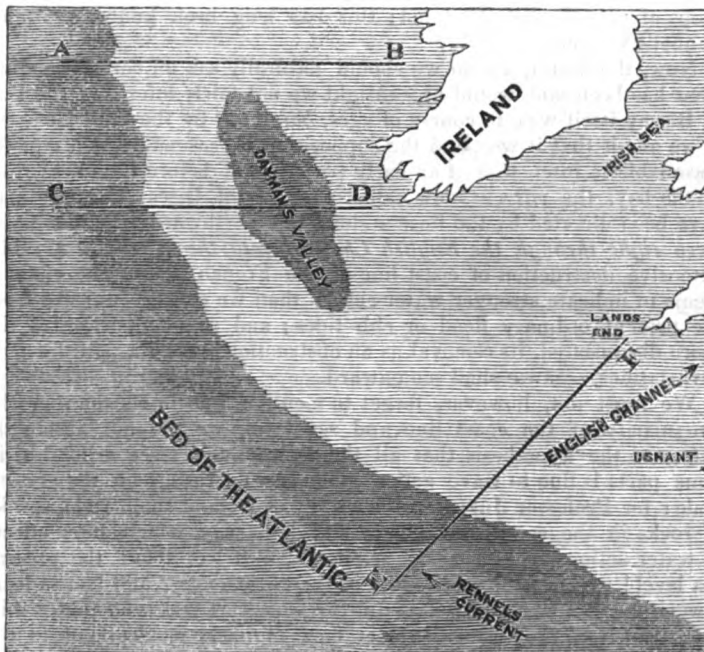
The accompanying diagram gives with sufficient accuracy the relative positions of British strata on the south coast, the horizontal line representing the average level of the sea shore. A second upheaval appears to have occurred.



No one can reasonably doubt that England once joined and formed a part of the great *dry* continent of Europe. Not only do we see a conformity to English strata in those which are exposed to view on the opposite French coast, but an examination of the soundings or depths of the English Channel confirms this in an extraordinary manner. Still more so do the soundings taken as we approach the entrance of it from the Atlantic Ocean show that the continent, properly so called, of which Great Britain once formed part, extends below the surface of the sea considerably to the westward of the present west coast of Ireland. If we draw a line on the ordinary chart from the Bay of Biscay, near Bayonne, curving towards a point lying about 200 miles westward of Valencia, and continue it in a N.N.E. direction westward of the Hebrides; until it gradually trends from the northward of Shetland to the coast of Norway, in about the latitude

of 62°, we shall have a tolerable notion of the real extent of the great European plateau at its western limit.

One would be cautious in making an assertion presuming to fix a limit to an ancient and long hidden boundary. But in so grand a study as geology, in its connection with the very important study of undavorology, we must not be deterred from following up our investigations because of the mere magnitude of the operations which invite inquiry. In this case, however, evidence of an enormous change of level in the earth's crust is really before us. Recent deep sea soundings have shown that from the Bay of Biscay along the line we have indicated there exists a sudden increase of depth of the Atlantic, which leaves an extensive plateau of rock,—one unsubmerged portion of which we call Great Britain, &c. Beyond this line there is a depth of, in some places, nearly 14,000 feet, while on the edge of the plateau, and not more than ten or fifteen miles distance from that great depth, we find perhaps but 3,000 feet. This great depth seems to diminish as we trace the edge of the plateau northward, where it is probably lost in the general shallower level of the ocean bed as it approaches the Norway coast.



The accompanying diagram and sections will further explain this. The first two sections are projected from Mr. Hoskins' survey in the *Porcupine*, of which very interesting particulars are given in the

*Nautical* for November, 1862. (N.B. The vertical scale has been of necessity greatly exaggerated, in so small a drawing, for the sake of clearness.) In the accompanying diagram, just at the point marked  $\times$  the depth of water has been found to be nearly three miles!

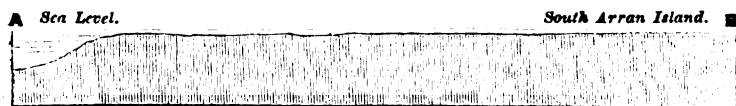
I have already remarked that we must frequently look hundreds of miles distant in tracing a cause for undavorological facts. I might have said thousands. The Florida Gulf Stream, that skirts the coast of North America and which is deflected from Cape Hatteras, acquires thence a north-eastern direction. It is not our present purpose to dwell on the circumstance of its having probably scooped out the, as yet, unfathomable depths of the Atlantic bed north of Bermuda; nor to enter upon the subject of the causes which have left still in existence the limiting shallows known as the Banks of Newfoundland: but it concerns us to trace the course of the Gulf Stream as deflected by that stupendous mid-ocean plateau, a few peaks on the top of which form the Azores. The current of the Gulf Stream, as shown in the *Nautical* for April, 1856, trends eastward of these, setting directly into what is now the Bay of Biscay; thence eddying north-westward and forming the current which still runs in that direction and washes the escarpment of the great European plateau where it crosses the chops of the English Channel: this has long been known as Major Rennel's Current.

Now, the first question we should naturally ask on comprehending what has been said, would be,—Might we not fairly infer that the Bay of Biscay itself was, in course of ages, *bored out* by the Gulf Stream? If we admit that it was, and the supposition is reasonable, it is equally reasonable to infer that at an early period, and before the excavation of the bay, the current now called the Bay of Biscay Current may have been directed by the former shore line northward of Cape Finis-terre *right through the English Channel into the North Sea*. The extensive destruction of coast line on the French side of the channel seems to indicate stronger water action than we can account for from the present ordinary flood or ebb tides; and as one portion of the shore disappeared, its removal as an obstruction opened a path for new devastations,—as we shall see onward.

We must not, however, forget to mention that in considering the irregularity of the coast line and sea level, we are not absolutely *driven* to the hypothesis that all the destruction we see around us in some parts is due to wave action alone, as operating on the present scale; for Professor Jukes, in the survey of Ireland (map 184), speaks of rocks in the counties of Kerry and Killarney which show effects of water action in parts which are now 2,500 feet above the present sea level! Such land was doubtless, therefore, once 2,500 feet at least lower than it now is. And, again, Sir Charles Lyell, who quotes this, speaks also of the former submergence of parts of Scotland to the amount of 2,000 feet.

Variations in the level of portions of the earth's surface, continued through countless ages, may have had also their share in producing what we are about to more closely examine in detail. Reason exists

for supposing that the outline of Great Britain took its present general form at a period subsequent to what is called the glacial period, when icebergs swept over its northern portions, while in the state of submergence referred to by Professor Jukes, and although this submergence did not extend to the southern portions of England, nor to northern France. Man did not, according to present belief, inhabit the earth during the glacial period, but was created afterwards.\* Nor is it likely that an omniscient and benevolent Providence would, according to our humble and imperfect deductions, have created man to dwell on a globe while its surface was in a transition state of disruption and unfitness.



Section from South Arran Island in a westerly direction, 200 miles.



Section from a point 60 miles South of Valentia (Ireland) in a westerly direction, 200 miles.



Section from the Linn's End in a S.W. direction, 200 miles.

There is one strong argument in favour of undavorous action which may justify our assuming it as a great cause of changes in coast line, viz., we find the submerged surface of the western end of the great European plateau nearly parallel to the water level, *the incline being ocean-ward*,—precisely as one would have expected to find it as a result from such a cause. The slight depression lately discovered at “Dayman’s Valley” is doubtless owing to the “sandy clay” bottom being softer than the surrounding parts.

Now, viewing the above in connection with the proofs given by me in the *Nautical* for 1861, at page 426, that the coast line of Kent owes its form to the action of the tides, which, *since the Roman period*, have in a great measure diverted the main channel stream some four miles westward of its former course—inasmuch as what then was a mere lagoon is now the open roadstead of the Downs,—I am in a position to assert that the science of undavorology, in its bearing upon

\* Those who feel interest in the subject should read Sir Charles Lyell’s work on the antiquity of man.

hydrography, is worthy of a place beside it in the close relationship of sisterhood.

The mere opinion of an individual with whom geology has been only a recreative pastime is but feeble in importance, but I cannot believe (as too generally supposed) that England was ever separated from France by some "sudden convulsion" of nature. I was pleased to learn that Professor Jukes, at Cambridge, lately declared a similar opinion. A "grand convulsion," capable of separating France from England to the distance of twenty-one miles, is not now to be thought of, as it must have left traces of its violence on record in adjacent strata. It is, however, more than likely that the volcanic action which resulted in the upheaval of the weald of Kent may have so disrupted portions of the chalk cliffs as to have favoured *water action* upon them, although we are here met with the fact of the chalk at the South Foreland *dipping* thence under the marls eastward; so that in reality chalk cliffs were not continuous, and may not have been above the water level for any distance; and the softer tertiary of the mid-channel ancient dry land would have offered no more obstruction to the waves than do similar beds in the Isle of Sheppy at the present day. But this is slightly anticipating,—a few diagrams on wood will explain this.

We will now proceed to examine in detail the progress of such changes as have led to the present picturesque and peculiar scenery of the treasured sea-side retreats of our glorious "island home,"—such as lie between the Lizard and the North Foreland.

Many who read this at sea may be debarred from the convenience of occasionally consulting a work on geology; therefore it will be desirable to explain briefly a few necessary definitions and facts in that science, such as may convert what we see into *readable* evidences of the great and venerable past.

But I am painfully reminded that our coast does not always present scenes of unmingled pleasure. While I am writing, loud *Notus* is burlesquely occupied at my port-sash,—tugging at my cabin-door,—rattling its spite among the skylights and overhead gear. Must its hum and its whistle, and the screaming of its wintry threats around the big ship in which this is being written, arrest my pen, and cheat me of the pleasant reminiscences which had just filled my memory as prepared to array its resources for public communication? It must! There is a solace unmistakable in feeling that even "wooden walls" can protect us in such a wintry night! It might, however, be absolutely imprudent, in this increasing roar of the elements, to continue our subject.

Alas! poor sailors! What dismal truths might not the howlings of the wind on such a night as this suggest as to, for example, the Eddystone, Bill of Portland, Chale Bay, Rocken End, Blackgang Chine, the Goodwin Sands, &c.

For all things there is a time and season: happy is he who can control his inclinations or indulge them at seasonable times only. Certainly this is not a favourable moment for discussion of a pleasant

subject! Some may smile at the impressibility of one, safe in harbour, whom a gale unfits for work! Smile on, good readers! But, probably, had you, previous to the present humane lifeboat system, often witnessed from the open lugger and amidst the boiling surge, the harrowing despair of a devoted crew surrounded by the indescribable horror and confusion of what no mere landsman can ever realize, viz., the roar of the tempest, the *madness* of the huge waves as they dash *over each other* into cruelly destructive masses, and as they rave around and over the devoted wreck on the pitiless Goodwin. Had you, even on shore, witnessed the misery which such gales bring to many a widowed bosom, or the anguish and apprehensions and anxieties which admit of only *one* alleviation, viz., the safe return of the beloved absent one. Or had you seen the human frame in its ripest and comeliest manhood dashed with fatal fury upon the strand;—moreover, had your own hands cut the cords which lashed the despairing sailor boy to the rigging of the sunken wreck, and had your own arms assisted in laying his rigid and poor, pallid, frozen, and lifeless body in your own frail boat, mindfully uncertain if you too would ever reach the surf-lashed shore;—or had you seen struggling mortality swept by scores from the wave torn hull, and heard their fruitless calls upon your feeble powers for help against that very same destructive agent which it is my purpose in these letters to show can rend the very adamant:—*then*, would you struggle as I do, when the hurricane is abroad, to suppress the choking emotion which dims the eye and appeals to the heart of the stoutest of us;—then would you wish to turn your thoughts inward, and commune with your God in prayerful gratitude for well mentioned personal mercies!

My heart bleeds and my spirits sink as I think upon what yet remains to be done for poor bereaved families on our coast who, while I write, are being deprived of the dearest of all earthly ties, and even of means of procuring daily food? Can nothing be done this winter for the two sister institutions—the Shipwrecked Mariners' Society and the noble Life-Boat Institution? From our purses can we not each spare a few shillings, or even pence, to aid such benevolence? I propose that we send our "mites," even if we have little to spare. I shall send mine.

Reader, pardon me in this! But you who would not, as you love your soul's welfare, turn the hungry vagrant—or even the known hungry reprobate—from your door if appealing for bread, think upon the sailor's and fisherman's widow and orphan crying for the means of subsistence! And although you cannot hear their sobs, nor personally sympathize with them in their wants, believe me I have witnessed the benevolence and the working in detail of the Shipwrecked Mariner's Society, and can commend your contributions to them as to stewards worthy of your confidence. Who from his superfluities will thus "lend to the Lord?" Where exist sympathy, and generosity, and benevolence, if not in the British sailor?

(To be continued.)

RAMBLES IN JAPAN:—*Yokohama to Kanasava.*

Previous to quitting Yokohama, the last place at which I stayed on my visit to Japan, I have yet to visit Kanasava, the town of fishermen, celebrated for its picturesque situation; Kamakoura, the town of temples; the Dai-bouts, a colossal statue in bronze of Buddha; and Inosima, a sacred island which Japanese legends have peopled with kind genii.

Kanasava is nine miles to the southward of Yokohama, on the shore of a small harbour, which is too shoal to admit of European ships, but which contains some hundreds of fishing craft. In the English charts it is called Gouldsbrough Inlet.

Inosima is nine miles to the S.W. of Kanasava, in the eastern part of the great bay formed by the peninsulas of Idson and Sagami. It is an island of volcanic formation, which the tides have united to the great island of Nippon by a narrow tongue of low sandy land, and in the course of ages have transformed it into a peninsula. When it is seen, however, at a short distance from the shore it has all the appearance of an island.

The town of Kamakoura, on the peninsula of Sagami, is between Kanasava and Inosima. It is fourteen miles from Yokohama and four from Inosima. As to Dai-bouts, this is in the immediate vicinity of Kamakoura, on the road from this town to Inosima.

Most of the residents of Yokohama have visited these several places, and all allude to this excursion as the pleasantest and most interesting of any in the neighbourhood. The journey may be thus traced out:—From Yokohama I was advised first to proceed by the sea to Kanasava, there to pass the night, and early next morning to proceed on horseback to Kamakoura, the Dai-bouts, and Inosima. According to these instructions, before night I should be able to return to Kanasava, and, if the wind was fair, could get back to Yokohama the same evening. In the event of the wind being foul, it was only necessary to pass another night at Kanasava, and I could then, after giving a sufficient rest to my pony, do the whole journey by land from Kanasava to Yokohama.

This way of making the visit to Inosima is that which is mostly adopted by foreigners. They usually set out four or five in company, taking their provisions, and with their whole suite of grooms, servants, boatmen, and cooks, form a numerous caravan, the appearance of which produces a sensation among the natives. I intended to follow this plan, and was provided with a good many of my friends as company, but the weather was not propitious. At one time we were overtaken by a breeze in Mississippi Bay, which it was necessary to cross to get to Kanasava, and we were obliged to return. At another time a pelting rain confined us in doors as we were about to set out for Inosima; and eventually I was compelled to make this tour alone, and under circumstances which I look back on with the most agreeable recollections.

It was on the beautiful evening of a hot summer's day that I crossed the slopes and extensive plains which lie to the west of Yokohama, between the sea and a long chain of wooded heights. The roads were in good condition, and my pony, which was a vigorous, lively, little animal, such as is commonly found in Japan, carried me rapidly over the ground. Ahead of me ran my *betto*, a young man of twenty, getting over the ground with his nimble feet, and from time to time giving out the usual cry intended to attract the horses' attention when approaching some brook that should be crossed, or to avoid it by means of large stones here and there spread over the middle of the road. He had thrown off, one after the other, nearly all his clothes, securing them behind the saddle of his horse, exposing his naked and well-formed limbs, which were well enough proportioned but hideously tattooed.

One travels quickly on horseback with but one companion. In a short time I had crossed some considerable valleys, ascended two or three hills, and attained a good distance from Yokohama, when my *betto* stopped before a tea-house, saying, if I had no objection we would take a moment's rest. He was covered with perspiration, and evidently tired. I immediately alighted and, passing through the verandah which surrounded the house, inquired for tea and tobacco, which an old woman soon hastened to bring me.

From the rather elevated position which I had gained by the verandah, I saw around a picture of Japanese scenery so beautiful and charming that it threw every other that I had seen into oblivion, as not to be compared with it. Before me lay an extensive valley, flanked on either side by hills covered with magnificent trees. A little beyond them other hills formed terrace after terrace, again bounded by an horizon composed of the imposing chain of the Hakoni Mountains, in the midst of which appeared, towering above them, the peak of Fusi-yama, lighted up by the magic splendour of the setting sun. The other end of the valley was bounded by the sea, calm and unruffled as a mountain lake, and the evening sky reflected the purple and orange tints as if from a sea of gold and fire; and here a long, beautiful vista showed at its termination a little lake, which communicated with the sea, dotted with numerous fishing boats, and on its shore was a tolerably large village.

My *betto*, an amateur of the beauties of nature, like all his companions, also performed the part of cicerone. "Here, indeed," he said, with evident satisfaction, "is the most beautiful place near Yokohama. You may observe," he would say, "Fusi-yama and the sea, and at your feet, this clean village, washed by the waters of the lake, is Kanasava, and belongs to the old daimio Fossokawa."

For a long time I had entertained the project of visiting this place, and finding myself so near it, I determined on going there; but it was evening, and if I did so it would be too late in the night to return to Yokohama. With the view of relieving my host of all anxiety about me, and being quite at my own ease, I asked my *betto* if he would take a letter for me to Yokohama, and bring me an answer



by midnight for a reward of two itzboos (4s. 6d.) The whole distance was about twelve miles, and the *betto* made much of it. But the two itzboos were an effective spur to incite a poor fellow who did not gain ten itzboos a month, and the length of the journey was not sufficient to deter a man from undertaking it who was already used to such work by forced marches. The *betto* eagerly accepted my offer, and as soon as I gave him the letter to my host—in which I asked him to send me some money and my revolver—my guide started on his expedition.

I stayed a short time in the tea-house, and then, with my arm in the bridle of my horse, I went to the foot of the hill where I had stopped. I met a good many Japanese, who, seeing me thus strolling along, looked at me with astonishment; but none of them failed to salute me with the respect which at that time even (1862) they were accustomed to pay to the *To-djins* (people of the west).

At the foot of the hill was an extensive rice-field, which I crossed at a trot and entered the village of Kanasava. My appearance caused a kind of *emeute*, although a good many foreigners had been there before. Men and women appeared at the doors to witness my arrival, and a crowd of children ran after me, and with their noisy exclamations accompanied me to the tavern which my *betto* had pointed out as the best in the place. I cannot say that I was received there with open arms, for, on the contrary, my arrival produced a visible uneasiness on the lady of the house, who came to me and in the most polite manner possible, but at the same time most unmistakably, begged of me to find a lodging elsewhere, pretending that she had no vacant room for me, and that it was impossible she could either receive me or my horse.

Such a reception by no means surprised me. I knew from experience that it was not to be attributed to incivility or ill will, but to a kind of fear of a suspicious government, which there, as everywhere besides, was endeavouring to prevent all communication between natives and foreigners. So I did not attempt to answer her, but getting off my horse, led him to the stable, where I made him comfortable; and I then seated myself in the public room, situated on the ground floor, where there were a good many people, and asked for something to eat and drink. But the mistress of the house, attended by several persons, came and begged of me to leave. She was liable to be punished, she said, if she consented to receive a foreigner without the consent of the authorities of the place. I told her that my poor horse was too tired to go to Yokohama; moreover, the night was at hand and I did not wish to undertake such a journey. I advised her then to consult the authorities, and to appeal to the *staban* or *aykounine*, the chief of the police officers of the village, with whom I should know how to deal.

A man was despatched for him and he soon made his appearance, walking with majestic step, accompanied by two officers of grave and important air. They approached me most politely. One of them took a note-book from his girdle and wrote down everything I told

him. He asked me my name, my profession, and my country, where I came from, and whither I was going. I could have left all these questions unanswered, for I was not beyond the territorial limits within which, according to treaty, foreigners have a right to travel. But, waving this point of right with a subaltern agent in the service of one of the thousand petty tyrants which swarm in Japan, as leading to nothing, I submitted with a good grace to the endless interrogatories of my questioner, who acted in this case with as much solemnity as if the gravest interests had been at stake.

When he had expended all his questions, I addressed on my own account some questions to him; the answers to which were of importance. I asked him, in fact, if the innkeeper was permitted to supply my wants, to provide me with a meal and a room, if I paid for them, and to be satisfied of the consequences of an act not illegal.

The *staban* made some difficulties, observing that the Japanese cookery was not adapted for foreigners; that there was not a bed in one of the rooms, and that I could not sleep on mats; that in every respect it was more convenient, according to him, for me to return where I came from. The evening was fine and calm, and he would undertake to find me a boat that would conduct me safe and sound to Yokohama; besides which he would engage to send my horse to me at daylight. But I was determined not to yield on this subject, and I threatened to lay my complaint before the governor of Yokohama if I was interrupted in what I had a right to do. So this ended the discussion, and the *staban* and his acolytes took themselves off to make their report to the magistrate. But I heard no more of them, and I presumed that it was convenient for the council of Kanasava to let me alone.

I have enlarged a little on the details of this transaction because it is one of common occurrence in Japan, and shows, in certain points of view, how we stand with the Japanese people. The Japanese are entirely under the tutelage of a despotic government, and dare not take a single step without the permission of their masters. These persons, for reasons which require a special consideration, are hostile to strangers, whom they are pleased to represent as being dangerous and barbarous. They apprehend especially diminution of the respect which the common people pay them, by allowing free communication with men who they well know are little inclined to be prodigal of respect towards them; and on this account they oppose to the utmost of their power all friendship between Japanese and Europeans.

Thus it is beyond the walls of Yokohama and Nagasaki that foreigners have the right of citizenship. A European cannot have any intercourse with the Japanese without soon having by his side the inevitable *acoomim*, who must needs be go between in the most trifling transactions, and whose business it appears to be to throw as much difficulty between them as possible. The repeated complaints of our ministers have done nothing to remove this evil. The answer that they have received is that it is a measure of precaution, and only for

the benefit of foreigners, since the Japanese government is made responsible for their safety. This proceeding does not exceed the limits of their right to establish whatever measures of the kind they may think necessary. This troublesome state of affairs will not cease until the tycoon shall have made friends of his new allies and gained their sympathies, in order to oppose with effect the pretensions of the mikado and daimios; who, with reasons more or less specious, accuse the government of Yeddo of having violated the Japanese constitution by concluding treaties with western nations.

My terrified hostess of Kanasava, as soon as relieved from responsibility by the visit of the officers, entirely changed her manner towards me. She ordered my horse to be taken care of, and conducted me to a comfortable little room and gave me a Japanese supper, composed of fish soup, boiled and fried fish, rice, sweets, and fruits, all of them washed down at pleasure by saki and tea. Japanese cookery is very varied, and entirely that of a civilized people. I mention this because I have noticed the question as one which has been most commonly put to me—What do they eat in Japan? The answer is very simple. Europeans eat what they have been accustomed to,—that is to say, beef, mutton, fowl, game, fish, and vegetables. The only peculiarity of a European meal in Japan is that the rice currie—a favourite dish in all the colonies—is invariably there, whether at a dinner of ceremony or one of an ordinary kind.

As to the cookery of the country, properly so called, it has essential features different from ours. First, the butchers' meat is absolutely at fault. The animal kingdom is only represented by fowl and fish. The poor people only consume rice and vegetables. They vary this nourishment, which is rather insipid, with strong reinforcements of horse-radish and pepper. Those of a higher class accompany the rice with fish, boiled and raw, hard boiled eggs, and fruit, such as apples, pears, raisins, oranges, and sweetmeats. It is only among the upper classes that I have seen chicken soup and fricaseed fowls. But among the rich as well as the poor rice forms the foundation of the meal, and takes the place both of bread and meat.

The common and universal drink is tea; saki is also drank, not generally, a kind of brandy made from rice, and a sweet wine of Osaka, the agreeable flavour of which reminds one of tokay. It may be observed that opportunities of drinking these productions are not uncommon, considering that the Japanese is the most sociable man in the world, readily accepts an invitation to dine and likes to see friends at his table. On these occasions saki, hot and cold, is substituted for tea, especially towards the end of the meal,—although tea is freely drank also. Generally speaking, the Japanese, like all the people of the extreme west, besides the Indians, Chinese, and Annamites, are very sober, and I have never seen a single one so far gone at table as to lose his reason.

A good Japanese cook possesses the art, as well as Vatable, of preparing meals to please the eye; and even in the inferior class of society they manage to serve up a repast in an appetizing manner. Failure

in this art is unknown, and I have never had any complaint to make on the subject. I had also always a good appetite, without the least repugnance to do honour to the meal which I had in the inn at Kanasava.

The sun had gone down, the night was calm and serene. The lake and surrounding hills—the sea and mountains visible in the horizon—all in quiet repose. The Japanese nights are very beautiful; the atmosphere is so remarkably transparent. The meteorologists who have visited Japan and observed this phenomenon, are unable to account for it. Travellers, without being acquainted with it, are unanimous in praising the indescribable charm which they experience in a star-light night towards sun-rise.

I had placod myself under the verandah, listening to the conversation of the people in the inn, who, grouped on the threshold of the house, were enjoying the favourite pastime of the Japanese, smoking and drinking tea, when my attention was attracted by a fisherman's light on the lake at a short distance from where I was. It was a curious spectacle and is fixed on my memory. There were five or six boats, each with half a dozen men in her; ten of them were bearing torches, which gave out a brilliant light, along with thick smoke, the resinous smell of which reached the inn. By the flickering light reflected from the water, which was broken in small waves by a light breeze, I saw the forms of the men in solemn silence appearing to be engaged in a strange, mysterious occupation.

On the opposite shore of the lake there was a house brilliantly illuminated by an abundance of lanterns, and I soon heard the piercing sound that the Japanese make from the *sampsin* by striking with a piece of ivory the cords of silk of this kind of guitar; and this was accompanied by the pleasanter sounds produced by an instrument called the *rhota*, a harp of three strings. The sound of male and female voices, which from time to time was wafted by the breeze, completed the music of this concert. There was evidently a *fête* being held in that house, and, trusting to the hospitality of the Japanese, I determined to see what was going forward from a nearer point of view.

The mistress of the inn opened her eyes in astonishment when I asked her to let some one show me the way to the lighted up house. But she did not oppose me in my design, and called a little boy, who, just as nature formed him, without any dress whatever, came from the corner of the room, where he had been sleeping under some thick covering. He rubbed his eyes, half awake, threw his small cloak over him—which, entirely open in front and reaching to his knees, only covered his back,—and walked before me with a faltering step, obeying rather the pressure of my hand than the sound of my voice. He was a veritable somnambulist. On entering the house, in the parlour of which some Japanese were crouched round brasiers, the child seemed to awake for some moments and, drawing a long sigh, extinguished the lantern he had brought in his hand, and dropped down asleep in a corner.

He had scarcely closed his eyes when I had saluted my new friends.

They seemed much surprised at first, and even dissatisfied at my unexpected visit; but when I explained to them that I had come from the opposite side of the lake, so as to be nearer to their music, they began to laugh, and bid me welcome. One of them, a domestic, got up to announce my arrival to his mistress. He soon returned, and requested me to follow him. I ascended a narrow stair, and reached the first floor of the house.

In a large room, lighted by some paper lanterns and bad candles, there was a merry company of Japanese before me, consisting of four men, their wives, two children, and four singers. These last were in a corner of the room, whilst the others were in the middle, sitting round the remains of their repast. Their animated figures, their bright eyes, and the absence of all restraint or fear at my appearance among them, satisfied me that I had surprised them in the midst of one of those family meetings so common among the Japanese. One of the men, probably the master of the house, got up, and in the most polite manner bid me welcome, and the others invited me by signs to sit down with them. The ladies and children looked at me with much curiosity.

I endeavoured to explain the object of my visit, and had much difficulty in making myself understood; but I had still more in making out their answers. My companions had never exchanged a single word with a European, and the words which at Yokohama I had intended to pass for Japanese certainly did not appear entitled to pass current throughout the whole empire. In general, the Japanese which is spoken by foreigners is very different from the choice and pure language of the natives. I have also frequently remarked that in order to converse with the merchants from the interior, those of Yokohama avail themselves of their domestics as interpreters.

However, the difficulty we had in exchanging some phrases by no means lessened the kind attentions which they paid me, and which Europeans always find in Japan when there is no particular reason for fearing or avoiding them. They offered me tea, rice, fruit, and saki, and were highly amused at my want of management of the two sticks that they gave me to serve for a knife and fork.

I stayed more than an hour in the company of those agreeable people, and they would have kept me much longer if I had not excused myself with the fatigues of the journey and the necessity of being up very early in the morning. The men accompanied me home, and one of them insisted on attending me to the door of the room where I was to spend the night, and did not retire until he had seen me safe and sound.

The recollection of Japanese hospitality which I experienced has by no means astonished any of the strangers who have visited Yokohama or Nagasaki, for many of them have received similar attentions. The Japanese, in fact, are fond of strangers. They admit their superiority and seem instinctively to recognize in them the liberators who are destined to relieve them from the yoke of their feudal aristocracies.

The commercial relations between Japanese and Europeans have been generally agreeable and unattended with disputes, except in trifling matters, common to all transactions. We have only encountered ill will and systematic opposition from the higher classes, who with the introduction of the foreign element clearly foresee a revolution in favour of the lower classes; and who by resisting with all their power the movement which they perceive, are, so to speak, in a state of legitimate defence. Their opposition will not entirely cease until the liberal party is victorious in the strife which now divides the empire into two hostile factions.

#### THE WESTERN DIVISION OF THE MEDITERRANEAN.—*Winds.*

(Continued from page 23).

The prevailing winds on the coast of Sardinia are from the N.W. and East. The sea breezes (*embates*) which, in the fine weather season, set into the bays about noon, gather strength in the course of the afternoon, and go down about sunset, to be followed by the land winds. The currents generally follow the course of the wind, running stronger in the channels between the islands off the coast.

Admiral Smyth says of the Sardinian winds,—“The prevalent *Maestrale* brings in a long swell from seaward. The West wind seldom blows without bringing rain; still it is always welcomed on the coast on account of its favoring the arrival of the tunnies: when it veers to S.W. it is injurious where it rakes. The South wind rarely occurs but as a stormy winter visitor, and is annoying in the exposed bays.

The *Gregale*, or N.E. wind, is called double-faced, from being very squally and inconstant, with heavy rains. And the East wind, or *Bentu de Soli* (the coming of which is indicated by parasitic clouds on the mountains) is usually accompanied by vivid lightning, and, from being loaded with vapour, becomes exceedingly disagreeable after a long continuance. The *Maledetto Levante*, so complained of by natives for its debilitating effects, is actually a S.E. wind, the sirocco of Sicily and Italy, and the *plumbeus auster* of Horace. So great are its effects in driving up the hygrometer towards the damp point that it is termed *mollezza*; whereas the healthy and agreeable *Tramontana*, or North wind, from its opposite quality is called *Gli Secchi* (the dry). But Sardinia has much very fine weather, and the calms of the summer months are harvest times to the fishers.”

The Sicilian weather is thus noticed by our Admiral. Whilst the sun is in the northern signs, the sky, though it seldom assumes the deep blue tint of the tropics, is nevertheless beautifully clear and serene. Then, after the autumnal equinox, the winds become boisterous and the atmosphere comparatively dense. The dews and fogs

increase, particularly on the coasts, and the rain falls in frequent and heavy showers. In summer it is generally calm in the morning; but a breeze springs up about nine or ten o'clock, freshens till two or three, and gradually subsides again into calm towards the evening.

The winds are variable, both in their force and direction. The most prevalent are the northerly and westerly, which are dry and salubrious, producing, with the clearest sky, the most agreeable sensations; and a modification of the *Maestrale*, called *Mamatili*, is enjoyed by the Palermitans as a most refreshing sea breeze. Those from the East round southerly are heavy and loaded with an unwholesome mist, often accompanied by heavy rain, thunder, and lightning; storms in which I have seen vessels struck by the electric fluid, and in one of these cases I was a witness of the all but destruction of the *Scylla Castle* in the spring of 1815.

On the North of Sicily are the Æolian Isles, the fabled residence of the god of winds; and whether from the heat of the water by volcanic springs, the steam of Vulcanella, the incessant hot ejection from Stromboli, or all of them, added to the general temperature, it is certain that there are more frequent atmospheric changes among this group than in the neighbourhood. These extend their influence to the Faro of Messina, but are there modified under local conditions. Thus, when a northerly wind blows through the strait, and meets a southerly one some twenty miles below it, or a wind from the Adriatic near Cape Spartivento, it is the occasion of much aerial commotion, especially in the offing between Taornina and Mascali, where the weather is then called *Del Golfo di Cantera*.

Another singularity of the Faro is the *Liepa*, a calm in the strait, with masses of super-impending clouds, though blowing fresh outside. This continues till the next *Taglio di Rema* of the descending current, when, as soon as this gush of water is established, the wind bursts in with equally gusts and accelerating force.

The most violent gales experienced at the Maltese Islands are those from the N.E., the dreaded gregala, which rakes the harbours of Valletta, sends in a prodigious swell, and has often caused serious damage, as well on shore as among the shipping. The south-wester is the hottest of the summer breezes, much disliked by the Maltese, and even in the spring of 1816 (says Admiral Smyth) I saw the fields on the neighbouring isle of Lampedusa so burnt and parched by it as to blight all hope of a harvest. From the heat imbibed by the calcareous surface of Malta, the sultry nights which follow the *Festa di San Lorenzo* in August, and continue till after the autumnal equinox (21st September) are sometimes very distressing to strangers, the warmth being of that oppressive degree termed implacable.

But the most annoying visitor of these regions is the sirocco or south-easter, a wind detested equally by the ancients as moderns, being no doubt the evil vapour of Homer (*Iliad* v) into which Mars retreated when wounded by Minerva. This debilitating breeze, the dreaded *Samiel* of Egypt, sweeping over the parched deserts of Arabia and Africa, where the hottest summer climate in the world is to be found,

is moderated by its passage over the sea to a tolerable degree of temperature; and on the East coast of Sicily, where it first arrives, its effects are inconsiderable, but seeming to acquire additional heat in its progress over the land, becomes a serious inconvenience as it advances. At its commencement the air is dense and hazy, with long white clouds settling a little below the summits of the mountains, and at sea floating just above the horizon in a direction parallel to it. It often leaves off with a rapid lull, which is succeeded by a N.W. breeze. The thermometer does not at first experience any very sensible change, though it slowly rises with the continuance of the sirocco to  $90^{\circ}$  and  $93^{\circ}$ ; which last is the highest I have observed, though the feelings (no accurate measure of actual heat) seem to indicate a much higher temperature. But the hygrometer shows increased atmospheric humidity, and the barometer gradually sinks to 29.60 inches.

This wind generally continues three or four days; during which period such is its influence that wine cannot be well fined or meat effectually salted; oil paint laid on while it continues will seldom take or harden: and while, from seeming dryness, it rives unseasoned wood and snaps harp strings, it makes metals oxydize more readily, mildews clothes, and renders everything clammy. We are told, however, that dough can be raised with half the quantity of leaven, and though blighting in its general effects, it has been known to favour the corn harvest and the growth of several useful herbs and plants in winter.

This wind is peculiarly disagreeable at Palermo, although situated in the N.W. part of Sicily; but the plain is surrounded on the land side by mountains, which collect the solar rays as if to a focus. Although somewhat inured to the heat of the East and West Indies, and the sands of Arabia and Africa (says Admiral Smyth), I always felt during a sirocco here more incommoded by an oppressive dejection and lassitude than in those countries; and it matters little to the person whether the sensation is attributable to the immediate parching of the skin and absorption of his electricity, or to a positive increase of temperature. At such times the streets of Palermo are silent and deserted, for the natives can scarcely be prevailed on to move out while it lasts, and they carefully close every window and door of their houses to exclude it. Still the sirocco does not appear to be actively prejudicial to human health, though it is said that if it be of long continuance wounds are sometimes attacked with erysipelatous inflammation, and it often is troublesome to people of a plethoric habit. It is more frequent in the spring or autumn than in the summer, and in winter possesses no disagreeable qualities, except to invalids. Many persons refuse medicine during its continuance. And indeed, when the sultry and withering blaze of heat, the earthquakes, the hurricanes, diseases, misery, personal insecurity, reptiles, mosquitoes, flies, fleas, and other major and minor evils are recollected, the pleasure of visiting warm climates is considerably alloyed.

By the Malta Channel is generally meant that which separates this island from the coast of Sicily; the least breadth of which is forty-



four miles, between Point Sciakcini, in Gozo, and Cape Scalambra, in Sicily.

The winds which prevail here in winter are from N.E. and N.W., which blow very fresh, raising a heavy sea. With N.E. and S.E. winds the sky is overcast, with rain, but with those from N.W. it is clear and fine.

In summer, easterly and S.E. winds, veering to the South, with a humid and murky atmosphere, are accompanied by much electricity, unpleasant to the feelings. These winds do not blow strong, and are of short duration. The land winds are generally short-lived. The currents are not constant near the islands; they are always the result of the prevailing wind, and sometimes are the forerunners of those which are coming.

There is a phenomenon attending the currents and winds of this neighbourhood that is very remarkable, and should be known to the navigator. We learn by a letter from Captain Spratt, of the *Hydra*, that the currents here are most unaccountable, and setting generally to the S.E. and E.S.E., but with the greatest velocity when the wind is from that quarter and the breeze fresh. On one occasion he observed, when the wind was light, the current set to the northward; but on the breeze freshening from S.E. the current commenced setting directly against it,—due S.E.

Although the current appeared to set at the rate of two to three knots per hour, the log makes it not more than a mile and a half. His opinion is that this current is merely local, as a vessel which had been in sight all day, with a light breeze from S.E., did not appear to draw any nearer to them.

The Spanish authors say on this subject,—Throughout the channel between Sicily and Africa the current is stronger in the middle and near the reefs, running here at the rate of four miles an hour. But on each coast it is not so strong, and even has counter-currents setting in opposite directions to that of the central current. They moreover tell us that these currents obey the direction of the prevailing wind; but that they generally set to the eastward in settled weather, particularly off Cape Bon and the entrance of the Gulf of Tunis.

With this conflicting testimony the navigator would do well to be on his guard. There may have been certain reasons with which we are not acquainted why, as Mr. Stokes states, the current should be setting directly against the wind, but it is most probable that such was its natural course to the S.E. In the Bay of Tunis, during summer, the sea breeze sets in about nine or ten in the morning and goes down with the sun, bringing a cool temperature to the heat of the place. But when the land winds set in, and especially the Soliman, they bring with them small particles of sand, so fine, and sometimes in clouds so dense, that they darken the whole atmosphere, falling visibly on the surface of the sea, to which they extend. The heat at these times is beyond all bearing, the thermometer sometimes getting up to 93°.

In winter N.E. and N.W. winds prevail, and often with thick, gloomy weather, requiring much caution in navigating the bay. Calms prevail in the channel, lasting frequently very long, in the summer, with waterspouts; and in autumn a day seldom passes without thunder. In winter the winds are very variable and strong, those from N.W. and N.E. being clear, and the opposite being cloudy and attended by rain.

(To be continued.)

THE SEA COASTS BETWEEN ANTWERP AND BOULOGNE.—*Inundations from Storms on the Shores of the Low Countries.—Changes in the Scheldt.*

(Continued from vol. xxxii., p. 602.)

These waters constantly vary in breadth; sometimes a bank is formed in some part, and in others the bed becomes deeper; here the shore increases; there the current destroys it terribly.

The greatest ports mentioned in the ancient charters, says Reygersberg, have almost entirely disappeared in consequence of the invasion, as we see in the island of Schouwen, near Zierikzee, and elsewhere. On the contrary, where they were not formerly known, the largest are now met with. This is the case with Walcheren, where 400 years ago vessels of great importance arrived. Steinbergen, which no longer exists, seems to have been a port to which many vessels went by the passage of Goeree, then very deep. The best channels of that time now form Oudetouge, Somersdyck, Meddelheinesse, and others. We also read that Dreischore, forming a separate island, was a great port, through which vessels went to Zierikzee. We read that the French Admiral advanced with his fleet from Noord-Gouwe to Zeirikzee, in order to besiege the Count Guy. Near Brouwershaven is a great alluvion, which did not exist formerly. Vliet, in Noord Beveland, was anciently a port frequented by fishermen: it also disappeared during the first half of the 16th century.

These canals generally end by being obliterated. The islands of Sonnemaere, Duiveland, and Dreischoor, are now joined to the island of Schouwen. The little island of Poortvliet is also joined to it, as well as that of St. Maerstensdyk, to the isle of Tholen, and this latter approaches Schouwen, by the invasion of the strait which separates them, and which no longer admits of vessels passing through it. The island of Goeree joins that of Overflakke, so that the fifteen or sixteen islands counted by Guichardin, in Zealand, were in the time of Smallegange reduced to ten.

The reason of this is owing to the diminution of the currents. In proportion as the land is protected by dykes, preventing the encroachment of the sea, in such proportion as the channels of the sea are en-

larged the currents become weaker, and the clay is more easily deposited. In process of time these channels will mostly be closed. The Scheldt by itself does not afford sufficient water to keep them all open. The same is the case with regard to Zealand as with Friesland, where, till the 13th century, a gulf of considerable extent existed, subject to the ebb and flow of the sea, which has since entirely disappeared. The Zuiderzee, although its level increases visibly, so as to fill the surrounding dykes, and although it now floats vessels drawing much more water than in former centuries, owing to the progressive enlargement of the channel between Enkhinzen and Staveren, this Zuiderzee should, according to our view, meet with the same fate. And that we are right is shown by the bottom of this sea, with the exception of the banks enclosing it, being formed of clay, in which vessels cannot anchor.

In the Meuse is the same thing. It has no longer the immense mouth mentioned by Pliny. The island of Rosenberg, the lands of Zwindrecht, Ysselmonde, Roon, and Portugal, Stryen, the lands called Beyerlanden, and the island of Putten, are, according to Des Roches, new, and formed by the work of the waves. "We find here, (says he,) no vestige of antiquity: while such remains are so frequently found in the distant lands to the right, at Monster, Flardingén, Gravezande, and on the left in the island of Goeree, and in the islands of Zealand. The first mention (he adds) of the most ancient of these lands, is about the year 1200." Some time must elapse before these arms of the sea of Zealand disappear, and in the interval they continue to expose these islands to frequent inundations. The records of these countries are full of accounts of these inundations. We shall briefly mention the principal of these.

It is evident that those tempests whose fatal effects were experienced in Friesland from the fourth to the eleventh century, were also felt in Zealand. But it is principally from the twelfth century that Zealand suffered from these inundations, owing to the frequent occurrence of these disasters. But at no period were they so terrible as during the first fifty years of the sixteenth century. Walcheren lost during this period ninety-three yards of ground. The 5th of November, 1530, the entire eastern portion of the island of Zuid-Beveland, was submerged with the town of Reimerswale and twenty villages. About 1,250 yards of ground were lost in other parts of the island.

Noord-Beveland has also suffered during the first part of the sixteenth century; three villages near Weel were deprived of 700 yards of land, independently of 11,000 yards which this island lost in other parts.

The island of Wolfertsdyk formerly contained two villages and a little town called Piet, the steeples of which were long visible, but have entirely vanished.

The island of Shouwen lost between 1475 and 1556 and 1559, the villages of Zuidkerke, Brieskerke, and St. Jacobskerke, forming a

third of the island. Stavenisse, and several other parts, forming together 2,220 yards, have been lost from Dniveland.

Smallegange, who furnishes these details, attributes this frequency of inundations to several causes.

First, to a greater quantity of water.

Secondly, to heavier taxes imposed on these lands by their sovereign, which prevented them making such sacrifices as were necessary to maintain these dykes.

Thirdly, to bad management; the place of dykgrave or manager of dykes not being formerly given to persons fit for the office, but bestowed on the highest bidder.

Fourthly, the continual contests between the town and villages of each island, in the endeavour to throw upon each other the taxes of their maintenance, without considering that all were threatened with the same danger, and that the sea, their common enemy, laboured without ceasing to make them repent of their loss of time in quarrels and lawsuits.

Fifthly, the great insensibility of some lords of the different towns and villages dependant on Zealand, and who with a view to rival in luxury the first courtiers of the princes of Burgundy and Austria, would not take sufficient from their revenues to insure the safety of their lands.

( *To be continued.* )

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**EVENINGS AT HOME AT THE NAUTICAL CLUB.**—*The Chairman's Address—Report of the National Life-Boat Institution—Maritime Disasters—Wreck of H.M.S. "Lively"—Captain Osborne's China Fleet—Fouling of Iron Ships' Bottoms—Explosion of the "Lottie Sleigh" at Liverpool—The "Great Eastern"—Confederate Cruizers and Federal Merchantmen—Mr. Milner Gibson on American Affairs—Seizure of the English Ship "Saxon" by the "Vanderbilt," and Murder of the Mate.*

The Chairman in taking his seat expressed his satisfaction at seeing his old friends around him. Christmas times had thinned them, but business times had returned, and there were several topics which would form subjects for their discussion. These were in good hands, and all he would refer to was the aspect of affairs in reference to subjects which concerned us all. It would seem that the new year had opened on us with discordant feelings towards a European state close to our doors, which at present had assumed a most unfavourable aspect for the lovers of peace. It was impossible to say what complicated measures the invasion of Denmark might not lead to, in which it was not improbable this country might have to take her part. Looking to the West, also, the American civil war, the proceedings of the slavery party were such as to occasion us the utmost uneasiness. Nothing

could serve their purpose better than to see this country involved in war,—and we all know should war come it would be difficult to foresee where it would stop. Thus much for matters East and West of us, which were complicated enough, but which would soon assume another phase. Since they had met, the Japanese question seemed, by the good sense of that nation, to have subsided down to an amicable state, and it was to be hoped that we should hear no more of affairs such as that of Kagosima. It appears, however, that the hereditary nobles, the daimios, were our greatest enemies, and that their repression by the government would be the great difficulty. Still it was gratifying to know that the Japanese government was with us, and considering that several other governments besides our own had formidable accounts to settle with them, it was quite evident that conciliation and yielding to just demands were their best policy. Prince Satsuma, it is said, has proposed by way of settlement to pay an indemnity and to erect a mausoleum to Mr. Richardson, and indeed also to atone otherwise for his assassination.

The Chairman called upon the Secretary to read the important and interesting report of the last monthly meeting of the National Life-Boat Institution, held on the 7th of January at its house, John Street, Adelphi, Thomas Chapman, Esq., F.R.S., V.P., in the chair. He felt sure that the members of the Club would join him in wishing continued success to the great and important operations of the institution. The report commenced by stating that—

Rewards, amounting to £177 11s. 6d., were voted to pay the crews of the following lifeboats of the institution, in acknowledgment of their gallant services in rescuing shipwrecked crews consisting of 198 persons, hereinafter named.

Holyhead lifeboat for saving forty-eight persons from the wrecked vessels, barque *Confiance*, of Liverpool; barque *Elizabeth Morrow*, of Glasgow; schooner *L'Espérance*, of Nantes; and schooner *Elizabeth*, of Whitehaven. Filey lifeboat for rescuing two out of three of the crew of a fishing boat. Tenby lifeboat for saving a fishing boat's crew of three men. Barmouth lifeboat for rescuing the crew of five men from the schooner *Margaret and Jane*, of Dublin. Penarth lifeboat for assisting to save the ship *Jupiter* and her crew of eight men in a collision. Swansea lifeboat for rescuing eighteen men from the barque *Duke of Northumberland*, of London. Llandwyn lifeboat for saving the schooner *Harry Russell*, of Barrow, and her crew of eight men, and also the crew of four men from the brigantine *Maria*, of Almwch. Skerries lifeboat for saving the lugger *Vigilant*, of Peel, Isle of Man, and her crew of seven men. Southport lifeboat for rescuing eight of the crew of the ship *David White Clinton*, of New York. Portinadoc lifeboat for saving the schooner *Economy* and her crew of five men. Irvine lifeboat for rescuing three men from the smack *Lewis*, of Campbelltown. Aberystwith lifeboat for assisting to save the brig *Mary Anne*, of Scilly, and her crew of seven men. Thurso lifeboat for rescuing the crew of fifteen men from the barque

*Graces*, of Shields. Lytham lifeboat for saving the schooner *Fame*, of Preston, and her crew of five men. Bacton lifeboat for saving twenty-two lives from the barque *Ina*, of North Shields, and schooner *Ellen*, of Jersey. Carmarthen Bay lifeboat for assisting to save the ship *British India*, of Liverpool, and her crew of twenty-seven men. Aldborough lifeboat for rescuing three fishermen and their boat from destruction; making a total of 198 lives saved by the institution's lifeboats during the fearful gales of last month.

The silver medal of the institution was voted to Mr. William Cubitt, of Bacton, in testimony of his gallant services in the Bacton lifeboat, as abovementioned. The silver medal of the institution was also voted to James Candlish, coxswain of the Lytham lifeboat of the society, in testimony of his general gallant conduct in assisting to save in the lifeboat a large number of lives from various wrecks.

Payments amounting to £133 14s. 2d. were also voted to pay the expences of sixteen lifeboats of the institution in putting off in replies to signals of distress, with the view of saving life from various vessels, but which did not, from various causes, ultimately require the assistance of the lifeboats. Some of these services were often attended with as much risk and toil as those of the lifeboats which actually saved life.

The Ramsgate lifeboat, in conjunction with the steam-tug *Aid*, belonging to the Board of Trade, also performed a noble service on the night of the 2nd of December, in rescuing, during a fearful gale of wind, 102 lives from the emigrant ship *Fusileer*, of London, and eighteen men from the barque *Demerara*, of Greenock. The institution voted its silver medal to Isaac Jarman, the gallant coxswain of the lifeboat, and its thanks, inscribed on vellum, to the master of the steam-tug. The crews of the boat and steamer had been rewarded elsewhere.

Rewards, amounting to £51 5s., were also voted to the crews of shore boats and other persons for rescuing, during the recent storms, fifty-six lives from different wrecks, as follows:—Fishing boat of Tenby, three men saved; four men from the brig *Arthur Leary*, of London; twenty-eight persons from the sloop *Bardsey*, of Carnarvon; schooner *Elizabeth and Margaret*, of Carnarvon; brigantiae *Nelson*, of Carnarvon, and *Three Susans*, of Bangor; and schooners *Gleaner*, and *Helen*, of Carnarvon; three men from the sloop *Swan*, of Swansea; four men from the ketch *Four Brothers and Four Sisters*, of London; three men from a West Hartlepool pilot-boat; one man from the sloop *Tredegur*, of Newport; one man from a boat capsized off Queenstown; five men from the schooner *Gleaner*, of Cardigan; and eleven men from the galiot *Cornelia*, of Hanover.

Some of these services were of a very gallant character. Inspecting Lieutenant Kennedy, R.N., of the Coast Guard, put off in a heavy gale of wind in a boat, with his crew of four men, to the rescue of the schooner *Gleaner*, off the coast of Kerry. After having been twice capsized in the heavy surf, they succeeded on the third time, after extraordinary efforts, in getting through the breakers and in saving the five shipwrecked men. The institution voted its silver medal to Lieu-

tenant Kennedy, and £8 to his crew, in testimony of their intrepid and persevering services on the occasion. Again, the only survivor of the crew of the sloop *Tredegar*, was observed on a plank near the shore off Walton, and was seen suddenly to be washed off. A fisherman named Charles Bacon immediately rushed into the surf to his rescue. He was found insensible, but Bacon succeeded, nevertheless, in bringing him ashore, and afterwards, with some help, in conveying the poor man to a cottage.

Many more cases of daring acts during the recent storms might be detailed did space permit.

However, it is satisfactory to know that 374 lives were saved from different wrecks during the storms of the past month by the lifeboats of the institution and other means,—a most gratifying and encouraging result, and showing clearly the noble and strenuous efforts that are now constantly put forth to save shipwrecked sailors, mainly through the instrumentality of this valuable and patriotic society.

Reports were read from the inspector and assistant-inspector of lifeboats of the institution on their recent inspection of its lifeboats on the West and S.W. coasts. The lifeboats were found everywhere in excellent order and reflected much credit on the local committees and the coxswains of the boats.

It was reported that Lady Cuninghame Fairlie and E. W. Cook, Esq., R.N., F.R.S., had presented to the institution the cost of two lifeboats. Lady Cotton Sheppard had presented £250 to the institution, £50 of which sum she had collected from her friends and others to defray the cost of an additional lifeboat for the Carnarvonshire coast. Her ladyship had previously given the society the cost of two boats. W. N. Rudge, Esq., had also collected upwards of £550 on the London Stock Exchange for the institution. Sermons had been preached in aid of its funds by the Rev. Frederick Reade, M.A., of Brighton, and by the Rev. J. M. M'Cheane, M.A. of Leeds.

Payments amounting to £1,420 were made on various lifeboat establishments.

During the past month the society had sent new lifeboats to Pombrey, Eastbourne, and to Arklow, and eight other lifeboats were ordered to be built forthwith.

The books and accounts of the institution for the past year were ordered to be sent to Mr. Begbie, the public accountant, who has been the auditor of the society for the past ten or twelve years.

A cordial vote of thanks was given to Mr. Chapman, for his valuable and zealous cooperation during the past year. A vote was also presented, in similar terms, to Sir Edward Perrott, Bart., as chairman of the preparatory committee of the society.

The proceedings then terminated.

During the year which has just closed the National Lifeboat Institution has incurred the following expences on either additional new lifeboat stations, or the replacing of old boats, transporting carriages, and boat-houses by new ones, viz.:—Berwick-on-Tweed, £340; Filey,

£267; Bridlington, £340; Blakeney, £196; Thorpeness, £200; Hastings, £196; Eastbourne, £265; Teignmouth, £574; Sennen, £340; Bude, £292; Pembrey, £203; Cardigan, £198; Porthdinllaen, £273; Lytham, £513; Fleetwood, £161; and Arklow, £204. The society has also expended on the repairs, stores, painting, alterations, and inspection of its numerous lifeboats, boat-houses, and transporting carriages, and spare lifeboats and carriages, £6,815 14s. 1d.; and £2,441 9s. 1d. for coxswains' salaries, and exercising the crews of its lifeboats, making altogether a total of £13,819 3s. 2d.

The National Lifeboat Institution has also granted during the same period, £1,351 6s. 4d., as rewards for saving by its lifeboats and other means, seven hundred and fourteen persons from a large number of shipwrecks on our coasts. A most satisfactory result, and clearly showing how much can be accomplished by the well directed efforts which the institution has brought to bear on this humane work. The Society has now 125 lifeboats under its management. Each of these establishments requires about £50 a year to keep it in an effective state. Again, the cost of a complete lifeboat station is about £600, including the expence of the lifeboat and the equipment, transporting carriage, and boat-house. The operations of the Lifeboat Institution now extend all over the coasts of the British Isles. To maintain and perpetuate these operations, is a matter of earnest and constant solicitude to the committee. They have incurred a great responsibility, but they do not shrink from it; and are determined with the continued sympathy and liberality of the British public, to leave no effort untried that can in any way tend to lessen the fearful annual loss of life from shipwrecks on our shores.

Seldom, said the Chairman, observes one of our nautical papers, in the early part of December, has it been our lot to furnish such a chronicle of maritime disasters as that which appears in our present impression. The list of casualties embraces almost every locality on the coast of the United Kingdom, and many points on the adjacent seaboard of the continent. The heaviest occurred on the Welch and Cornish coasts. At Holyhead, Portinllaen, Aberystwith, Newquay, Bude Haven, Fishguard, St. Ives, and the Scilly Islands, the violence of the gale surpassed anything which has been experienced for years. The harbours of Fowey, Penzance, Falmouth, and Plymouth, and even the insecure anchorages of the Scilly Islands, were crowded with shipping that were fortunate enough to get into those places before the gale was at its height. As might have been anticipated, the casualties at the Scillies were numerous and severe, and amongst them we have recorded the destruction of a fine ship, the *Friar Tuck*, of Liverpool, from Foochoofoo for London with a cargo of tea, the greater part of which has been lost, or hopelessly damaged. Along the south and east coasts, every available spot that would afford shelter was resorted to by shipping unable to keep the sea, or not venturing to do so. Along the French, Belgian and Dutch coasts, from Nantes round to the Texel, and from the Texel to Cuxhaven,



the gale appears to have swept with astonishing violence and terrible effect. Of the many casualties reported from that line of coast, is one the details of which cannot fail to create a melancholy interest. Early last week the ship *Wilhelmsborg*, Captain Kross, left Hamburg for Australia with 300 emigrants, many of them women and children, and a cargo of general merchandise. On clearing the Elbe, the ill-fated ship fell in with the gale of the 3d, making the coast which stretches away to the southward a dead lee shore. From this position it was impossible to extricate her, owing to the direction of the wind and its surpassing violence. The ship was brought up somewhere near Terschelling, but it would seem she dragged her anchors before the tremendous sea running, until she took the ground upon the Terschelling Bank, where she rapidly went to pieces. Of the 300 passengers on board, but 44 are reported to have been saved—a large proportion, considering the terrific state of the weather. It is said that the broken waters of the Doggerbank have, during the late gale, been the grave of a large number of small craft. Many fishing boats are reported missing at Great Yarmouth, while at the Sailors' Home at that place a great number of shipwrecked sailors had been received within the last few days.

Among the wrecks, observed Albert, was H.M.S. *Lively*, which vessel, it is stated, left Berwick in pursuance of directions from the Lords of the Admiralty, and steamed right across the North Sea. She encountered the most fearful weather. On nearing the Dutch coast she was struck by a terrific sea, which swept over the vessel and rushed down the hatchways. It was then discovered that she had suddenly gone into shallow water. The gale kept increasing, the sea rising higher and higher. The vessel was running as well as she could in order to clear the ground, but the engines at times were nearly immersed in water, and as it was clear the steamer would founder if she remained in deep water, her head was turned towards the shore, so as to run her aground, the only chance of escape which remained for those who were on board. The next moment after her course was changed, a tremendous sea caught the ship, and very nearly washed every one on deck overboard. Some of her men were much hurt. In a few minutes the steamer bumped on the ground, and the falling tide soon left her waterlogged on the sands. The crew were then employed in freeing the vessel of the water that was in her, and guns were frequently fired during the night, but no assistance arrived. The tide again came up, with a heavy wind and sea. The crew were preparing to make a raft, when two Dutch smacks hove in sight and came alongside, but they would not stay, and had actually shoved off before the crew of the *Lively* had got on board, and before they could get the dead Dutch pilot out of the vessel. When all were in the smack, sail was made for the shore, but unfortunately she grounded, and remained eight or nine hours before the tide came up, the shipwrecked crew suffering much from exposure to the cold and want of nourishment. They at length reached the shore, a small fishing place, where they received all the kindness the inhabitants could render them.

The captain then telegraphed the fact of the stranding of the steamer to England, and has been acquitted of all blame by a court martial.

But, added Albert, the number of fishermen swept from smacks connected with the eastern coast, during the late gale, is now ascertained to be thirty-three, and as thirteen smacks are unaccounted for, which carried among them ninety-one men and boys, the total of victims is carried to 124 persons. Up to a late hour yesterday no tidings had been received of the thirteen missing smacks. On Thursday the Mayor of Great Yarmouth received the following official letter, in reply to an application which had been made:—

*Admiralty, December 16th.*

Sir,—In reply to your letter of the 15th instant, addressed to his grace the Duke of Somerset, I am commanded by my Lords Commissioners of the Admiralty to acquaint you that the *Medusa* from Sheerness, and the gunboats attached as tenders to the *Pembroke* at Harwich, and the *Cornwallis* at Hull, have been ordered to render such services as may be in their power in affording assistance to the missing fishing smacks mentioned by you, supposed to have been disabled in the late gales.

I am, &c.

W. G. ROMAINE.

*The Mayor of Great Yarmouth.*

The master of the smack *Resolute* reports having seen a large steamer about fifty miles S.E. of the Leman and Owen Light, with her deck apparently crowded by a large number of passengers. She seemed to be in the utmost distress, and on the point of foundering, having spars and tar barrels blazing in every part. The screams and shrieks of those on board are described as agonizing, but in consequence of the fury of the gale no assistance could be rendered. Other smacks report having seen the same unfortunate vessel. Large quantities of wreck have been washed upon Yarmouth beach this week.

The loss of North country vessels, continued Albert, by the late gales is also very serious indeed. Fully thirty ships are already reported to the North country insurance clubs as total losses, and intelligence of others abandoned at sea seems to be arriving every day. Our Tyne clubs will suffer very severely, some of the larger of them having from eight to nine total losses. Six ships belonging to Blyth are lost; and both the Blyth and Whitby clubs will feel the effects of the gale in heavy averages. In the midst of their Christmas festivities, it is to be hoped that the people of the North will not forget the mourning and anxious seamen's families in our sea ports. As far as can be made out either ten or eleven laden collier vessels, which sailed a month ago for London, have not been heard of since. It is greatly to be feared that the larger portion of these vessels, if not all, have foundered at sea and drowned all hands. Upon the safety of these ships, which every day becomes more dubious, hangs the fate of very nearly 100 men and lads. Need it be wondered at, then, if no

word of their safety reaches us soon, that social life in our sea ports will be clouded with sorrow.

Probably, observed Rodmond, one of the most remarkable incidents that has recently taken place, is the dismissal of Captain Osborne's China fleet.

A very proper measure, returned Albert, how could an English captain, even in Chinese pay, allow his fleet to be under the orders of a Chinese mandarin!

Captain Osborn, justly enough indignant at the very idea of serving under a mandarin, as required by Prince Kung, says:—"By submitting to such instructions and violation of my original agreement, I should at once deprive myself of the power to assist in carrying out in China the policy of Western civilization. My force, powerful as it will be for good or evil, might be directed against the interests of commerce or of common humanity. Brutal butchery might be perpetrated, and I should be powerless to prevent it. My men and officers, the pick of many from the Royal Navy of England, would be associated upon equal terms with the rowdies and pirates the Foutai might be pleased to employ."

Perhaps the following reply was new in the annals of Chinese government; but with it terminated the services of the Anglo-Chinese fleet. "To the argument addressed by the Chinese Foreign-office, 'that the course proposed by Prince Kung is a usual one in China,' I reply, I did not come here, or my followers either, to accustom ourselves to the treatment usual with Chinese sailors or soldiers, or to assist them in a retrogressive policy in the treatment of European *employés* or Europeans in general. The employment of ships of war and war steamers of European construction is an innovation, that of European officers and gentlemen still more so. I and my force are part and parcel of a new order of things, indicating 'progress in China.' I will be no party to her lapsing back into her ancient system and treating Europeans as if they were Chinamen."

The fact is, observed Albert, that the Chinese are Chinese still, and are not aware of the state of barbarism in which they are, and now must for a long season yet remain.

One of the questions, observed Rodmond, which would seem to be occupying the attention of inventors at present, is the fouling of iron ships' bottoms, and how to prevent it. They are not satisfied with the Peacock mixture for large ships, or that renewal of it may not be required when it is not convenient to give it.

How not? observed Albert. Is not the caisson chamber employed by our men-of-war for putting a sheet of copper on the bottom, capable of fixing to any part where Peacock's mixture is desirable?

May be, replied Rodmond; but I don't believe that is general; and it seems among other contrivances the ingenious proposal is made of glazing a ship's bottom.

Doing what! issued in half a dozen voices.

Glazing it! actually glazing it! returned Rodmond, Experiments

which have proved highly satisfactory are stated to have been made at Woolwich, to ascertain the practicability of coating the bottoms of iron ships on a plan invented by Mr. Leatch, which consists in coating the iron surface with gutta percha or other cement, and on this soft material to fasten sheets or plates of glass about a quarter of an inch thick. The glass is previously bent to the shape of the ship, and pierced for the reception of the screws or bolts, the apertures being lined with a soft adhesive composition, which prevents the screws, &c., from coming into immediate contact with the glass.

The members of the club were highly entertained with the idea of iron ships with their bottoms coated with glass, and notwithstanding the smooth hard mixture of its surface, there were misgivings and doubtful expressions whether the acid of the salt water, and its perpetual action would not wear away the surface of the glass, and produce a roughness to which the weed would not find it difficult to attach itself.

Another plan I see, said Albert, is trying at Portsmouth for remedying the evil. The iron mortar boat, No. 145, has been launched from the slipway at Haslar, where she has been coated with copper by Commander Warren's process, and is to remain afloat a certain time to ascertain whether by this plan galvanic action can be prevented, and whether the adhesive property of marine glue is sufficient to hold the copper sheathing on the iron plates of the vessel. While afloat she will be used as a lighter.

As to marine glue, he had no faith in it whatever; it would separate suddenly when least expected to do so; there is nothing like the Peacock mixture yet found.

With steel or iron ships, said Albert, for it was clear that the latter would end in the former; we were in fact coming to steel every day, the fouling would always be a difficulty, respecting which we already have merchant ships of that material afloat. There was one launched the other day at Liverpool, called the *Formby*, of 1,276 tons, and a steamer of 1,496 tons, named the *Hope*, both built of steel, from the yard of Messrs. Jones, Queggin, and Co. This firm have previously launched one or two similarly built vessels for yachting and river purposes, but this is the first instance on record in which steel has been applied for the construction of vessels intended for ocean-going purposes. So interesting was the event considered, that many of the principal ship-owners of Liverpool, including Mr. James Baines, were present to witness the launch, and Mr. C. J. Reed, the constructor of the royal navy, came down from London for the especial purpose of examining and hearing what the builders had to say about them. The launch of both vessels was a very great success, and the perfection of their model and build excited universal admiration amongst the connoisseurs of naval architecture present.

True, these were mercantile, and for those of the royal navy the question was more important still. Mr Bessemer observes that two ships are being built in foreign waters entirely of Bessemer steel, and that the plates for a merchant vessel to be built in England have been

ordered. He thinks it would not be premature in our government to investigate this subject most fully, for if a ship can be enabled, as he contends, to carry nine-inch armour plates, we may rest assured that other nations will not be long without them. Thousands of Bessemer steel projectiles are now being made for Russia, and other orders for steel shots have been given to the extent of 120,000*l.* in value. Have we, he says, a single ship afloat that can keep out these simple round steel shot fired from a common smooth-bored gun, if ever directed against us ?

The question of keeping out shot is one of too lengthy a nature for us to enter on, observed the Chairman, we may fairly leave that to Sir Emmerson Tennant and his "*Story of the Guns*," who has gone into it pretty fully. Enough for us are the merchant ships, and on all grounds, converging in economy steel seems to be the most enduring.

Aye, Liverpool, said Arion, they had a shaking there the other day that will be remembered as long as the visit of the channel squadron last summer:—It was the blowing up of an African craft to which he alluded, the barque *Lotty Sleigh*, bound to Africa, Captain Webber, belonging to Messrs. Hatton and Cookson, left the King's Dock, and proceeded to her anchorage in the Mersey, opposite the Monk's Ferry. The vessel had 940 quarter casks of powder on board, in all about eleven and a half tons, which was stowed away in the after hold of the vessel, immediately beneath the captain's stateroom. Shortly after six o'clock the steward went into the cabin, and was in the act of filling a lamp from a can of petroleum oil, when by some means at present unexplained, the oil became ignited. The steward dropped both the lamp and the can, and soon the flaming contents were spreading along the cabin, setting fire to the curtain and bed clothes of the captain's sleeping apartment. To arrest its progress was impossible, and shortly afterwards the fiery stream poured through the grating of the lazarette, and at once communicated with the cargo in the afterhold. It was immediately seen that no hope of subduing the flames could be entertained, and the Rockferry steamer *Wasp*, which was passing at the time, on being hailed by the crew of the burning vessel, hove alongside and took off the crew, who, in the hurry to escape the flames, left all their clothes on board. This was about seven o'clock, and in about twenty minutes after the contents of the vessel blew up with a report impossible to describe—the shock was so terrible and alarming. Its effect in every part of Liverpool, and for nearly five miles around, was severely felt, and created considerable terror. The moment the shock took place the earth trembled as if convulsed by an earthquake—the most solid blocks of warehouses, offices, and private dwellings were shaken to their base—doors, locked and bolted, were thrown wide open, and thousands of squares of glass, both in Liverpool and the Cheshire townships, were smashed, while the entire line of lamps through the greater portions of the streets were extinguished, rendering it difficult to pass from place to place, and jeopardising the safety of those who rushed about to ascertain the cause of the consternation. The fear which prevailed was particularly expe-

rienced by the poorer classes, who poured forth from court and alley, screaming for deliverance from some unknown danger, and dragging their helpless children at their heels. The spectacle which the burning vessel presented at the moment of the explosion was one of the grandest, yet most fearful, that could have been witnessed. The flames had enwrapped the whole of the lower portion of the vessel, but had not burst forth and ignited the rigging. Suddenly a deafening sound burst upon the ear, and the black hull belched forth a hideous volume of flames, which illuminated the heavens, and cast its lurid light over both sides of the Mersey. The masts and yards were pitched high in the air, and after a few fantastic evolutions fell hissing into the water. The hull was riven in a thousand pieces, and after the smoke and flame had cleared away, there was nothing to be discerned where only one hour before rode a noble vessel at anchor. Happily no lives were lost. The vessel, together with the cargo, we understand was insured.

A good deal has been said about scuttling her, or doing something to arrest the mischief, but it is no joke to deal with a ship which is every moment expected to be in fragments in the river.

What has become of the *Great Eastern*? inquired the Chairman. The greatest bore that owners ever had, continued Arion. Both abroad and at home she seems to have puzzled her directors. She was to have been sold by lottery at Frankfort, and notwithstanding the services of the post-office, which were pretty largely employed, the shares were not all taken, and money had to be returned. Here is the first account of her which I meet with. I see that the prospectus has been issued in London for a lottery to be drawn here (Frankfort) for the *Great Eastern*. I have ascertained that offers have been made to some bankers, but have been rejected. It is very doubtful whether the authorities of this town will permit the lottery to be drawn here, as nobody is allowed to organise one on his own account. The selection of Frankfort as the headquarters of the scheme has met with universal disapprobation, and steps will be taken to induce the Senate to make known its disapproval officially.

The next was receiving by post a solicitation from Frankfort to take shares. I have received an invitation to subscribe towards a lottery for the *Great Eastern*, in 200 prizes and 239,800 blanks,—each ticket to be of £1. The lottery to be drawn at Frankfort-on-the-Maine, on some day not yet fixed. I have no reason for questioning the integrity of the scheme, but can I legally take any part in it?

Would it not be better to adopt Mr. Brett's suggestion, and carry out the idea at the Crystal Palace on the plan adopted by the art unions of all prizes and no blanks, and let the promoters receive debenture bonds in payment at par, and preference shares at 25 per cent. of their nominal value instead of money? I think this plan would ensure success.

Then came this from Liverpool, that the shares in this undertaking are being rapidly taken up, and that there is every likelihood of the money being raised in a few days. The amounts received from sub

scribers are banked in the names of responsible mercantile men well known in Liverpool.

This was of course to keep the game going, but the lottery scheme seems to have passed by, and the next we hear of the *Great Eastern* is that she has got into Chancery. It is stated that all the books and papers connected with the affairs of the Great Ship Company have been handed over to Mr. Hawes, the official liquidator appointed by the Court of Chancery to wind up the company's affairs, and that gentleman, under instructions from the Court of Chancery, is proceeding under the winding up act to call in creditors, who will have to be satisfied out of the proceeds of the sale of the great vessel by auction at Liverpool. The stores and tackle of the vessel have been sold to satisfy the claims of Mr. Parry. The company being registered under the Limited Liability Act, and the shareholders being only liable to the extent of their shares, which are all paid up, renders a call upon them as contributors, impossible, and the only hope for the vessel is the establishment of a new company, or the purchase of her by the proposed lottery.

So that eventually what will become of her is a riddle which can only be solved by time.

The Chairman said he had been informed that there had been lately a remarkable increase in the tonnage of the country that was now afloat on the ocean; so great was it, that he had been told it was double that which it was but a short time ago.

Aye, merely artificial, observed Albert, the result of the American rebellion. The Confederate cruisers had made such havoc among the Federal merchant ships that the American mercantile flag was almost swept from the ocean. There is not a day that passes scarcely without some account of the destruction of some helpless Yankee ship by these ruthless Southerners, to which he was sorry to say that this country had lent her assistance in spite of "foreign enlistment acts."

Don't say country, observed the Chairman,—rather say individuals, who would not be sorry to see this country involved in a war with the Federal States, for they, as shipbuilders, would of course come in for abundance of work thereby.

That they may be the principal sufferers by such a state of things which they would bring about is most to be desired, said the Chairman. The character of neutrality has been kept in earnest by the Americans. Alas, John Bull,—alas for your neutrality. But touching the tonnage, said the Chairman.

You will find the statement, returned Albert, in Mr. Gibson's speech the other day at Ashton-under-Lyne,—a parliamentary affair, but one which lets us into a secret of figures worth knowing. I will read a passage from the *Daily News* which illustrates the subject well. It runs thus:—

There is one subject in particular connected with the war upon which Mr. Milner Gibson has expressed himself with uncompromising distinctness. And it is one which is peculiarly within the province of

the Vice-President of the Board of Trade, and his opinion ought therefore to command unusual attention. Speaking of the enormous increase in British shipping—14,000,000 tons and upwards entered and cleared out against 7,000,000 of foreign ships—Mr. Gibson said that it would be unfair to take credit for so great an improvement as due to any policy of this country. The truth is that much of the carrying trade has been transferred from American to British ships. And why? "There is the fear," said Mr. Gibson, "among the American merchant shipping of attacks by certain armed ships that are careering over the ocean, and which are burning and destroying all United States merchant ships which they find upon the high seas." Ingenious lawyers and crotchety politicians may contend that there is no distinction between exporting guns and exporting men-of-war. But the results prove the contrary. The Americans have practically lost half their mercantile marine. For it appears that in the trade between this country and America the decrease in the employment of American shipping has been something like 46 or 47 per cent.

It is surely time that the people of this country should awake to a sense of the danger to which they must be exposed in case of war, if the doctrines of Messrs. Laird, Lindsay, and Spence, as to the building of armed ships for belligerent powers, are suffered to prevail. Perhaps the Chief Baron is right in thinking that a fleet of Confederate privateers can easily be steered through the Foreign Enlistment Act. Be this as it may, it is clear that the people of Ashton-under-Lyne think the mere legal question comparatively insignificant. "Common sense tells me," exclaimed Mr. Gibson, "that the Confederate Government are the parties who have directly or indirectly caused these ships to be built in this country, and that in so doing they entered upon a deliberate course of violating and evading the laws of England." This is precisely the view which has been taken of the conduct of Mr. Jefferson Davis in these columns, and the loud cheers with which the opinion was greeted proves that the people of Ashton-under-Lyne are not disposed to endure much longer Mr. Davis's crafty insolence.

Even those who are loth to interfere with the English shipbuilders may begin to entertain doubts as to the soundness of their own principles when they calmly contemplate the position of this country in time of war. If some two or three armed steamers, which a country like the South, with no pretensions to a navy, can easily send upon the ocean, armed with their one or two guns, can almost clear the seas of the merchant shipping of a whole nation, what, as Mr. Gibson asked, "might happen to this country?" Suppose England at war with Germany, how should this country endure the *Alabamas* and *Georgias* of Wurtemberg, Hanover, or Baden burning our ships and plundering our merchants on the high seas? In truth, the whole system of maritime warfare has been revolutionised by the introduction of steam, and fast steamers cannot be overtaken by the most powerful navies. It is almost impossible to stop such rapid and powerful vessels as the *Alabama* and her consort. So long as such



vessels must leave the port of a belligerent before they can be commissioned as public men-of-war the adverse belligerent has some chance of arresting them. But if neutral nations are to supply a belligerent with vessels fitted for war, and these vessels may be commissioned on the high seas, belligerents have no means of protecting themselves against depredations. With swift steam privateers built in some friendly port, and sent from that port to cruise about the ocean, "I should like to know," said Mr. Gibson, "what possible protection the great navy of England, and the great expenditure upon which it rests, will be able to give to the commerce of this country?" None whatever; and therefore the sooner the public follow the advice of Mr. Gibson, and turn their attention to the laws which govern the action of belligerents on the high seas, the better for this country.

The Secretary then said that a copy of the *English Mail* had been forwarded to him by a friend residing at the Cape; and, with the permission of the Club, he would read an account of some proceedings of the U.S. steamer *Vanderbilt* which had caused much indignation in that colony. He read as follows:—

On November 21st the brig *Lord of the Isles* arrived in Table Bay from Ichaboe, having on board Captain Shephard and the crew of the bark *Saxon*. It will be seen from the narratives of Captain Shephard and the crew that the account of the proceedings of the *Vanderbilt*, obtained by Captain Forsyth, of the *Valorous*, was in the main correct. The *Saxon* was seized at Angra Pequena, the chief mate brutally murdered, and the vessel despatched to New York in charge of a prize crew.

The only particular in which the account of the officers of the *Valorous* was incorrect was in respect to the coal. Captain Baldwin destroyed none of it, but shipped the whole, except a few bags which were left behind in the darkness. None was burned except to cook the victuals of the men engaged in shipping the coal. The notion that Captain Baldwin took the coal in ignorance that the island was British territory, must now be discarded: Captain Shephard distinctly called his attention to the fact. He informed Captain Shephard that if he had been able to obtain coal at Table Bay, he should never have thought of going to Angra Pequena. But being refused permission to coal here, knowing that the *Earl of Mar and Kelly* had taken a cargo coastwise, and suspecting that it was intended to be deposited somewhere for the Confederates; also knowing, from the seizure of prize property on board the *Flower of Yarrow*, on the day before he sailed, that there was still a Confederate depot somewhere on the East coast, he resolved to run down and endeavour to find it. He looked into Saldanha Bay, but there found nothing.

Overhauling the *Atlas* gave him a clue to the rendezvous. From her log he learned that the *Saxon* was at Angra Pequena, taking in cargo. He also learned, either from the log or from some one on board, the exact position of the coal depot. It is not, therefore, surprising that, as reported by the *Atlas*, after leaving that vessel, the

*Vanderbilt* should have "apparently made a straight course for Angra Pequena."

The boarding party from the *Vanderbilt* displayed excessive ferocity. Captain Shephard says they "behaved like wild men," and he would not have been surprised if others of the ship's company had shared the fate of the mate. He was himself subjected to considerable personal violence, and the conduct and language of the American seamen to the crew of the *Saxon* was brutal and disgusting in the extreme. The murder of the mate was a gratuitous and altogether uncalled-for act of ferocity. Desiring to go aft to speak to Captain Shephard, Mr. Gray was roughly pushed from the poop, and looking over his shoulder at the ruffian who had been guilty of the rudeness, was instantly shot dead, the ball entering at the back of his head! It is due to Captain Baldwin to state that he expressed the utmost regret for the occurrence, and placed the officer who fired the shot under arrest. The other officers of the ship also seem to have had little sympathy with the murderer; for, in the words of Captain Shephard, they all looked down upon him, and he never could hold up his head afterwards. Captain Shephard says the fellow was "called Donaghan," and had never before been entrusted with the command of a boarding party.

By Captain Baldwin and the other officers of the *Vanderbilt* Captain Shephard was treated in the most courteous and gentlemanly manner. Captain Baldwin first intended to send Captain Shephard with the *Saxon* to New York; but at his particular request agreed to substitute the second mate, who volunteered for the service. The cook also was taken. Captain Shephard and his crew were allowed to remove all their personal effects, Captain Baldwin instructing the master of the *Vanderbilt* to take away anything he required, but to pay for whatever belonged to Captain Shephard. The only thing the master did require was a chart, and for that he did pay.

At the time the *Saxon* was seized she was lying within half a mile of Penguin Island; consequently, in British waters, and under the protection of the British flag.

Mr. Gray, the chief-officer of the *Saxon*, who was so ruthlessly butchered in cold blood, had resided for several years at Cape Town. He was a native of Aberdeen, but settled at the Cape several years ago, and has left a wife and four children, the youngest an infant only a few weeks old.

The following is Captain Shephard's statement:—

I sailed from Ascension on the 26th of September, and arrived at Angra Pequena on the 16th of October. On the 27th I commenced taking in cargo—skins and wool. On October 30th, at 11h. a.m., we finished loading. The carpenter then commenced to batten down the hatches, the men being employed in clearing decks and securing spars, and getting ready for sea. About 1h. p.m. we saw a steamer rounding Agra Point, which proved to be the Federal man-of-war *Vanderbilt*. She came to an anchor abreast of Penguin Island, low-

ered a boat, and sent it on board the *Saxon*, with two officers and a boat's crew, all armed. At 1h. 30m. p.m. she boarded us, and the officer asked where I was from. I told him from Ascension. He then asked how long I had been at Angra Pequena, and I told him. He then requested me to show him my papers. I asked what authority he had to look at my papers. He said, Captain Baldwin had sent him to look at the ship's papers, and added, "It is of no use, captain, I must see your papers." I then showed him the ship's papers. He read them and said, "Skins and wool! that will do," and went on deck taking the papers with him. He looked down the hold and asked me if I knew where the skins and wool came from. I told him that all I knew about it was that I had come there to take it in.

He then told me he must take my papers to Captain Baldwin, and would leave an officer on board to make a signal in case I should attempt to move the ship. I told the officer I was ready for sea and would go, papers or no papers, and take with me the officer he might leave. He said I had better not try it, as the steamer would go faster than we could. He then left the ship, leaving a junior officer on board. At the same time that the officer left my ship, a second boat with another officer and crew, all armed, put off from the steamer. They came on board about 2h. 30m. p.m., and took charge, placing armed men all round the ship, and driving my crew below. The officer never reported to me that he had come to take charge until I went to him and asked him what he had come to do. His answer was, "Who are you, sir?" I told him that I was the master of the ship. He replied, "You are no more master of the vessel, and I will thank you to go below and give no more orders, sir; further, I will not allow you to speak to any of the ship's company." I told him he might as well have behaved as a gentleman and have come to me and told me what his business was, instead of taking charge without acquainting me with his intention, and before Captain Baldwin had seen my papers. He then ordered me below.

About 4h. p.m. the island men that were helping to load the ship, came alongside in a boat with some fish, and asked for some meat and bread, as they had had nothing to eat since breakfast. I told my chief officer he might give them some, but that he must first ask the officer in charge of the ship. He did so, and the officer in the first instance said they might have some, but afterwards changed his mind, and, with impious imprecations, said they should not have a bit. I then said to the officer, "Let me go forward and give them some." He said, "No, you shall not go forward, and they shall not have anything from the ship." I then said, "They shall have something to eat," and was going forward, when the officer ordered his men to stop me and take me below, which they did, the officer at the same time saying, "My fine fellow, if you don't go below I will very soon put you where the dogs won't bark at you."

I had been below about nine or ten minutes, with a sentry over me, when I heard the report of a pistol. I instantly rushed on deck and was told they had shot the mate. I went to support the mate in my

arms. He never moved or spoke; he was shot dead. I said to the officer in charge, "Why have you shot my mate?" His reply was, "It was an accident." I then asked the junior officer, who shot the man, why he did it? He said, "Poor fellow, I am sorry for him, but I must obey orders." They then hove up the anchor, and dropped the *Saxon* abreast of Penguin Island. The *Vanderbilt* at this time was in chase of another vessel that hove in sight. She returned next morning. Captain Baldwin sent for me on board the *Vanderbilt*. Upon my going on board Captain Baldwin addressed me thus: "You are Captain Shephard, of the Jarque *Saxon*?" "Yes, sir," I replied. "Well, captain," he continued, "I am very sorry for you, but your papers are not satisfactory to me, and I must make a prize of the *Saxon* and send her to the prize authorities at New York. We know that it is the *Tuscalooza's* cargo that you have on board; it was-brought here by the Confederates, and it is American property. That is the ground upon which I make a prize of your ship. I must do my duty to my country and protect American property."

The *Vanderbilt* steamed in to Penguin Island when I was on board of her and commenced taking in coal that was on shore there. I told Captain Baldwin the island was British territory; he replied, "I cannot help it; I want coal and I must have it." Captain Baldwin had a coffin made for Mr. Gray, the chief officer, and he was buried on the main land, on the 31st of October, by the *Vanderbilt's* men. They would not allow any of the ship's company except myself to follow him. On November 1st they landed me and my crew on the main land, with a little bread and water, not sufficient for one day, and our personal effects. We walked along the coast to the shore opposite Halifax Island, to which we crossed in a boat. We arrived in the evening. On November 3rd the schooner *Isabel*, of Cape Town, Captain Roe, came in and took us on board. We proceeded to Ichaboe and then to Hottentot Bay, where we arrived on November 10th. On November 13th we went on board the *Lord of the Isles*, bound to Table Bay, where we arrived on the 21st of November.

The following is the statement of the crew:—

At about 11h. a.m. on the 31st of October, while lying at anchor at Angra Pequena, we saw a large steamer, which afterwards turned out to be the *Vanderbilt*, rounding the point. She dropped anchor, and lowered a boat, which pulled for us, and boarded us. The officer, after looking at the ship's papers, said he would take them on board the *Vanderbilt*, which he did, after leaving a junior officer in charge, with orders not to allow the anchor to be wayed. Captain Shephard told him that he was quite ready for sea, and he intended getting under way immediately after dinner. The officer said he could not as he had his papers. Captain Shephard said he would go papers or not. The officer then went on board the *Vanderbilt*, but returned almost immediately with another boat's crew, who he took charge.

About this time a whale-boat's crew (belonging to an island called Halifax) came on board with some fish, when they asked Captain

Shepherd for some bread and meat, as they had none in the boat. The captain asked the American officer, who said they might have some, but soon after changed his mind, and said they should not. The men then appealed to Captain Shephard, who said, "Heave it into the boat; if they stop you I can't help it." The American officer then came to Captain Shephard and touched him on the shoulder, saying, "You had better go aft, you are giving too many orders here;" adding, "if you don't, I'll put you where the dogs won't bark at you," laying his hand on his revolver at the same time. The captain then went aft, and was confined to his cabin under a sentry's charge.

A short time afterwards Mr. James Gray, the chief officer, went aft to go on the poop, but had only got to the top of the ladder when a junior American officer, a Mr. Donaghan, told him to go down. Mr. Gray did not go immediately, not exactly knowing what was the matter, when the officer repeated the order, saying, "If you do not I will shoot you," at the same time shoving him. Mr. Gray's foot caught in one of the steps of the ladder, when he turned half round and looked up in the officer's face, who then drew a revolver and shot him dead. We attempted to go aft to pick up Mr. Gray, when the senior officer told his men to draw swords and drive us forward, which they did, abusing us at the same time. We went aft afterwards and found Captain Shephard and the second mate supporting the mate's head. The ball had entered behind the left ear and gone down into his body. The officer who shot him said he was sorry for the man, but he must obey orders, adding, "There is some humbug about that boat,"—meaning the whale-boat,—adding, that five men came off in her and seven were going on shore; that they were all *Alabama's* men, and they ought to go on shore and do for the b—y lot of them. He then pointed his pistol to the body of Mr. Gray, saying, "That is one of the *Alabama's* men too."

We were kept below all night with orders not to come on deck without hailing the sentry if we did not want to be shot. They buried the body of Mr. Gray late in the evening opposite Penguin Island. The barque was dropped down where the *Vanderbilt* had been lying, but which was then in chase of a vessel. The *Vanderbilt* came in next morning and went inside Penguin Island, where she took in a lot of coals that were there, and went to sea next morning. We were landed on Sunday morning with about a quarter of a bag of bread and a small keg of water. We then walked over the main land to a place opposite Halifax, when the men on the island came for us in a boat. We stayed two days on the island when the schooner *Isabel* came in and took us down to Ichaboe, where we stayed a few days, when we went on to Hottentot Bay, where we went on board the brig *Lord of the Isles*, and came to Cape Town.

An inquiry into the matter was held before the resident magistrate of Cape Town, but no new facts of any importance were elicited.

On December 11th the U. S. steam-sloop *Mohican*, Captain O. S. Glisson, arrived in Table Bay from Rio, on a cruise. The *Mohican*

did not bring any additional intelligence from America. She carries seven guns,—four broadside and three pivots. The former are ordinary thirty-two pounders, but two of the pivot guns are of eleven inch bore, and the other is a rifled gun, carrying a one hundred pound shot.

The *Mohican* is not altogether unlike the *Alabama*, except that her spars are not so tall and rakish. She will make about twelve knots an hour under steam. On her voyage from Rio the *Mohican* did not speak any vessels; in fact, she sighted only two, which were at great distances, and the state of the weather prevented any communication with them. In conversation, the melancholy death of the mate of the *Saxon* was alluded to, and Captain Glisson expressed his firm conviction that his Government would do everything in its power to compensate, as far as is now possible, for the acts of its officers. Captain Glisson feels certain that the Confederate cruisers will have but a short time of it, and, in particular, that the days of the *Alabama* are numbered. He expresses the hope that he may yet fall in with her, and has no misgivings as to the result of an engagement between her and the *Mohican*.

Having obtained permission from His Excellency the Governor to coal here, and also to effect certain necessary repairs to her boilers, the *Mohican* is still in Table Bay, but will probably leave shortly.

Direct from the East, as well as *via* England, reports have reached us that the *Alabama* has taken the direction of the China Seas, there to lie in wait for Federal merchantmen. Captain Cato, of the *Beautiful Star*, from Hong Kong, reports that in passing the Straits of Sunda on the 25th October last, he was informed by the port authorities at Angier that the *Alabama* had passed there a day or two before. She had twenty-five men sick, and did not report any captures. And Captain Sedgwick, of the *Latona*, from Singapore, reports that he had heard of the *Alabama* being in the China Seas. On the night of the 6th November, off the Java Heads, he saw a fine vessel of about 500 tons, with all sails set, on fire, and a bark-rigged steamer near her, which he supposed to be the *Alabama*. At eastern ports, rates of freight by British vessels were rising, and American vessels were not looked at.

It is believed that the prize made by the *Alabama* off Table Bay—the *Sea Bride*—has been sent to Madagascar. A vessel answering her description has been hovering mysteriously off the coast, and several attempts have been made to dispose of her. Mr. Graham, the American consul, has information which leaves no doubt upon his mind that the vessel is the *Sea Bride*.

A letter from Mauritius, dated on the 26th of November, states that the *Reward*, on board of which a portion of the cargo of the alleged *Sea Bride* had been shipped, had put into St. Mary's, a Malagash port, and was discharging. The American-Hamburg vessel, supposed to be the *Sea Bride*, had left for some other part of the island. The greater part of the town of Tamatave had been destroyed by fire.

**PHILLIPS' MACHINE FOR HOGGING A SHIP'S BOTTOM.**

We have preserved in our present number the terms of a patent for a hog, as it might be technically called, or the means, by a good series of strong brushes, of scrubbing a ship's bottom so effectually as to remove from it the germs of weed or corrosion, which in these days of iron ships, or even copper sheathing, is so very important. The machine may be considered as the form of a cylinder without its coat, but in which are introduced a series of brushes on spiral blades, there being about three complete turns in about five feet, the brushes occupying the outside edges of the blades, and these turning on the axis of the cylinder, which would be about two feet in diameter, and free to turn in either direction. Now this being placed against the ship's bottom in any part, to which it is somewhat pressed by its floating tendency, it is clear that while both ship and water are at rest, so will the blades of the cylinder remain; but when either the ship or the water is in motion these blades, from their cylindrical character turn, and the brush in contact with the ship's bottom, is turned by the action of the latter, and the cleansing process takes place; the bottom is well scrubbed throughout the whole length of the machine. Then nothing is easier than to shift its place in a fore and aft direction, or to different depths, so as to reach every part of the ships' bottom; and while a ship is lying at her anchorage in the current of a river, or the tideway of a harbour, the machine may be always in motion, doing its work by either without in any way interfering with any work going forward on board. The idea is excellent and carried out with great ingenuity, and bids fair to become a favourite companion and friend of the shipmaster.

The extensive use of iron in shipbuilding renders it of the utmost importance to find means for obviating the principal drawback in iron ships, namely, their tendency to foul more rapidly than wooden bottomed vessels, whereby their speed is so seriously impaired that—particularly in long voyages—the loss is at least equal to ten per cent., and much more than that taking the home voyage alone. It is, therefore, not surprising that the subject has attracted considerable attention, and that numerous plans have been suggested to remedy the evil, either by sheathing the bottoms of iron ships with other metal, or by covering them with some composition, supposed to be noxious to the zoophytes and barnacles usually found on ships' bottoms.

Neither of these methods has hitherto, however, been made to answer the purpose, for the galvanic action created by the contact of zinc or yellow metal with the iron well submerged in sea water was soon found highly injurious to the iron; and the chemical compositions, although perhaps poisonous to animal life in the first instance, soon lose that property by the action of the sea water, and become a promoter rather than a preventative of the growth of vegetable matter, whilst some mechanical contrivances which have been designed for cleaning ships' bottoms when foul, have proved either inefficient or

impracticable, and, on account of complicated arrangements and accessories, such as air-pumps, diving apparatus, &c., too difficult, cumbersome, and expensive in application.

The advantages which must accrue to ship-owners on being supplied at a moderate cost with an apparatus, which at any leisure time during the ship's passage may be used to remove from the ship's bottom any accumulation of sea weeds or barnacles, and, in fact, to keep the ship's bottom always so clean that docking the vessel for the purpose of cleaning the bottom will be altogether superfluous are self-evident, and when the efficiency of Phillips' Patent Self-acting Ships' Hogging Machine becomes generally known, few vessels will go to sea without being provided with the apparatus; for although iron ships are found to foul more rapidly than wooden bottomed and metal sheathed vessels, still even these have often to be taken into dry dock for the sole purpose of having their bottoms cleaned.

The object of Phillips' Patent Ships'-Hogging Machine is to clean the submerged part of the ship, while on her passage, by brushing or scraping off any accumulation of weeds or barnacles, when from unavoidable causes, or through neglect, any accumulation has taken place, and, under ordinary circumstances, to prevent any such accumulation, and to keep the bottom and sides of the ship perfectly clean by an occasional or periodical use of the machine.

The operation of the machine is purely mechanical. The construction of the apparatus is very simple, and not liable to be easily damaged. The machine consists of a cylinder containing spiral blades forming a screw. The cylinder, being externally provided with suitable brushes and scrapers, is caused to revolve by the force of the water, derived from the tide, current, or from the ship's headway, acting on the screw. The apparatus being made of wood and metal, so as to be buoyant, or rather poised, naturally clings to the vessel, and requires very little force to draw it under the bottom, or to bring it to the surface of the water. The machine, when wanted to be used, has only to be slung overboard and to be shifted into proper position by means of suitable guys; the apparatus being self-acting whenever the ship is going through the water, or lying in a tideway. When the ship is making about eight knots an hour headway, the cylinder will revolve with considerable speed and power, and a few strokes from the scrapers and brushes are sufficient to remove barnacles and weeds of any size or growth, but when the ship's bottom is cleaned by means of this machine every three or four weeks, as may be found requisite, any sea weeds or other matter adhering, will be so slightly fixed, that no great force will be required to remove them, and the use of moderately hard brushes will suffice for that purpose.

The usual size of the machine is about four feet six inches by two feet four inches diameter; it can, however, be made to order of any size that may be required.

The price of Phillips' Self-acting Ships'-hogging Machine, of the usual size, complete, is Twelve Guineas.



## ERRATA IN RAPER'S "PRACTICE OF NAVIGATION."

6, *Belvoir Terrace, Scarborough, 6th January, 1864.*

Sir,—I have the *Treatise of Navigation and Nautical Astronomy* of Lientenant Raper (third edition) in my possession since 1850, and I often made mistakes in calculations; and this led me to examine the tables lately, and the result was that I discovered about fifty errors in the table of log. sine square as far as 125°,—important for reducing lunar distances. And since these tables of Raper have been supplied to the ships in the Royal Navy as "ship's stores," I think it my duty to forward you a list of errors enclosed; and I have also sent a list to Mr. Potter, of 31, Poultry, who, I think, published the book.

I am, &amp;c.,

EDWARD H. HEBDEN, JUN.

*To the Editor of the Nautical Magazine.**Errata in the Table (lxix) of Log. Sine Square.*

Page	782	Sine Square of	Oh.	8m.	36s.	for	6·54584	read	6·54484
"	783	"	0	12	39	"	6·88175	"	6·88165
"	783	"	0	17	11	"	7·14779	"	7·14759
"	786	"	0	53	27	"	8·131401	"	8·181501
"	787	"	0	56	14	"	8·175378	"	8·175382
"	787	"	0	56	21	"	8·177169	"	8·177174
"	787	"	0	56	28	"	8·178963	"	8·178961
"	787	"	0	59	26	"	8·223120	"	8·223200
"	787	"	1	0	5	"	8·232359	"	8·232594
"	787	"	1	0	27	"	8·237785	"	8·237848
"	787	"	1	2	33	"	8·267335	"	8·267332
"	787	"	1	2	34	"	8·267559	"	8·267552
"	788	"	1	12	12	"	8·391154	"	8·391054
"	789	"	1	19	59	"	8·479191	"	8·479161
"	791	"	1	41	57	"	8·687166	"	8·687176
"	791	"	1	43	37	"	8·701044	"	8·701024
"	791	"	1	47	41	"	8·733877	"	8·733867
"	792	"	1	50	31	"	8·755918	"	8·755998
"	793	"	2	4	9	"	8·854922	"	8·854822
"	794	"	2	13	15	"	8·914646	"	8·914640
"	794	"	2	13	40	"	8·917335	"	8·917275
"	794	"	2	14	19	"	8·921386	"	8·921368
"	794	"	2	16	9	"	8·932880	"	8·932800
"	799	"	3	10	14	"	9·211008	"	9·211068
"	799	"	3	17	51	"	9·243101	"	9·243106
"	801	"	3	35	4	"	9·310664	"	9·310614
"	802	"	3	44	25	"	9·344602	"	9·344702
"	802	"	3	49	38	"	9·363062	"	9·363002
"	802	"	3	49	40	"	9·363128	"	9·363118
"	803	"	3	56	52	"	9·387674	"	9·387574
"	803	"	3	56	53	"	9·387730	"	9·387630
"	803	"	3	56	54	"	9·387785	"	9·387685
"	803	"	3	58	54	"	9·394350	"	9·394320
"	805	"	4	25	0	"	9·475121	"	9·475128

Page 805	Sine Square of	4	27	10	for	9-481898	read	9-481888
" 806	" "	4	20	31	"	9-488166	"	9-488106
" 808	" "	4	51	10	"	9-540537	"	9-546637
" 809	" "	5	1	15	"	9-571978	"	9-571973
" 810	" "	5	18	12	"	9-612154	"	9-612054
" 811	" "	5	33	32	"	9-645807	"	9-645802
" 812	" "	5	34	46	"	9-648409	"	9-648419
" 812	" "	5	35	27	"	9-649868	"	9-649863
" 813	" "	5	49	43	"	9-679010	"	9-679040
" 814	" "	6	0	22	"	9-699644	"	9-699664
" 814	" "	6	0	55	"	9-700702	"	9-700708
" 815	" "	6	8	48	"	9-715338	"	9-715330
" 815	" "	6	10	20	"	9-718378	"	9-718388
" 816	" "	6	26	55	"	9-747093	"	9-747092
" 818	" "	6	48	22	"	9-78.507	"	9-781567
" 819	" "	6	53	36	"	9-789491	"	9-789492
" 821	" "	7	20	6	"	9-826662	"	9-826662
" 823	" "	7	37	47	"	9-849365	"	9-849368

Table lxvi. (*Log. Sines.*)—Page 681, sine of  $0^{\circ} 13' 28''$  for 7-59999 read 7-59299.

Table lxviii.—Page 735, sine of  $21^{\circ} 43' 30''$  read 9-563890.

Table lxxiii. (*Logarithmic Difference.*)—Page 856, altitude  $28^{\circ} 50'$ , hor. par.  $58'$ , for 6551 read 6651.

## Nautical Notices.

### PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 56.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist. in Mls.	(Remarks, &c. Bearings Magnetic.)
63. Ushant	N W. extr. of island	$48^{\circ} 27' 6''$ N., $5^{\circ} 7' 9''$ W.	R.	323	24	Est. 20th Dec., '63. Showing successively two white lights and one red at intervals of 20 seconds.
Contis	West coast of France	$44^{\circ} 5' 7''$ N., $1^{\circ} 19' 4''$ W.	R.	164	24	Est. 20th Dec., '63. Revolves every half minute.
1. Odessa	Black Sea	$46^{\circ} 29' 4''$ N., $30^{\circ} 44' 9''$ E.	F.	44	12	Est. — '63. A white light flashing red once a minute.
Dil Burnu	Sea Marmora S. side of Ismid	$40^{\circ} 43' 2''$ N., $29^{\circ} 23' 2''$ E.	F.	46	5	Est. 10th Dec., '63. Green light.
Zeltin Burnu	Sea Marmora N. side of Ismid	$40^{\circ} 43' 5''$ N., $29^{\circ} 50' 2''$ E.	F.	33	6	Est. 10th Dec., '63. Red light.
2. Capuchin Point	Bay of Camaret	$48^{\circ} 19' 2''$ N., $4^{\circ} 34' 3''$ W.	F.	326	10	Est. 1st Dec., '63. Seen from seaward through an arc of $18^{\circ}$ between E.b.S. & S. and R. & N.
Loc Tudy	River l'Abbe	$47^{\circ} 49' 9''$ N., $4^{\circ} 9' 4''$ W.	F.	36	10	Est. 1st Dec. '63.
3. Ciboux Island	Cape Breton Island	$46^{\circ} 23' 2''$ N., $60^{\circ} 23' 5''$ W.	R.	77	14	Est. 20th Nov., '63. A red and white flash every minute.
4. Treguier River	France, N. coast	$48^{\circ} 51' 6''$ N., $3^{\circ} 8' 7''$ W.	F.	46	6	Est. 25th Dec., '63. Ou er light.
Ditto	Ditto	Ditto	F.	105	7	Est. 25th Dec., '63. When in line with former leads through Grand Passe de Treguier.

F. Fixed. Ff. Fixed and Flashing. R. Revolving. I. Intermittent. Est. Established.

## LIGHTS.

One of the important points of the duty of a careful navigator is to attend to the changes which are perpetually taking place in the lights on the coasts of the civilised world, for there are many parts of the uncivilised world to which lights are utterly unknown. It is not enough for the seaman to purchase the latest chart of the coast to which he is bound, and to suppose that it is correct. He cannot be expected to test the geographical positions on it, but assuredly he should do so of the lights, when the best information can be obtained for a shilling or two concerning them, from the Admiralty chart agent in the Poultry, Mr. Potter; and should a light not be inserted in the chart at a place to which he is bound, it would at once be apparent, and he would avoid accident. We say this of a recent chart, but what should we say of a navigator who blindly trusts to a chart nine or ten years old? Simply that he is not fit to be trusted with the navigation of his ship. But even this case has just happened. Two British ships, lately bound to a port in the Mediterranean, have narrowly escaped wreck from this cause; one satisfied himself with a chart about ten years old, and the other with directions of about the same age, and here were two valuable vessels all but lost, either from sheer neglect or from the parsimonious saving of one shilling, the price of the Admiralty list of lights, in which would have been seen sufficient notice to warn him that the light which was expected to be seen was but "occasionally" lighted, and this is once a fortnight, when a mail steamer is expected.

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CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,  
ADMIRALTY, in January, 1864.

- Lake Huron, Mackinac Strait, U.S. survey, 1854, (2s. 6d.)  
 Japan, West coast, Simonoski Strait, Commander Ward, R.N., 1861,  
 (2s. 6d.)  
 Australia, Sharks Bay, Captain Denham, R.N., F.R.S. 1858, (2s. 6d.)  
 British Lights corrected to 1864, by Commander Dunsterville, R.N.  
 North Sea and Baltic, corrected to 1864, by Commander Dunsterville, R.N.  
 North, N.W., and West coasts of France, Spain, and Portugal, by Com-  
 mander Dunsterville, R.N.

EDWARD DUNSTERVILLE, *Commander R.N.*

*Hydrographic Office, Admiralty, January 21st, 1864.*

## TO CORRESPONDENTS.

Our printer has obliged us at the twelfth hour to reserve for our next Reviews of some important books, our Nautical Notices, and some important letters from Correspondents. We hope they will kindly bear this.

THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle.

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MARCH, 1864.

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SKETCHES ON THE FRENCH COAST.—I. *The Cordouan.*

The bay of Cordouan and the mouth of the Gironde form one of the most interesting portions on the whole coast of France. Like the shores of the Basse Loire and the bay of the Seine, those of this gulf contain extensive sheets of water, wherein all the phenomena of tides and currents may be studied; but at the same time it must be observed that these also have their own peculiarities. The mouth of the Gironde, under any point of view, is a complete repetition of what is found on other parts of the French coast. While to the North the general line of coast is protected by a barrier of islands, and presents a constant succession of bays, peninsulas, and rocky points from Finisterre to the downs of Saintonge, the southern line of coast, destitute of all these, extends straightway to the base of the Pyrenees.

The waters of the Gironde, situated exactly midway between the pole and the equator, form, not only for France but the entire hemisphere, the real dividing line between the North and South. On one side of it is a fine, undulating, well cultivated country, on the other arid sands and an unproductive soil. On the North is a long established population, speaking the French dialect; on the South but few inhabitants, whose ancestors were probably mostly Spanish, with a language very provincial. Thus all is different on the two sides, separated only by a very few miles.

Besides this interesting diversity of feature there is that of the frequent inroads of the sea in the Grave Peninsula; which is per-

petually undergoing the work of being strengthened against the ravages of its aggressive and turbulent neighbour. Again, in a commercial point of view, the estuary of the Gironde is no less interesting, for it leads to a commercial town which for a long time was the most important of all France.

The huge funnel, called the gulf of Cordouan, which ships pass through before they can enter the Gironde, is to a considerable extent occupied by sandbanks with about five fathoms over them at low water. The western part of it is occupied by the great bank called the Mastelier in the charts. Its outer edge, which has a moderate inclination seaward, and which lies S.E. and N.W., with a remarkable regularity seems to continue under water the sandy ridge of the Landes of Gascony. The inner side shows a series of banks of sand and gravel extending in a semicircular form around a submarine flat; in the midst of which is the collection of rocks of which Cordouan Rock forms the centre. To the eastward the banks diminish in number and extent; and from Point de Grave, that is from the entrance of the river, there is a depth across from one side to the other varying from six to seventeen fathoms.

The principal entrance of the Gironde, known by the name of the Passe du Nord and the Passe de la Coudre, and pointed out by the light of the Cordouan, commences at a good distance out at sea, about a mile and a half from the nearest coast and thirteen miles from the Saut de Grave, where the estuary proper commences. This great entrance which is adopted by all ships of a large draft of water, assumes a serpentine form like a river between the shoals and sands of Santonge. In fine weather the entrance of this channel is by no means dangerous; and even when the numerous pilots are not present, who form the guard of these parts and dispute about the possession of ships, any intelligent captain may take the channel and navigate his ship as far as the Verdon or Richard anchorages. The route is distinctly marked by large buoys. In day time resources of all kinds are at hand—beacons, towers, bells,—placed on the principal promontories, and, so arranged as to form a line at right angles to the course, apprise the navigator of danger. By night lights show these marks, and being either white or red, fixed or revolving, light up the track which vessels may take and the channels where they join each other. After losing sight of the high belfry of Rennes behind the sandy downs of Avert, on the North side of the entrance,—and which belfry the English took care to preserve during the war because it served as a point of recognition for their vessels; and after passing an enormous buoy, which points out at two or three miles outside the pass the vessel's approach to dangers, the mariner has only to shape his vessel's course for the belfry of St. Palais and that of Royan, on the North shore, or perhaps the light of Terre Negre and that of Pontailac.

In preserving most carefully this course, without deviating to the right or left of it, the vessel soon enters the first narrows—more than a mile long and above half a mile wide. On the northern side a line

of breakers marks the old bank of the Point de la Coudre, to the South the great bank throwing out a tongue of sand, which has been most aptly named the Mauvaise, and which is rendered most difficult to avoid by the strong current. Perpetually washed as it is by the streams of flood and ebb, the side of this sand under water is like a wall, so that at a ship's length from it there is a depth of five fathoms. To the East of the Mauvaise the channel, which has always six fathoms in it at low water, widens suddenly, forming a basin free from all danger. The course then is to be altered in the direction of the two lights of St. George and Suzac, on the Saintonge shore, beyond Royan. Then, after passing the bank of Monrevel and those of St. Palais and Pontailiac, the vessel has reached the mouth of the river, and has only to steer for Verdon Road, where abundance of ships are waiting to proceed up the river with the flood.

In the whole of France there is not a river with a single entrance so clear and easy as that of the Gironde. In spite of her great draught the *Great Eastern* could easily clear the bar and run into the estuary at low water, for there is not less than six fathoms anywhere. The banks themselves are not so dangerous to the navigator as a great number of rivers in every day use. Thus, throughout its whole extent the Great Bank has from three to about five fathoms over it at low water; and if the pilots do not run over it in ships it is because there is less sea in the channels. The state of the weather only can make the navigation difficult at the entrance. Westerly winds are often very strong there; also fogs and heavy rains, by which the lights are concealed. In fact, the dry fogs, which prevail for at least thirty-one days in the year, completely obscure the horizon, with a heavy sea, a state of things which seamen dislike more than a gale of wind.

The northern channel is not always adopted by vessels of a large draught of water. Between the reefs of the Cordouan and the beach of Vieux Solac there is another, known to seamen by the name of the Passe de la Grave. It is true that it is not so deep and is narrower than the northern channel, and there are also several dangers in it. But it has the advantage of being at once short and direct, so that sailing vessels can easily run through it in a few hours. At low water, in some parts it has but three to four fathoms of depth in it; but, if we are to believe the pilots and fishermen, its sandbanks are being perpetually reduced by tidal action, promising on some future day that the channel shall be as passable for vessels of a large draught as the more tedious northern route. Being excellently buoyed, the Grave Channel offers the greatest facility for entering the Gironde and the navigable channels of the Cordouan Gulf. In a hydraulic point of view the two passes form a delta; the branches of which, passing along the shores, leave between them a triangular mass of shoals. If the level of the water were suddenly lowered about twenty-two feet the two channels would show from the Saut de Grave extending seaward, separated from each other by a large island, or

which stands the lighthouse, surrounded by an irregular collection of sands and rocks.

The old charts, formed at a period when a systematic method of sounding was not adopted, can be entitled to little confidence. But at the same time, although no great authorities for real accuracy, yet their general testimony agrees with the accounts of the pilots, and in many cases afford important decisions. Thus, these old documents are unanimous in showing the remarkable changes that have taken place in the channels from the end of the sixteenth century, under the constant action of tidal currents and storms. In 1752, when Magin constructed the first correct chart of the Gulf of Cordouan, the Great Pass began immediately to the West of the lighthouse, exactly where, in the present day, lies the much dreaded bank of la Cuivre; proceeds between the banks of Mastelier and Mauvaise, actually united, and opposite the Point de la Coubre curves to the eastward, to follow nearly the same direction as at present. In 1767 the entrance called indifferently *Passe de Mastelier*, or *Passe des Saintongeois*, or *des Anes*, had twenty-six feet in it at low water. In 1800 it had no more than nineteen to twenty-two feet, and from that time it has become still shoaler. Other *Passes*, which are so called from having water in them for ships, are now more or less distant from their old position, or else completely silted up. The *Cuivre*, the extreme limit of the Grand Bank on its seaward side, is gradually moving towards the Cordouan; while the *Mauvaise*, more under the action of the currents, is going in the opposite direction with singular rapidity. In less than a century it has moved five miles to the westward. But the present chart of the gulf should be corrected for the benefit of the pilots, and this in fact should be done every year.

In the midst of this large mass of sandbanks, and in the middle of an imaginary line connecting the coast of Saintonge with that of the Landes of Gascony, the celebrated tower of the Cordouan light stands like an obelisk, the best known and the most extraordinary of France. At low water a rocky flat extends from the base of this tower above half a mile across and more than a mile in length. A hardway of not 300 yards long leads from the shore to the entrance of the building. On all sides of it nothing is seen but a wilderness of black rocks lying in confused masses, the sides of many of them rising vertically from pools of water left by the tide connected with each other in rivulets as clear as crystal. Most of these rocks have a coating of shell-fish so thick as to cover all appearance of the rock itself, and which are again overgrown by weed. In some parts the rocks are totally concealed by extensive beds of weed which crackle under the feet when trodden on: when covered by the tide all is one living mass, but when that is out, filling cavities and alive with crabs in quiet repose. At a distance from this centre is seen a girdle of breakers, the white foam of which forms a circle parallel to that of the horizon beyond it. Then comes the flowing tide, when this circle gradually lessens: the extensive beds of rock are invaded in all

directions and become fewer, the beds of weed are afloat and soon become invisible, and all are covered by the mass of water from the sea. In fact, the waves wash over the entire mass of these rocks, and the pathway over them, soon assailing the massive tower itself and throwing their foam to its summit. Thus during some hours of flood and ebb the tower remains on its rocky base, reigning over a waste of weeds or an extensive terrace of breakers in lonely solemn grandeur.

Whether towering above rocks or the waste of breakers, it cannot be more isolated than it is, being completely cut off from the continent, on one hand the coast showing its well wooded downs, on the other nothing but vertical cliffs. No doubt the inmates of the light tower must regard the land which contains all that is dear to them with as much interest as the mariner who is straining all his powers to distinguish the friendly light of the Cordouan, which is the object of their care. In fine weather, by day the light-keepers may pass their time by fishing in the lagoons among the rocks; but when the land is concealed by fog, or when they can see but a short distance, and the horizon closes around them, when they are assailed by the storm, when the enraged sea is lashing the tower and covering it with sheets of water and the wind is howling in their ears and resounding throughout the whole edifice like the huge pipes of an organ, how deeply must they then feel the force of those trying seas which surround them, making them a little world of themselves, yet so limited and so replete with terror. But science, to which they are utter strangers, can only, with habit, make them satisfied with their trying home. Happily what one does not the other does.

The rock on which the lighthouse stands is probably a remnant of the Isle of Antros, of which Pomponius Mela speaks: but at all events it may be considered as certain, that, the Cordouan Rock was attached to the continent in times beyond history. It is indeed even probable that it formed a part of the chain of chalk rocks which commence at Santonge, and at present are terminated between Barzan and Talmont by the magnificent cliffs which are seen on the right bank of the Gironde. The tides and the course of the river, which then ran much more southerly, would wash the western end of the chain; but there are yet two remnants, the rocks of Barbe Grise and St. Nicholas, each marking the banks of the river at Point de Grave, exactly on a line from the cliffs of Talmont to the Cordouan Rocks. However it may be, tradition confirms this hypothesis.

The peasants of Medoc relate that in the times of their ancestors the Cordouan Rock, in the present day covered by six feet of water, was in fact an island on which they cultivated the vine. In those days the pass which separates it from the mainland was much less than it is now, and, if the legend is to be trusted, it was sufficient for a horse's head, or that of an ox, to be thrown into the middle of the strait, to clear it at two steps. Perhaps this assertion was only meant in the figurative language of the time to convey an idea of the facility of fording the channel which is now that of the Passe de la Grave.



The tower, as well as the rock, belongs to the same legend, which reaches to a date before history. Its position is in the vicinity of that town of Noviomagus which archæologists build up and destroy at pleasure at any place they please. When and in what reign was it built? and what is the origin of the name? Some hardy etymologists declare that the name of Cordouan is derived from that of the inhabitants of Cordoue, who sent leather to the army before the battle of Poitiers. Others less pretentious are content to explain the name of the light by "Cor" du Gardien, placed there by Louis le Debonnaire; but there is nothing to prove that the Moors or the Cæsars occupied themselves in lighting the entrance of the Gironde.

The first mention that is made in history of the Cordouan is in a chart of 1409, attributing to the Black Prince the honour of having constructed the lighthouse. When the tower was repaired in 1788 by an engineer named Feulere, he discovered in the foundation some very ancient walls and buildings, which seemed to have English origin or to date from English dominion. May be, among some of the ancestors of the builders of the Eddystone, the originator of the first light of the Cordouan would be found.

The building of the tower commenced in 1584, and the engineer who built it and who rendered so much service to the port of Bourdeaux, was that same Louis de Foix, who five years before had done the same for the port of Bayonne, in improving the bed of the river. The architect of the Cordouan, evidently smitten with his art, forgot that he was building his lighthouse in the midst of solitary waters, and employed as much care in ornament as if it were in the most civilized position.

The thick wall of the terrace which has to withstand the sea, is only constructed with the simple consideration that it has to bear the effect of heavy breakers. The building itself consists of a ground floor apartment of Doric order, and a story above it of composite order, with a circular gallery and a handsome range of windows; and above this is the lighting apparatus. The principal apartment is on the first floor, and is the king's chamber, occupying the whole of it in fact; this and the chapel immediately over it are both highly decorated with sculpture and medallions. These rooms are all open towards the centre of the building so that a crown may be distinctly seen from the king's room suspended from the vault of the dome of the building. Exulting in the success of his work the architect is said to have given way to his feelings of pride, and to have himself launched out in his own praise much in this strain, "My delighted mind," he is made to exclaim, "is overcome with astonishment at having succeeded in building this light tower? Babylon, Memphis, the pyramids of Cairo, the palace of Medea, what are all these in comparison with the superb structure of the civil engineer?" This exclamation of ecstasy, translated from bad verse, appears under the bust of Louis de Foix, which is placed in the chapel.

The civil engineer had not the good fortune to see the eighth wonder of the world completed; but the architects who have suc-

ceeded him followed his plans, and have been contented to repair the ravages of the sea by them. It was in 1788 that the engineer Teulere took down all the work above the first floor and replaced it by a kind of obelisk with three rows of windows and surmounted by the lantern. The tower is nevertheless sixty-five feet higher than it was left by Louis de Foix, and is 286 feet above the level of low water. It is certain that the building has not that harmony of proportion which contributes so much to architectural beauty, notwithstanding it may have gained in majestic appearance. A lighthouse is intended to be seen from the horizon rising amidst the waves and sending its rays far away. It is its height which commands admiration and not the details of ornament. And what avails for it the admiration of archæologists. The mariners who are buffeting the waves outside of the sands, and ever risking their lives, if fog or the storm assails them delight in seeing the star of their hopes shining in splendour from its obelisk,—assured thus by seeing the light when they are well outside of all the dangers, do not think of it as a Will-o'-the-Wisp seated in the midst of dangers to mock them in their distress, but rejoice in their safety when they can look on it as their guide into port. And this superb light, rising above the furious seas by which it is surrounded, is in fact the friend of the mariner. For all who are wandering on the ocean its light is the friendly beacon; to all and to every one without distinction it holds out warning of dangers which would lead to their destruction.

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#### RAMBLES IN JAPAN.—*Kagosima to Inosima.*

After a few hours of refreshing sleep on the nice mats which had been prepared for my bed in the inn at Kagosima, I was called at break of day by my *betto*, who, without showing the least fatigue from his night's excursion, brought me my revolver and the money for which I had sent him to Yokohama. I was soon up, and after a Japanese breakfast off rice and tea, I set out on the beautiful road which leads to Kamoukara. The weather was magnificent. Giving the reins of my horse to my *betto*, I walked at an easy step through the pretty village of Kanasava. I passed an old temple surrounded by the pagoda fig tree, the strong branch of which, descending to the ground, struck root afresh, forming a veritable edifice of verdure. After leaving the hill on which the palace stands of the Prince of Kanasava, and crossing the village, the houses of which are scattered along a brook which soon falls into the sea, I turned off into the midst of an extensive plain terminated by a long range of wooded hills. At the entrance of it there was a cemetery, and before me a funeral cortege with two priests at its head reciting prayers, then followed the coffin, in the shape of a square box, carried on a kind of litter by four men,

followed by the parents and friends of the defunct, all dressed in white, the type of mourning in Japan as well as in China. The burial ceremony, such as is observed by certain Buddhist sects, is simple and touching. The coffin, ornamented with flowers, is carried to the temple and placed before the altar: the priests recite their prayers and intone their funeral chants; then at a stated period one of the assistants leaves the temple and lets fly a white pigeon, which he had taken shut up in a cage. This is the last act of the ceremonial and the whole party leaves the temple. The coffin is then borne to the cemetery, and it is customary to do this rapidly, not a word or a tear escaping on the way.

These white groups, thus moving swiftly and silently, have something singular and melancholy about them, but I must observe that the Japanese bury their dead with less signs of sorrow than are shown by Christians.

I stopped a few minutes at a tea house on the hill at the extremity of the plain, where I was served by a kind old lady with whom I dealt, and who explained to me the holy city of Kamakoura. The tea houses, as I have observed, are very numerous in all parts of Japan. The choice of the sites on which they are built are generally so many proofs of good taste among the Japanese: they can appreciate the beauties of nature far more than any other people among whom I have been. From every accessible position whence the eye can survey an attractive scene, the tea house is an attraction for the traveller to stop for a few moments to enjoy the beautiful scenery before him. On much frequented roads, this becomes a large inn where some twenty or more young damsels are ready to wait on the visitors.

In some places, more retired, it is simply a house in miniature, constructed of wood and paper with a thatched roof. The family is composed of the father and mother and a nest of little ones, getting their livelihood heaven only knows how. About the building, of which there appear no signs, every thing seeming to be in its natural condition, the visitor is enticed by paths of soft grass which looks as if it was never trodden, and finds himself either by a rippling brook or cascades and natural reservoirs of crystal, bordered occasionally with bouquets of delicious flowers, about which occasionally, and perhaps on a bank, an old lady has established her small, unpretending, modest, moveable little house, containing some cups, a teapot and a brazier! For a *seni*, that is for the hundredth part of a coin which is not worth two pence, the Japanese traveller obtains a cup of tea and a small plate of rice. He never leaves until he has smoked several pipes, enjoying all the while the beautiful view before his eyes.

In descending the hill where I had been, it was necessary to cross another plain, where the beautiful trees, the cultivation, the several villages, the farms and the temple formed a picture of charming variety. At the end of this plain stands the town of Kamakoura, the most celebrated in the ancient history of Japan. In the twelfth century it was the residence of Yoritomo, a general famous for his valour, who did much towards removing the government of the country from

the hands of Mikado into those of the Chigoons or Tycoons. After a great battle which occurred in the vicinity of Kamakoura this town was nearly all destroyed, but some magnificent vestiges of its former splendour are still preserved there. The streets are as wide as the handsomest of Yeddo, and the bridges have resisted the effects of time and neglect, and the extensive park which surrounds the temples is the handsomest I have seen in Japan. A sacred temple is approached through a long avenue of ancient trees, but before this the pilgrim passes through several granite portals, which have an imposing effect from their natural simplicity. The park is surrounded by a wide, deep moat which is crossed by two bridges, one of stone and the other of a red wood, the moat being covered with flowers of the lotus and other aquatic plants.

Beyond the bridges is a square of moderate extent before a large edifice with magnificent portals covered with copper, forming the principal entrance to the park. About a dozen monks, with that stupid and insolent manner which is the result of absolute power, form the guard, whose business it is to examine the visitors entering or leaving. But from this point there is a general view of the principal buildings of the monastery of Kamakoura. To the right and left stand two ancient temples, and in front a magnificent flight of stone steps leading to an extensive area on which are three more temples, the middle one which is the largest and handsomest being the holy and venerated *Mia* of Kamakoura. There are besides many more of these buildings in the park, handsomely constructed and richly ornamented, and a beautifully furnished pagoda and other structures in which the monks and nuns of the community reside.

I was not permitted to see the interior of any of these buildings. Indeed, I had scarcely set my foot in the interior of the park when there was an extraordinary stir around me, and a hastening, by means of shutters, to close not only the temples but even the dwellings above-mentioned of the whole *Mia*. I was soon given to understand many reasons for this sudden measure. Some told me that the convent contained females highly born, but of bad moral character, who to expiate their sins were placed here and not allowed to see a man; others gave me a much more likely reason, which was that the monks of Kamakoura did not choose to admit to their temples the Christian barbarians, in the belief that their presence hurt the sanctity of the place and diminished the respect of the Japanese for the establishment! But there is an idol here called Omanko-sama, to which pilgrimages with pious offerings are made from all parts of the country. Women especially visit it for the cure of barrenness, which is regarded as a mark of shame in Japan; the newly married, also young girls and even children, make their pilgrimages to it. The tree which shades it with its branches is considered *ex voto*, and I am assured that Japan does not contain another idol of the kind.

After a long walk in the park of Kamakoura I returned to the inn, where my betto was waiting with my horse. Along the road a number of children gathered around me, and followed me with their

joyous noisy cries, exclaiming as they ran *To-djin*. But this little turbulent crowd was very harmless and always made way for me, dispersing in every direction and leaving me free to choose my road. They were to blame, as they often have been, and when strangers have been the object of their curiosity in Japan. This curiosity without is often very troublesome and sometimes indiscreet, but it certainly was not more than that experienced by the Japanese ambassadors in large cities of Europe.

At the inn I found the inevitable Yakounine, who did not display more anxiety than his colleague of Kanasava in informing himself on matters concerning me, and who did not in the least interest himself in my affairs. But the charming walk which I had, the beautiful country which I had seen, the delicious temperature every thing in fact, even to the joyous noise of the children, had put me in a good humour, and I received the Yakounine in a manner to render me very popular at Kamakoura. There are few people who are easier pleased than the Japanese. Any little piece of wit, good or bad, is the same to them in producing a laugh, and the same of the children, who, when they once begin to laugh, never know when to leave off. My conversation with the Yakounine was in the large room of the tea house before a numerous company. It was not very logically conducted, for it was with no small difficulty that I could understand what he said to me, and equally so for him to make out what I told him. But had it possessed all the humour of Shakespeare's Falstaff, I could not have occasioned more amusement in the audience than I did in answering without being too malicious the questions of the Yakounine just what came into my head. I could see in all their faces the expressions of downright good will, and their shouts of laughter rang in my ears when I was some distance from them on the road, on horseback.

Beyond Kamakoura is an extensive plain, bounded on the right by a range of hills, at the foot of which are villages here and there, and farms with some curious old temples among them. The most remarkable of these bears the imposing name of Quanon-hatsadera-kaikoso : it contains a colossal statue of the female deity Quanon-sama, placed behind the principal altar in a recess of an obscure temple. Two paper lanterns hanging about twenty-five feet from the ground before the deity shed a singularly mysterious light around them. And in the vicinity of this temple, in the middle of a garden embosomed in trees, is the Dai-bouts of Kamakoura, the most interesting idol ever seen by travellers in Japan. It consists of a bronze statue fifty feet high of Buddha. The base on which it rests cannot be less than 120 feet in circuit; and the figure is perfectly symmetrical in all its proportions. Even the interior of the statue forms a kind of oratory thirty feet long, by about twenty feet wide. Large plates of copper, on which are carefully engraved, in Japanese, some passages from the sacred books of Japan, are placed round the statue. After gazing in admiration at this wonderful statue and purchasing a representation of it, which I was told was to protect me from certain maladies and to act as a charm against others, I set out at a good round pace for Inosima, about two

or three miles from the Dai-bouts. The road lay along the sea side, over a sandy plain, affording nothing particular for observation.

Inosima is a volcanic island about a mile in circumference, and rises about 300 feet above the beach, to which it is annexed, as already observed, by a narrow isthmus. The island has a motley population of fishermen and their families, and a considerable number of traders in curiosities, monks and voyagers. The fishermen are ranged in huts along the beach, the traders are collected in a kind of little town which serves as the chief resort, and the monks inhabit the numerous convents and temples spread over a large part of the island, especially on the heights. Among these temples, which are held in great veneration and to which pilgrimages are made from the most distant parts of Japan, the most worthy of note are those dedicated to the female deities, Benten-sama and Quanon-sama, both embosomed in trees and surrounded by tea houses, the attendance in which leaves nothing to be wished for.

It was noon before I lighted from my horse at the inn at Inosima. A lad offered to serve me as guide, and as I had to return in the evening to Kanasava, I set out with him immediately to ascend the height of the island and to visit any interesting buildings in our way. The town is built on the steep slope of the mountain, and in most of the houses shells, dried flying fish, coral and other produce of the sea were offered for sale. Every thing that served as toys for the amusement of children was sold at an exceeding low price, being not worth much. But pilgrims, I was told by my guide, were ready enough to buy these bagatelles, in order to hang them up in their houses as charms against the power of evil spirits. On the summit of a rock, which commands a beautiful view, I did not fail to find the inevitable tea house, and at the door was placed, on a kind of table, a telescope of native construction, with which I distinguished the beautiful Isle of Qosima and Cape Idsou, where the town of Simoda is seated, celebrated in the history of our earliest communications, political as well as commercial, with Japan.

Not far from the tea house were the temples of Quanon-sama and Benten-sama; which I visited, but which do not deserve the attention of the traveller who has seen the temple of the former at Yeddo, the model for all others. But I observed a singular kind of trophy, which consisted of thousands of straw sandals of all dimensions suspended at the door of one of the temples. These were all offerings to the deity, the name of which I cannot remember, made by Japanese pilgrims to secure their safety during their journey!

After leaving the summit of the mountain I entered a grotto which penetrated far into the rock, and which the superstitious islanders considered to be the residence of a great number of their deities. The grotto or cave was low and narrow and nearly half a mile long, and is certainly studded with idols, and at certain times of the year feasts are held in honour of them, which figure largely in the Japanese calendar. About the middle of this cave, in an obscure, murky, and damp corner, I observed a monk crouched on a litter of dirty half rotten straw

He was keeping himself warm by a brazier, on which was his tea boiling ; he was smoking, and by his side on the ground was one of those wooden bottles varnished, but in the form of those boxes which the bonzes strike when repeating their prayers. The scene was half lighted by a paper lantern. I was pitying the fate of this unhappy individual, whose religious views condemned him to pass his days in the damp, unwholesome atmosphere of the place, when I learnt that he lived in a nice house in the open part of the island, and it was only a few days of the year that he passed in the loathsome cell of the cavern. Indeed, I had been not a little surprised at seeing him there, for according to my observation, I had considered it no easy matter to discover in Japan anywhere, a single victim to religious fanaticism. In this respect the Japanese resemble their neighbours and old masters, the Chinese : theoretically superstitious in practice, they prove themselves as free from religious prejudices as any western nation.

The light of day was most agreeable to me on emerging from the cavern. A number of men and little boys, as naked as they were born, awaited my re-appearance, to induce me to put their diving powers to the test. I threw some *tempos* (a small brass and silver coin, worth about two pence,) into the water, where it was tolerably deep, near the cave, and in communication with the sea. The divers remained thirty or forty seconds under water, and did not once come up without having the piece they dived for. They swam with remarkable facility, and reminded me of the famous divers of Aden and Ceylon, and are capable, it is said, of swimming for many hours without fatigue. The divers of Inosima form an association under the direction of a veteran swimmer. When they have no opportunity of practising their favourite occupation they have recourse to a mode of fishing, which is very trying ; they descend to the bottom with a knife in hand and break off coral branches and shell-fish from rocks for sale to the shops in the town. The men who do this are robust and powerful, but in figure by no means prepossessing, and appeared to me a more boisterous people than their countrymen.

I remounted to take the road by which I had come, and in about an hour and a half reached Kanasava. There I found my friend the Dutch Consul, and my host of Yokohama, who had come by boat to meet me. He told me that it was reported at Yokohama that 400 lonines went out every night on purpose to massacre strangers. Without giving any credit to this unlikely story, I still thought it would be as well not to risk a long journey across a broken country, and determined to return by water to Yokohama. I therefore accepted the offer made to me, and leaving my horse to my betto, who for the last twenty-four hours had been doing nothing but walking and running, I embarked, and in three hours had crossed the bogs of Mississippi and Yokohama, to Benten-dori-no-hattoban, the landing place of the Dutch Consul, at Yokohama.

THE WESTERN DIVISION OF THE MEDITERRANEAN.—*Winds.*

(Continued from page 87).

The Adriatic, lying in a S.E. and N.W. direction, naturally gives a tendency to the winds to assume its course, and thus S.E. and N.W. winds prevail there. The first naturally throw in a heavy sea, attended with rain and fog, although they are generally steady. Admiral Smyth says the entrance of this sea is liable to sudden gusts, which do not always give warning of their approach, and when it continues to blow hard there the waves are trembling and confused, subsiding however with fair weather. Towards the middle of the gulf the winds are steadier than at the mouth, though in the upper part of it they are still more variable. From comparisons made by Sir William Hoste, who had much experience of this sea, it appeared that ships off the Po, those of Trieste, and those in the Quarnero, all had a different wind at the same time. Hence, much care is required in the navigation, and ships caught in places without sea room, are liable to mishaps. A curious remark is made by seamen, of the tendency of the easterly wind in this sea, which says (and it occurs in most parts of the Mediterranean) that it has the pernicious quality of mildewing sails. Seamen will be careful, therefore, to air them in northerly and westerly winds.

The S.W. wind blows heavily but does not last long, and if so, draws round to the South and becomes S.E. off Croatia, and indeed, generally, observes the Admiral, from the gulf of Trieste, to the mouths of Cattaro, the weather is notoriously unsteady; calms, thunder, water-spouts, and the hot wind called the *Yong*, by the Slavonians, are frequent all the summer; and heavy northerly blasts called *Boras*, the *Sabenzanas*, of Dalmatia, with fogs and hard squalls during the winter. Nor are these variations confined to seasons. Obviously, Bora appears to be a mere corruption of Boreas, though said to be derived from a Slavonic term for furious tempest. The Bora is greatly dreaded in the upper part of the Gulf of Venice, particularly in the Canale di Maltempe, and other channels of the Quarnero and Quarnerolo, where it rushes down from the whole line of the Julian Alps with such irresistible fury, that not only numbers of vessels are sacrificed, but it ravages the shore also, being feared as much for the suddenness of its attack as for its violence.

For this cause the emporium of Fiume is nearly confined to a summer intercourse in trade, and the otherwise eligible haven of Porto Re, is useless as a government arsenal. There are also districts which are rendered nearly uninhabitable by it. And as the maritime cliffs and surfaces of those shores are well marked which are most exposed to the Bora (for not a bush nor a blade of grass can grow on them,) the local craft usually anchor opposite the parts where vegetation is most abundant.

This is a useful hint, and one from which seamen may most easily profit, but the peculiarities of this wind is a lesson which well deserves



their attention. "The coming on of this wind," says our Admiral, "may be fortunately known some hours beforehand, by a dense dark cloud on the horizon, with light fleecy clouds above it, a rather lurid sky, and it is immediately preceded by a breathless, but speaking stillness. Its general source is between North and N.E., and its most usual continuance about fifteen or twenty hours, with heavy squalls and terrible thunder, lightning, and rain at intervals. But the Bora, most feared and with justice, is that which blows in sudden gusts for three days, subsides, and then resumes its former force for three days more. Ships caught by the Bora generally let fly every thing to receive the first blast, then immediately bear up to the southward to seek safety in any port they can fetch, or remain under bare poles till it is exhausted."

Although the Bora gives sufficient notice of its approach, not so the Borine, a heavy squall of some duration from the same quarter. The following account of a Bora experienced in Lissa Harbour, by the Admiral will give a good idea of their character. On the third evening in which the usual bank had been accumulating, it spread over the sky to the zenith, and the corruscations became incessant. Whereupon, as we were lying at single anchor, prepared for going to sea, we dropped the best bower, braced the yards to the wind, and took measures for the safety of our observatory. In the midst of this aerial commotion, at about one in the morning, the gale suddenly chopped round from S.S.E. to N.N.E., with such fury, as to make the ship heel over in an extraordinary degree, and the cables were veered out until she was uncomfortably close to the marina. In about an hour the acme of its force abated somewhat, rain fell in large drops, and for two days we had cool breezes from the North, and clear weather.

On another occasion, of which the Admiral speaks, he gives a graphic account of the whole progress of the Bora. The symptoms of its approach, however, most concern seamen to prepare for it. Here is his description. "On the morning of the 9th of August, the wind was in the S.W. quarter, the clouds lurid, the atmosphere dark, and the whole celestial aspect so singular and threatening, that, notwithstanding our apparent security, other precautions were taken, and a cable ranged. In the afternoon the horizon from N.W. to North, was as black as possible, and the gloominess of its appearance was contrasted by a bed of fleecy white clouds which rose immediately above it, and soared rapidly till they joined a series of waved distinct streaks overhead, forming an immense arch from W.S.W. to E.N.E., with a deep blue sky on each side. In a few minutes a strong wind had evidently risen in the N.W., as it blew the clouds right and left, though we still felt the S.W. even stronger than in the morning.

"The scene was now awfully grand. Masses of clouds were in motion from the zenith downwards, excluding in degrees the brassy sky, while a momentary stillness was a presage of the coming storm. At this time all the fishermen were making for the shore, and the whole marina resounded with the shouts of people endeavouring to

rouce up their vessels on the strand. At length huge drops of rain plashed down, and the whole atmosphere seemed to resolve itself into black smoke, while the North wind was seen approaching by the eddies of sand which were thrown up before it. The gust now reached the ship, roaring tremendously, with such force that both our cables were snapped like twine, and before we could bring up with the best bower and sheet anchors, veer to forty fathoms and brace the yards, (which was effected with an alacrity that delighted me, the ship was nearly thrown up on the quay. The rain now poured a deluge, and the apparent mill-pond of a harbour was soon covered with long rolling waves, the crests of which were cut off in foam. Every boat in the port was swamped or capsized; oars, rudders and thwarts, were floating on every side, and the vessels along the Marina were driven on each other. Such a gust, if it had continued, must have destroyed the place; but providentially, its excess of violence only lasted a few minutes, and in less than an hour all was restored to comparative tranquillity. Among other disasters, we noticed the destruction of a trabaculo astern of us; she had escaped the first blast with being merely thrown on the mud, but after she was aground, the rain falling on her cargo of unslacked lime, occasioned her conflagration, and loss of sight to some of her crew. The mischief done on shore was much greater than that afloat; numbers of trees were torn up by the roots, the roofs of houses blew away like chaff, windows and doors were forced in, and even floors were displaced by the wind getting into the lower stories."

Lower down the Adriatic, in the Ionian Sea, the prevalent winter winds are from S.S.W. to E.S.E. Inside the islands the winds are variable to an extreme, insomuch that a ship may be seen coming in at Corfu through the North channel, and another through the South, both before the wind; while in mid-channel it is either calm or the wind is veering to all points of the compass. That these are mostly mere surface currents of wind, is shown in the fact, that the courses may be asleep, while the royals are flapping to the masts; and coasters often heel to the breeze while the citadel flag, about 130 feet above them, hangs motionless on its staff.

In the gulf of Arta, the winds when regular and not stormy, follow the sun's diurnal course, commencing with light morning airs from the eastward, veering round southerly, till about an hour before noon, when a fresh westerly wind sets in, which dies away at sunset; and this is the simple fact of the alternating winds so much marvelled at by travellers. The gulf of Corinth is extremely subject to sudden squalls from the mountains that whiten its surface with foam: outside similar gusts blacken the aspect of the waters. The warm and disagreeable easterly wind (called *Vento del Golfo* by the Ionians,) commences a little after midnight, and continues till nearly midday. The westerly breeze sets in soon after noon, and lasts till nearly midnight. But the Greek pilots say that from spring to winter, however strong the wind may have blown during the day, it almost constantly mode-

rates at sunset. A remark, this, which may be applied very frequently to our own climate in fine weather.

In the winter the N.E. winds are prevalent and strong, especially along the Roumelia shore; and their meeting with the south-westers in the offing is often the cause of the commotion which affects the Ionian Islands, where the descending winds from the hills are sometimes absolutely furious.

The climate of the Morea differs more with its localities than its shore would lead one to suppose. The N.E. wind is clear and sharp, and is generally attended with fine weather, but at times blows with great violence, and is as severely felt as at the Gregale at Malta.

Admiral Smyth, in his useful work on the Mediterranean as applicable to requirements of the seamen, goes deeply into the classical history of winds of the Mediterranean. Speaking of the weather of the Adriatic, he gives some curious customs of the ancient navigators, customs, which in these days when "go ahead" is the leading maxim of navigation, *par excellence* appear to be simply ridiculous. Thus, what should we think of our steamers refusing to navigate that sea in the winter months.

Thus it appears that in the mediæval times to prevent the mischiefs of private cupidity, the laws forbade merchant vessels from putting to sea in the bad season, and so late as 1569, Venice prohibited her vessels under heavy penalties from attempting to return home between the 15th of November and the 20th of January. But this was a great improvement in bold navigation, as compared with dicta of the thirteenth century, which assigns the winter to fools only!

Tempo di navigare, d'Avril dei cominciario;  
E poi sicuro gire, finche vedrai finire,  
Di settembre lo mese, che l'altro a folli impresc.

Before we leave the gulf of Venice, a word is due, perhaps, to the tides, which seem to have more effect at the head of the gulf than any where else. Not that they would come within our category, but we note their effects as producing some current, and when the wind is blowing up the gulf the tidal current is accelerated, and the contrary with winds down the gulf. Thence the tide hour is of little importance to seamen. Admiral Smyth quotes tidal observations at Venice, and says, that "northerly winds depress the rise, and with neaps most disagreeably so, to the olfactories, while winds from the opposite quarter throw in a surcharge, reaching five or six feet above the general level, inundating all the lagoon marshes. Towards the end of the month of December, 1821, after a continuance of S.E. winds for several days, the sea was raised to an extraordinary height; so much so, that Venice appeared like one extensive lake during the whole of Christmas day. The gondolas of course were busy, but this is said to be by no means a solitary instance!"

The Archipelago or Ægean Sea, we learn, is broken by so many islands and headlands, that it is very liable to squalls, accompanied by

thunder, lightning and hail. Here the Etesian gales predominate, coming from the N E, through nearly all the summer months. The true Etesian wind commences about the middle of July, rising at 9h. a.m., and continuing only during the day time. The N.E. and N.W. winds being the constant winds of summer, may be termed the monsoons of the Levant, and to them the Grecian coast owes many of its advantages, both of climate and intercourse.

We shall conclude our present extract from Admiral Smyth's useful and very interesting work with the account which he gives of his visit to the Tower of the Winds at Athens, an interesting monument of bygone ages which yet survives the rude hand of time. It was erected by the astronomical architect, Andronichus Cyrresthes, and not only gives the eight points of the compass then recognized, but also the reputed quality of the winds from those quarters of Attica, by express symbols. Now, as the same meteorological causes must have operated through all time, this interesting structure affords an admirable record of ancient observations, and it proves that more than two thousand years ago the characteristics were the same as at present. Indeed, simple but accurate and close observation carried the ancients much further on the road to truth than some moderns admit. On his visiting this temple, says the Admiral, "I was delighted with it, notwithstanding it was degraded to a tekkiyeh, or chapel for the dances and frenzies of the howling dervishes."

The Tower of the Winds is an octagonal marble edifice, which, in 1820, was in very tolerable preservation, being entire, with the exception of the moveable brazen Triton which surmounted it, and pointed with a wand to the quarter from which the wind was blowing. On the upper story of each side of the tower is excellently sculptured a large winged figure in relief. Those which represent cold weather are mature old men, full clothed, and bearded in a style which the Athenians chose to call barbarian; and the milder winds are personated by youthful figures more lightly clad. Above them their names appear in Unical characters, and they are divided below by a cornice from large dials constructed and accommodated for each face; those for the verticals of the cardinal points being regular, and their intermediates declining. It appears truly admirable for its object as an indicator of weather and time to the Athenians, though from its proximity to the Acropolis it was badly placed for the vane Triton, showing the true line of all the winds since it could not be free from eddies.

*Schiron*.—Over the door appears Schiron, the representative of N.W. winds: he is robust and bearded, with warm robes and boots, and, though mostly a dry wind, to show that he occasionally brings rain, he is scattering water from a vase.

*Zephyros*, the soft and benign western breezes, is a lightly clad, bare legged youth, gliding slowly along with a pleasing countenance, and bearing flowers and blossoms somewhat significant of the words, "I bring life," in allusion to his general influence in gardens, and, we may add, health to man.

*Boreas*, the impersonation of the fierce and piercing North wind, is

a bearded old man warmly clothed, but without a water vase ; and he is so much affected with cold, that he guards his nose and mouth with his mantle ; an action which has been mistaken for blowing the flabra or wreathed conch shell.

*Kaikias*, or the N.E. wind, which in winter is the coldest in Attica, is represented as an elderly man, spilling olives off a charger, to denote his being unfavourable to the fruits of the earth, and especially to olives, with which the plain of Athens abounds. Stuart, however, insists that instead of fruit, he is holding hailstones in a shield.

*Apeliotes*, who represents the East wind, is a handsome youth, indicating gentle motion, and bearing various fruits in his mantle, together with a honeycomb and wheat-ears, in token of his being favourable to orchards.

*Eurus*, the S.E. wind, so often accompanied by tempestuous weather, is represented by a morose old fellow, nearly naked, the agitation of whose drapery implies occasional violence.

*Libs*, the S.W. wind and the *traversia* of the Peiræus, a robust, stern looking man, bearing the aplustre of a ship, which he seems to push before him. The Romans, who usually copied the Greeks, gave dusky pinions to Libs, in allusion to its changeful energies, being by turns hot, cold, dry, rainy, serene, and stormy, insomuch, that it was reckoned unfavourable for ships to sail from Athenian ports while the wind hung in the S.W.

*Notus*, the South wind, has a sickly aspect and clouded head, significant of unwholesome heat and dampness ; and he is emptying a water jar, as the dispenser of heavy showers in sultry weather.

Such are the representatives of the different winds in their own house at Athens, and the Admiral makes the remark in reference to them, that "on the whole, these weather influences agree remarkably well with those of the same winds for our own climate"—a remark in which we would concur, if the ears of corn and flowers of *Apeliotes* bore occasional marks of cold and blight, which the easterly wind so commonly brings to our favoured land.

(To be continued.)

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CHANGES IN COAST LINES,—By S. M. Saxby, Esq., R.N.

(Continued from page 75.)

It is impossible to look at a general map of both sides of the British Channel without being deeply impressed with the belief that the rocky south-western promontory of England, with its enormous facings of granite and serpentine, and such like tough and stubborn masses, with the numerous rocky islets about Ushant, &c., on the French coast, owe their present rugged and insular aspect to their powers of resistance to water action.

We know that the south-westerly wind is the prevailing one of this country; and therefore would expect gales from that quarter to act with more destructive vigour upon the western portions of the ancient European coast line than any other. But, accustomed as we are to see the bold promontory or the wall of rock resist during a lifetime the destructive power of the surf, our minds require preparation before receiving as a fact the assertion that the sea alone, such as we now perceive it to be, could effect such enormous changes.

Having, however, in the *Nautical* for 1861, shown satisfactorily (and I shall have again to refer to it) that the south-eastern limits of England have been considerably reduced since the Roman period, the same irresistible power of water-wearing and wave-eating energy might, without any stretch of the imagination, have been adduced as the origin of what we now call our coast line. But, as hinted in the last chapter, we are not confined to the hypothesis that the Channel sea has never had more than its present average power. Many things tend to show that a far greater impetus of wave will have been needed to have done what has been done on so huge a scale.

If we only admit that the eastern branch of the Florida Gulf Stream (which, quite independent of the question of undavorology, has been by all allowed to exist) *once swept through the English Channel*, and the terrible disruptions of rock, which in some parts are celebrated as adding so much to the picturesque of the shore, are then as easily accounted for as ordinary phenomena.

At present the current falls almost perpendicularly upon the French coast in the Bay of Biscay; thence is deflected northward, and washes along the western submerged escarpment of the great European plateau, forming (as shown at page 71) the current known as Rennel's Current. Whether it be still deepening the bed of the Atlantic in its course, or wearing away the said escarpment, remains for future ages to determine, but it is enough for our purpose that *there is a current running which must at one period have had a different direction*. The Gulf Stream could not for ages have impinged at so large an angle upon the French coast without destruction to the land, and consequent damage to it; and this advance of the sea must in time have *thrown the current upon successive parts* of the English coast line, until the indentations of the Bay of Biscay caused so great a deflection, and so much changed its line of action, as finally to have diverted it from the Channel altogether.

But in our researches we must deal fairly with the question of water action, or we shall be driven into anomalies. Due weight must be given to the circumstances under which tidal action upon varieties of strata have operated. For instance, we see the chalk cliffs of Dover resist destruction, while other cliffs of like composition have, on the coasts of Hampshire and Dorset, fallen a prey to the waves,—such a prey, indeed, as seems to confirm the notion that the sea must have acted *with unequal forces in various localities*. Now, how is this? Perhaps there has not been a more difficult problem with the sea-side geologist, as well as with the hydrographer; and it is the special pro-

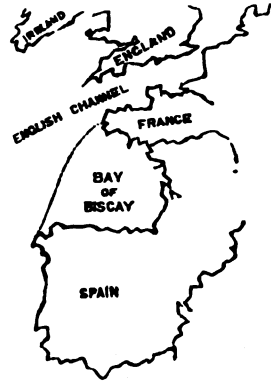
vince of undavorology\* to free the subject from such perplexities. No one can pass along either the French coast or that of England without amazement at the power which could produce, *in places*, such isolated masses of rock as the Needles, the arch at Freshwater, Old Harry in Studland Bay, and especially those on the Dorset coast, where rugged beauty (if such that can be called which demonstrates the ruins of solid masses apparently hard enough to resist iron) is to be seen in all sublimity and solitude.

This calls to mind a fright and astonishment I once encountered on one of these South coasts, now no longer a solitude, but a frequented and inhabited shore. I was wandering about one of such sea battered places, where everything was rugged and forbidding, and where I thought no human being was near me by a long distance; when, at length, seeing a fisherman with a crowbar occasionally striking or trying to lift small blocks of stone, I approached him, curious to know what his employment could possibly be. When I had reached within four or five yards of him, striking a blow with his crowbar endwise on a rock, he turned suddenly round towards me just as he exclaimed "Well, a rum customer you are, and no mistake." I suppose each has his share of vanity. I had enough to disbelieve in the applicability of his remark to me in particular, and was confusedly looking about to see if any distant being had excited the sturdy fellow's so uncomplimentary criticism; but his remark, "I've got you now," prompted an involuntary sudden grasp of my stick, and a hasty defiant glance in measuring "his inches," from a very natural impulse of self-preservation. "What do you mean?" said I, angrily, stepping back a pace. "Why, you see," says he, in a somewhat confiding but suspicious tone, "I want the ugliest chap I can come across, and I've got him now!" Mercy upon me! and was I to be knocked on the head by this ogre, in whose hands the iron crowbar was but a quarter-staff, without a human eye to witness my so solemn exit! "Got what? you scoundrel," said I, not at all liking his keen look of satisfaction. "Why," says he, "look at this precious ugly fellow," pointing to a very rough and shapeless stone, on which he was resting his weapon. Not altogether relieved as to my suspicions of his sanity, I inquired civilly what he meant. "Well," said he, "I want the ugliest stone that can be got for love or money." Seeing my continued perplexity, he, with a broad grin, which I shall never forget, added, "Why, doan't you see, Sir, folks up-cliff thinks the uglier they are the handsomer they be." Poor fellow, he was only employed by a mason to collect particularly rugged stones for the angles of a garden wall in sight of certain drawing-room windows. But a more forbidding specimen of humanity I had never seen; and yet, what a funny world this is, for the maxim, if applied to him, as it may have been by some (thus locally constituted) "Venus," made of him a perfect Adonis!

As regards the *cause* of unequal power of water action, we have first to give attention to the French coast, as under.

\* Although the word is *hybrid* it seems to be appropriate.

We assume that before the scarping out of the Bay of Biscay occurred, the probable boundary of France westward was in the line shown by the dots in the diagram, from Cape Finisterre to Ushant. Now this would have favoured the transmission of the Gulf of Florida Stream, as suggested, *right through the English Channel*; that is to say, a current of perhaps one to three knots an hour would have been always aiding and adding to the strength of the ordinary flood tides. It is not too much to say that this might have more than doubled the present powers of mischief, and the greatest effects would have been manifested, at first, rather upon the opposed N.W. portion of France than upon the S.W. promontory of England. Various would have been the scourings and the borings upon the softer beds of the French side of the Channel—as we shall presently show in detail; but the Cornish land could only have suffered from its main trial of water action after the scooping into the French coast which is now the Bay of Biscay had been partially completed,—not until the depth of such excavation was great enough to throw the strength of Rennel's Current (as now called) *directly upon the promontory of Cornwall*, so as to disrupt even that adamant district.



Then we see all the older and harder rocks of the globe exposed to the ocean, but it is in the very multitude of various substances that the danger lay. If we examine a piece of granite we shall see that it is composed of three principal substances, viz., quartz, felspar, and mica; so that the disintegration of granite can be effected as well by chemical as by mechanical means. And, again, the porphyries, although perhaps the toughest of all rocks, are so interveined with serpentine—which contains a good deal of magnesia, that the water action bores out these softer portions, and thus leaves a greater surface to the effects of open action,—and indeed the blows of the waves are thus distributed into different directions in the rock. And, further, the clay slates, hard and tough as they may be, have at least two lines of fracture.

Now, these considerations, with the knowledge that the granite of Western England is principally *protrusive*, may lead us to receive with little hesitation the conviction that the insulation of Scilly took place ages after the main features of the English Channel coast lines, as we now see them, were formed. Nothing short of the whole force of the Gulf Stream Current, acting with the ordinary spring floods, could have made such deep impression.

It is curious to examine closely the species of rock which form the main resisting points of that part of the shore. In the first place, we may consider granite, in the mass, as in general having the greatest power of resistance to water; and that rock has already been described



as "protrusive" in this district: that is to say, it is found at various spots of small area, having been originally thrust upwards in a molten state. Now, one such spot was precisely the mass which, in its present wreck, forms the Scilly Islands, and the remains are the barrier known as the Land's End. But that the deflected Gulf Stream broke through between the present Land's End and the Scilly Islands is due to the fact that the Devonian rocks of the present Cornish promontory, which extend as far as Scilly, were there overlaid at the tidal level with mountain limestone. A part of this bed still remains as the dreaded Wolf Rock. Now, as mountain limestone has less power of resistance to water action than many other beds, the deflected course of the Bay of Biscay stream setting at one period directly on the Cornish coast, wore away what we now see as a passage some thirty miles wide and in places forty fathoms deep.

Undavorology, therefore, tells us in the above that the disruption of the Scilly Isles was the last of the grand effects of the Gulf Stream influences in the Channel, the destruction of the French coast near Ushant having been the first. It would be curious to know *how long since* this might have occurred. The necessity of the study of undavorology is exhibited in the power it affords of arriving at occasional approximations to which the geologist does not pretend. Perhaps in the grandeur of the speculations of the geologist, he may despise the consideration of mere centuries; but certain it appears to be that not so many ages have elapsed since Scilly formed part of the mainland of England.

The reader must not imagine that we are trying to prove merely (what must be obvious to every one) that Scilly once joined England; but to show that the separation or insulation arose rather from water action than from some great volcanic disturbance.

Before proceeding to develop the next great epoch of the destruction of the coast line, it will be necessary to notice a popular delusion as to the *comparative* depths of the present English Channel, because some imagine such depth to bear a very different proportion to the extent of coast from that which it actually does.

In illustration, we will assume the Channel breadth in a line from Folkestone to Cape Grisnez to be thirty miles: now, an attempt to show the proportion of breadth to depth (the latter taken as twenty-five to thirty fathoms) will have this result. Considering the length of this page to represent such line of thirty miles, we could only show the comparative depth of the Channel across from Folkestone by drawing a fine pencil line, one side of the thickness of which might be called the Channel bottom and the other the sea level! So thoroughly insignificant is the *water worn depth*.

To obtain a knowledge or notion of the whole Channel, as compared with its depths, we will further suppose the whole length of the English southern coast line, from East Kent to West Cornwall, to be about 290 miles. Over a very large area of this, even as low down as the Start, the average depth is about forty fathoms. Now, if on a large level meadow we were to lay off, to the scale of one *mile* of coast to

one yard of meadow, the whole of such coast line being marked out on the turf as upon a chart—with the French line in its place also, and upon the same scale,—and if we were then to remove the turf from the area representing the Channel, and hollow the surface so as to imitate the comparative depths of the Channel, and fill it with water to its properly measured level,—why, a sparrow could safely hop through and across *any part of it*. Who would expect this? The depth of water in the model, across the Channel from Folkestone southwards, a distance of thirty yards, would not anywhere exceed five-sixths of an inch. And across from the Start Point to the “Sept Isles,” on the French coast—a distance in the model of about eighty yards—the greatest depth of water would be about an inch and a quarter. Why, a sparrow might hop through and across it safely!

Assumptions, in undavorology, should be made with extreme caution. Nothing that is demonstrable should be left as speculative. Let us then, before entering upon the next great period of change, pause for consideration, lest what has been attributed to the “boring out” of the Bay of Biscay be open to dispute. So far as I know, the path on which I have struck is an untrodden one, and needs circumspection.\*

(To be continued.)

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#### THE “ALABAMA” AND HER DOINGS, AND CREW.

The *Nautical* has desisted hitherto from receiving into its pages any results from the unhappy state of things between the Federal States of North America and their rebellious slaveholders. Aside from all political matters as we hold this journal to be, we have no hesitation in saying, that our inclinations have never led us into those subjects, either to eulogise the activity of blockade runners, or the spirit which induces the capitalists of this country to fit out such vessels, and break Her Majesty’s proclamation, thus assisting in perpetuating slavery, which costs this country large sums of money every year to put down. We have no fellow-feeling for such parties, and consider they well deserve all the ills they meet with. But history is history, and on this account we preserve the following story of the *Alabama* and her depredations, that appears to be written in a manly straightforward manner by “one of the crew,” as we find it in the

\* The following typographical errors unavoidably crept into the last chapter through accidental delay of the proof by the post-office:—

At page 68, *for* Wautsum *read* Wantsum.

At page 68, *for* xantneum *read* xanthidium.

At page 68, *for* foramineferæ *read* forameniferæ.

At page 74, in some copies, *for* on wood *read* onward.

At page 75, in some copies, *for* well mentioned *read* well remembered.

*Daily News.* The narrative alludes to the sinking of the *Hatteras*, the account of which will be found in our volume for 1863, page 155, And as to the remarks about the "book being signed every three months" for Naval Reserve men, we apprehend there will be some mistake there. The narrative runs thus:—

About the 8th or 10th August, I signed articles at the Sailors' Home, Liverpool, to ship in the British steamship *Bahama*, Captain Tessier, for a voyage to Nassau and back. The *Bahama* went out of the Bramley Moor Dock the same night, about twelve o'clock, and went into the river, and lay to. Captain Semmes, Captain James D. Bullock, and some other officers came on board, and about half-past seven o'clock, a.m., a tug-boat came alongside with some seamen on board; the tug-boat accompanied us out about ten miles. The tug then left us, and a tall gentleman, with a reddish face, and pock-marked, who came from Cunard, Wilson, and Company's office in Liverpool, left us, and went into the tug. As he left us he said, "I hope you will make a good thing of it, and that you will stop where you are going to." We then proceeded on our voyage, and stood out some days, when we found we were going to the Western Isles.

About the 17th or 18th August we arrived at Terceira, and we there found the *Alabama* and the barque *Aggripina*, from London. Captain Butcher,\* an Englishman, of Liverpool, who took the *Alabama* out from Liverpool, and who was on board, hailed us, and told us to go round the island, and he would be after us; but it would take them three-quarters of an hour to get up steam. We went on, and he followed us. The *Alabama* went under the lee of the island, and a shot was fired across the *Bahama's* bows from a battery on shore. So we stopped out until the morning. In the morning we went alongside the *Alabama*, and some small cases, and a safe containing money, were passed into the *Alabama* from our ship; and we then parted and anchored a little distance from her; and the barque *Aggripina* went and discharged the remainder of her cargo into the *Alabama*. During this time, Captain Semmes and Captain Bullock were going backwards and forwards to the *Alabama*, but would not let any of the officers go.

On Sunday, the 24th August, Captain Semmes came on board the *Bahama*, and called us under the bridge—he himself and the officers standing on the bridge. He addressed us and said, "Now, my lads, there is the ship," (pointing to the *Alabama*.) "she is as fine a vessel as ever floated; there is a chance which seldom offers itself to a British seaman—that is, to make a little money. I am not going to put you alongside of a frigate at first, but after I have got you drilled a little, I will give you a nice little fight." He said, "There are only six ships that I am afraid of in the United States navy." He said, "We are going to burn, sink, and destroy the commerce of the United

\* Sub-lieutenant, Royal Naval Reserve.

States. Your prize-money will be divided proportionately, according to each man's rank, something similar to the English navy." Some of the men objected, being Naval Reserve men. Captain Semmes said, "Never mind that—I will make that all right. I will put you in English ports, where you can get your book signed every three months." He then said, "There is Mr. Kell on the deck, and all those who are desirous of going with me, let them go aft, and give Mr. Kell their names." A great many went aft, but some refused. A boat came from the *Alabama*, and those who had agreed to go went on board. Captain Semmes and the officers went on board.

Mr. Low, the Fourth Lieutenant, then appeared in uniform, and he came on board the *Bahama*, endeavouring to induce the men to come forward and join; and he succeeded in getting the best part of us. I was one who went at the last minute. When I got on board the *Alabama*, I found a great number of men that had gone on board of her from Liverpool. Captain Semmes then addressed us on board the *Alabama*, and Captain Butcher was there also—who had taken the vessel out. Captain Semmes said he hoped "we should content ourselves, and be comfortable one amongst another, but any of you that thinks he cannot stand to his gun I don't want." He then called the purser, and such as agreed to serve signed articles on the companion hatch, and on signing, the men received either two months' pay in advance or one month's wages and a half-pay note. I took a month's wages and a half-pay note for three pounds ten shillings a month in favour of my wife. The note was drawn on Fraser, Trenholm, and Co., of Liverpool; but it was paid at M. G. Klingender and Co's office in Liverpool; the note was signed by Captain Semmes, Clarence Randolph Yonge, who was the paymaster, and Smith, the captain's clerk. I sent five pounds and this half-pay note ashore by Captain Bullock, and he forwarded the note with a letter to my wife. Fraser, Trenholm, and Co. paid the five pounds to Thomas Winstanley, of Liverpool, for my wife.

Captain Bullock on the passage out, and after we arrived at Terceira, used arguments to induce us to join the *Alabama*. On several occasions he advised us, and urged the men to join.

As soon as the men who consented to go had all signed articles the the English ensign which the *Alabama* had been flying was pulled down, and the Confederate flag hoisted, and a gun was fired. The men who declined joining left the ship with Captains Bullock and Butcher for the *Bahama*, and we proceeded under the command of Captain Semmes.

We proceeded on our voyage and cruised about the Western Isles for some days, and on the following Sunday we fell in with a whaler and burnt her, and we then cruised about, and in about two days we fell in with the schooner *Starlight*, from Boston; we fired at her four times; the captain said, if I had but one gun on board I would fight you, he tried to make the land, but we overhauled him and he brought to. We kept the crew of the schooner, and on the next day we landed them at the Western Isles, and took the schooner in for the purpose of

decoying other vessels with the stars and stripes. We succeeded in capturing several, amongst other vessels we captured the *Manchester*, of Philadelphia line of packets, bound from New York to Liverpool. We burnt this vessel, having first taken her crew, and we put them on board the *Tonawanda*, which we had previously captured and had then in tow. Amongst the crew there was a man of the name of George Forrest, who one of the midshipmen recognised as having been a seaman on board the *Sunter*, and had deserted. He was brought on board to Captain Semmes, who told him if he behaved well he should have his pay and prize-money as the other men, but that he had a right to detain him throughout the war without paying him a cent. Forrest was retained on board the *Alabama*, and was frequently punished by having his hands and legs fastened to the rigging, the punishment being known as the "spread eagle," and he would be kept in this position for four hours at a time, and this was done at least twenty times. At last they ironed his legs and arms, and sent him on shore on a desolate island called Blencooln, some two hundred miles from the mainland, and left him. The crew subscribed some seventeen pounds unknown to Captain Semmes, which we gave him in the hopes of its being some inducement to a vessel to take him off.

The English barque *Aggripina*, flying the British flag—the same vessel we found at Terceira with the *Alabama*, and which brought out to her a part of her armament from London, and which had returned to Cardiff, Wales, for a load of coals for her—was at Martinique when we arrived there, and she went out to sea, and whilst out she supplied us with coal. After this we went to Arkaskees, where we stopped and painted the ship, and then went towards Galveston, and off that place we fell in with the American ship *Hatteras*, which we sunk. We got her crew on board, and proceeded to Port Royal, Jamaica; there I ran away and left the *Alabama*. Whilst there the *Alabama* enlisted two British sailors who had deserted from her Majesty's ships *Jason* and *Steady*. Thomas Potter, who was fireman, also ran away, but the men of the *Alabama* came after him, and arrested him, and took him back to the ship. Clarence R. Yonge, the purser, also left the ship. I was also arrested at an hotel in Jamaica by the *Alabama's* men. They wanted to force me on board, but I refused to go until I had seen the governor of the island, whose residence was some fifteen miles distance. I saw the superintendent of police. On my producing a certificate that I was Naval Coast Volunteer on board H.M.S. *Majestic*, I was released.

My wife received my half-pay during my cruise. She used to receive it by post-office order, payable at Swansea, and to obtain this she used to write to Messrs. Fraser, Trenholm, and Co., or M. G. Klingender and Company, Liverpool, enclosing the half-pay note, and the latter firm used to send her post-office orders for the money. The following are the letters written to her by M. G. Klingender and Co. :—

*Liverpool, September 30th, 1862.*

Messrs. M. G. Klingender and Co. must request Mrs. —, before paying her the £3 10s., to sign her name at the back of the allotment note, and then return it to them, when they will remit her a money-order for the amount, less cost of order.

P.S.—Please note address. No. 22, Water-street, Liverpool.

*22, Water-street, Liverpool, October 3rd, 1862.*

Madam,—Enclosed, please find a money-order payable at the post-office of your town for £3 9s. 5d. In future you must send us your allotment note signed across a receipt stamp.—Returning you the note,

We are, yours, &c.,

Per M. G. Klingender and Co., C. F. VON MELLE.

Money order, £3 9s. 5d.; cost of order, 6d.; receipt stamp, 1d.—total, £3 10s.

*Liverpool, October 31st, 1862.*

Madam,—We enclose you a money-order for £3 9s. 6d., payable at the post-office of your town. Returning you the note,

We are yours, &c.,

Per M. G. Klingender and Co., C. J. VON MELLE.

Money-order, £3 9s. 6d.; cost of order 6d.—total, £3 10s.

*Liverpool, December 31st, 1862.*

Messrs. Klingender and Co. enclose Mrs. — a post office order for £3 9s. 6d., deducting as usual 6d. for cost of order.

In February or March she wrote as usual for the half-pay note. They wrote in reply that they could send her no more money as I had left the ship, and they did not return her the half-pay note. The following is the letter written to her :—

Madam,—We have this day received advices per West India mail from St. Domingo, stating that —, with three other men, deserted the *Alabama* on the 25th of January, at Kingston, Jamaica, and of course their allotment notes must be stopped.

We are, &c.,

Per M. G. Klingender and Co., C. J. VON MELLE.

On my return I called at Fraser, Trenholm, and Co's. office for the balance of my wages, but they declined to pay me, and denied all knowledge of the ship, but Mr. Cooper gave me the name of Mr. M. G. Klingender, and told me to see him and see if he could arrange it. I did so, but he told me he could not do so, as they had received a note from Captain Semmes that I had deserted at Jamaica.

The guns on board and constituting the armament of the *Alabama* have Fawcett, Preston, and Co's. marks on them, showing that they were made by this firm.

The following are the officers and crew of the steamer *Aiabama*, with their places of residence :—

Raphael Semmes, Commander; J. M. Kell, First Lieutenant; Richard F. Armstrong, Second Lieutenant; Joseph Wilson, Third Lieutenant; John Low, Fourth Lieutenant, Englishmen; Arthur Sinclair, Master, that is sailing master; Francis L. Galt, Surgeon, from Virginia, now acting as Paymaster; Miles J. Freeman, First Assistant Engineer, ranks as Chief, born in Wales;

David Herbert Llewellyn, Assistant Surgeon, Englishman; R. K. Howell, brother-in-law of Jeff. Davis, Lieutenant of Marines (no Marines on board); William H. Sinclair, Midshipman; Irvine S. Bullock, Midshipman, Captain Bullock's brother; Eugene Maffitt, Midshipman, Captain Maffitt's son; Edward Maffitt Anderson, Midshipman; son of Colonel Anderson; William P. Brooks, Second Assistant Engineer; S. W. Cummings, Third Assistant Engineer; Matthew O'Brien, Third Assistant Engineer; John W. Pundt, Third Assistant Engineer; George T. Fulham, First Master's Mate, Englishman; James Evans, Second Master's Mate, Charleston Pilot; W. B. Smith, Captain's Clerk; Benjamin L. M'Caskey, Boatswain; J. O. Cuddy, Gunner; William Robinson, Carpenter; Henry Allcott, Sailmaker, Englishman. Clarence R. Yonge, late Master, left ship at Jamaica.

*Petty Officers and Seamen.*—James King, master-at-arms, Savannah pilot; Adolphus Marmeleys, Portuguese; William A. King, quartermaster; James King, master-at-arms; James G. Dent, quarter-master; William Forrestall, quartermaster, Englishman; Ralph Masters, quarter-gunner, Irishman; William Crawford, Englishman, lives in Liverpool, belongs to the Royal Naval Reserve; George Addison, Englishman, lives in Liverpool; William Brinton, Englishman, Royal Naval Reserve; William Robinson, head carpenter; George Harwood, boatswain's mate, Englishman, pensioner from English navy, joined her at Liverpool Home, now is in *Southerner* as boatswain, lives in Liverpool; Michael Kinsler, Irishman, fireman, has a pension in England; Brent Johnson, 2nd boatswain's mate, Englishman, Naval Reserve man, joined vessel at Liverpool; William Purdy, sailmaker's mate, Irishman by birth, lives in Liverpool, belongs to Naval Reserve, joined her in Liverpool; David Roach, fireman, Englishman, resides in Liverpool, belongs to Royal Naval Reserve, enlisted in Liverpool, left her 22nd November; Thomas Murphy, fireman, Englishman, left her at Western Islands; Thomas Welch, Englishman, left the ship—he enlisted in the *Alabama* in Liverpool; James Smith, captain of fore-castle, Englishman residing in Liverpool, belongs to Naval Reserve, enlisted on board of *Alabama* in Liverpool; Edward Fitzmorris Englishman, enlisted on board of *Alabama* in Liverpool, is at home now, his wife lives at Aigburth; George Addison, fireman, Englishman, lives at Liverpool, Copperas-hill, enlisted at Terceira; James M'Fadgen, fireman, Englishman, lives at No. 6, West Derby-street, Liverpool, enlisted at Terceira, is now home; Thomas Potter, fireman, Englishman, enlisted in *Alabama* at Liverpool, lives in Athol-street, Liverpool, deserted at Jamaica; they arrested him there and carried him on board; his wife lives in Liverpool now; Samuel Williams, fireman, lives in Liverpool, born in Wales, enlisted in *Alabama* at Liverpool; Patrick Bradley, fireman, Englishman, resides in Liverpool, enlisted in Liverpool; John Orrigin, fireman, Irishman, resides in Athol-street, Liverpool, enlisted in Liverpool; Orran Duffy, fireman, Irishman; Peter Duncan, fireman, Englishman, resides in Liverpool, enlisted in Liverpool; William Nevins, coal passer, Englishman, belongs to Naval Reserve, enlisted at Liverpool; Andrew Shillings, Scotchman, resides in Athol-street, Liverpool, has a wife, enlisted at Liverpool, is a fireman; Charles Puist, coal passer, is a German; George Yeoman, ordinary seaman, Englishman, enlisted at Terceira; George Freemantle, seaman, Englishman, enlisted at Terceira; Frederick Johns, purser's steward, Englishman, resides in Liverpool, father keeps a coal yard in Howard-street, enlisted at Terceira; John Grandy, boy, English, lives in Liverpool; Thomas Weir, gunner's mate, Englishman, enlisted at Liverpool; James Busman, seaman, Englishman; Edgar Tripp, seaman, Englishman, London—enlisted in Liverpool; John Neil, seaman, Englishman, lives with his sister in Manchester-street, Liverpool—belongs to Naval Reserve, enlisted at Terceira; Thomas Winter, fireman, Englishman, lives in Liverpool—his father is ticket collector at the Adelphi Theatre, enlisted

at Liverpool; Samuel Henry, seaman, Englishman, resides in Liverpool, Naval Reserve man, enlisted at Liverpool; John Roberts, seaman, Welshman, think he resides at Liverpool, enlisted at Terceira; John Duggan, seaman, Englishman, resides in Liverpool, belongs to the Naval Reserve, enlisted at Terceira; Martin King, seaman; Thomas Williams, seaman, Englishman, resides in Liverpool, belongs to Naval Reserve, enlisted at Terceira; Robert Williams, seaman, Englishman, resides in Liverpool, belongs to the Naval Reserve, enlisted at Terceira; Joseph Pearson, seaman, Englishman, belongs to Chester, enlisted at Liverpool; Joseph Connor, seaman, Englishman, resides in Walnut-street, his wife lives there and keeps a butcher's shop, belongs to Naval Reserve, joined at Terceira; Thomas McMullen, seaman, Englishman, resides in Liverpool, joined at Terceira; Michael Mars, seaman, Englishman, belongs to Bristol, Naval Reserve, joined at Terceira; Robert Egan, boy, English, belongs to Chorley; Malcolm Macfarlane, seaman, Scotchman, resides in Liverpool, belongs to the Naval Reserve, enlisted at Terceira; Peter Henry, seaman, Irishman, lives in Liverpool, enlisted at Terceira; Charles Goodwin, seaman, Englishman, resides in Liverpool, enlisted at Terceira; James Hicks, captain of the hold, Englishman, enlisted at Liverpool, think he resides here; Robert Parkinson, wardroom steward, Englishman, resides in Liverpool, enlisted at Liverpool; George Appleby, yeoman, Englishman, resides in Liverpool, married man, enlisted in Liverpool; John Emory, seaman, Englishman, Liverpool, belongs to Naval Reserve, enlisted at Terceira; William Hearn, seaman, Englishman, resides in Liverpool, belongs to Naval Reserve, enlisted at Terceira; Thomas L. Parker, boy, English, stops with Brent Johnson; A. G. Bartelli, seaman, Portuguese; Peter Hughes, captain of top, Englishman, resides in Liverpool, belongs to Naval Reserve, enlisted at Liverpool; Henry Fisher, seaman, Englishman, resides at Liverpool, enlisted at Liverpool; John Latham, fireman, Liverpool, joined at Terceira, Englishman; Frank Townsend, seaman, Englishman, enlisted at Liverpool; George Forrest, seaman, Irishman, taken off the ship *Manchester*, because he had deserted from the *Santier*, and tried by a court-martial for causing mutiny, and sent on shore in irons to Island Blanoola, and left there. Previous to his being tried for mutiny he was tied up twenty times in the rigging, with his arms spread, for four hours at a time, day and night.

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#### DESTRUCTION OF THE BRITISH SHIP "MARTABAN" BY THE "ALABAMA."

The following are extracts from successive issues of the *Straits Times* :—

The captain of the British ship *Muzuffar*, from Rangoon, reports that on the 25th December, when near the Carimons, he saw a large ship in flames, apparently about 1,200 tons register. The vessel appeared to be light in the water, and no one was on board. The native pilot, who joined the vessel at the time, reported that he had seen the smoke of a steamer a short time before. No doubt this is one more work of destruction on the part of the *Alabama*.

The vessel burnt by the *Alabama* in the Straits turns out to be the British barque *Martaban*, from Moulmein, with rice. The captain



and crew arrived at Singapore on January 27th, but we have only partly learned the particulars. Captain Semmes absolutely refused, as he termed it, "to be humbugged by *pro formâ* British register."

Captain Semmes, we are inclined to think, will find out that he has committed a very serious mistake, which will shortly put an end to the *Alabama's* operations.

Captain Pike, of the British ship *Martaban*, burnt by the *Alabama*, in compliance with our request, has sent us the following statement of the circumstances attending the destruction of his vessel. The statement speaks for itself; and as we do not wish to be hurried into an expression of opinion on a subject which is sure to arrest the attention of every court in Europe, we must delay our comments till we are well informed as to the legal bearings of the question:—

I left Amherst on the 12th December for Singapore, having on board a cargo consisting of 12,354 bags of rice. On the 24th, at 2h. p.m., Pulo Pisang and the Carimons plainly in sight from the deck, made a steamer steering to the North, which upon making out the *Martaban* altered her course directly for us, and when within one mile, set the Confederate flag and fired a gun across our bows. In answer, I immediately set the British ensign at the peak and hove to. Upon nearing the *Martaban*, an armed boat's crew, with an officer, left the steamer and came alongside. The officer, when coming on board, demanded to see the ship's papers, which he immediately did. The papers were, register, port clearance, and bill of lading. Upon examination, the officer informed me that they were not satisfactory, and that he should take charge until he could communicate with his commander, Captain Semmes, of the *Alabama*. Calling two armed men, one of whom was stationed on the forecastle, the other on the poop, he sent the boat back with a message to Captain Semmes, who at once came on board the *Martaban*, and demanded to see my papers. I handed him the register, which he examined. (The register was a *bona fide* British register on parchment, issued by the proper British authorities in Moulmein).

After examining this document, Captain Semmes said to me "That he was not to be humbugged by any false papers,—that I ought to have had a certificate that the transfer was legal, and that he should burn my ship." Upon this I said, "That the documents I held were legal and sufficient proof of my nationality," and protested against his burning the vessel." To this he paid not the slightest attention, but went on deck and said to his officer, "Sir, you will burn this vessel." He then returned on board the *Alabama*. The first lieutenant then came on board the *Martaban* and took charge, hauled down the English flag that was flying at the peak, let go anchor, clewed up sails, and made preparations for setting the vessel on fire, staving in the cabin skylights to make a good draught. In the meantime my crew, by his orders, had hoisted out my ship's boat and gone on board the *Alabama*, leaving myself and officers on board, who were ordered to pack up a few clothes, giving us half an hour to do so and follow

them. I was allowed two small trunks,—my officers each a small bag, armed men in the cabin watching the packing. I was assured by the first lieutenant that the contents of my two trunks would be respected, but my two chronometers and all my nautical instruments were taken from me. We were then taken on board the *Alabama*, and immediately after the *Martaban* was set on fire.

The *Alabama* then proceeded up the Straits, and at midnight came to anchor five miles off the town of Malacca. Steam was kept up all night. At daybreak I was called upon to open my trunks, which were searched by an officer and the master-at-arms; a bag containing 400 rupees was taken from me, and also a night-glass and part of my private papers. My officers' bags were searched in the same manner. We were then required to sign our parole not to serve against the Confederate States until exchanged. We were put on board the *Alabama's* boat (my ship's boat having been broken while towing) and landed at Malacca. I had passed my examination as British shipmaster at Moulmein, and held my certificate of competency, as also my chief-officer. On the part of self, officers, and crew, I beg to express my sincere gratitude for the kindness and friendly treatment shown us by the authorities and European inhabitants of Malacca, who ministered to our every want in the most generous manner, and procured us passage in a native brig to Singapore,—they defraying entire expense, we being entirely destitute.

We have received the following communication from Mr. Beaver:—

*Singapore, 30th December, 1863.*

Sir,—A false aspect having been attempted to be given to the exercise by Captain Semmes of his belligerent rights in burning the vessel called the *Martaban*, of Moulmein, formerly the *Texan Star*, of Boston, United States, I request you to publish the following copy of the deposition of Samuel B. Pike, who was Master of the *Martaban*. The document speaks for itself, and a certified copy of the original is in my possession.

I have received information that the American vessels *Sonora* and *Highlander* have also been burned by the *Alabama*.

I remain, &c.,

H. R. BEAVER.

*To the Editor of the Daily Times.*

*Deposition of Captain S. B. Pike, of the Martaban, of Moulmein.*

What is your name?—Samuel B. Pike.

Where were you born?—Newbury Port, Massachusetts.

Are you a naturalized citizen of any foreign government?—I am not.

How long have you been in command of the *Martaban*, formerly the *Texan Star*?—About two years and a half.

In what port of the United States was the *Texan Star* registered? She was built and registered at Boston.

Has she ever had but one register in America?—There was a change of ownership, and she has had two American registers.

Who were the owners under the last American register?—John Atkins, Samuel Stephen, George L. Rogers, and myself.

What proportion of the ship did you own?—One-sixth.

When did you sail from the last port in the United States?—A year ago last July.

It is stated in the present British register that Mr. Mark Riddell Currie is the owner?—That is as I understand it.

Do you state under your oath that this sale was a *bona fide* sale? I do not state this.

Do you not know that it was intended merely as a cover to prevent capture?—Yes, I do know it.

S. B. PIKE.

Witnessed by W. B. SMITH, *Captain's Clerk.*

#### ROCKINGHAM BAY,—*Queensland, Australia.*

Among the important results of the surveying voyage of H.M.S. *Hecate*—for we have heard of her at the Sandwich Islands—we find the following report by Captain Richards on the site of a proposed town in Queensland, nearly midway between Torres Strait and the capital of that Australian province, Brisbane. The pages of this work contain frequent references to the progress of our Australian colonies, as well as navigation, and we are glad thus to preserve the earliest records of what will doubtless prove a most interesting part of our colonial history. For the whole Pacific shore of Queensland is so remarkably well adapted to steam navigation, that we shall look for its rapid progress in settlement when the advantages of Rockingham Bay are exemplified by vessels running to and fro between Cape York, which will be our northernmost settlement, and Brisbane, in the vicinity of Sandy Cape. The whole of this coast being sheltered by the Great Barrier Reefs will render the smooth sea along it a kind of summer cruising ground at all times of the year—a character tending materially to assist the progress of settlement on its shores; while those shores afford all the advantages that can be desired from natural resources.

It will be recollected that his Excellency the Governor and Commodore Burnett examined Rockingham Bay last year, on their return from Cape York in H.M.S. *Pioneer*, with the view of discovering a fit site for a town and port there. The result was made known in papers laid before Parliament, and published in the Brisbane journals. His Excellency requested Captain Richards, of H.M. surveying ship *Hecate*, to examine more fully Rockingham Bay with the same object. Captain Richards has sent Sir George Bowen a very interesting report

on this point, and on the inner route through Torres Straits generally. The subjoined extracts are published for general information. It will be seen that Captain Richards confirms the opinion of Sir G. Bowen and Commodore Burnett—viz., that there is an excellent port and site for a town at the southern extremity of Rockingham Bay, between the main land and the northern end of Hinchinbrook Island. The squatters on the Upper Burdekin, and in the Valley of Lagoons, have now only to find a road thither. The distance overland cannot exceed 100 miles.

*Saturday, August 15th, 1863.*—We entered Rockingham Bay between Point Sandwich and Brooke Island; passed a mile North of Good Island, and when the latter bore South steered West for four and a half miles, or until the low point of Hinchinbrook Island, which I called "Hecate Point," bore South, when we steered for it; this course took us over the flats, in twenty-two feet, least water, at half flood, on the day of the moon's change. We anchored in ten fathoms, between Hinchinbrook Island and the main, which I call "Port Hinchinbrook." It is a spacious harbour, well protected from prevailing winds, and little tide.

*Sunday, 16th.*—Landed on "Hecate Point" for observation; it is a convenient sandy spot, though limited, in consequence of mangrove swamps around it. A few natives soon appeared—they were quite naked; seemed very confident, and came off to the ship in their frail bark canoes without hesitation; we gave them bread and tobacco, in return for which they pertinaciously persisted in stealing our surveying flags. Monday, Tuesday, and Wednesday were devoted to making a plan of the anchorage, and getting observations.

*Tuesday, 18th.*—I went to look at the main land opposite our anchorage, with a view to ascertaining its eligibility as a town site, and also to examine one of the rivers in the hope of getting some new palms. I was accompanied by Lieutenant Hankin and Dr. Wood. We ascended a stream, marked fresh water on the chart, seven or eight miles from our anchorage; at three and a half miles it became so narrow as to impede further progress. The banks were almost entirely mangrove, but at a point half way up, on the right bank, and at the head, there was a considerable extent of good land, never flooded, covered with a long coarse grass, and openly wooded; some palms were seen, but not those we were in search of.

The depth of this river within the bar, is from five to ten feet, the bar dry at low water, and it is perfectly salt in the month of August to the head. As we descended the stream, twenty natives appeared on the right bank, and set up their usual chatter—most of them were boys; they made signs to us to leave the river, which we were extremely anxious to do, as we only barely scraped over the bar. Before leaving I beached the boat, and offered them what remained of our luncheon; only one man, older than the rest, ventured to come and receive it. On our return, we landed at two places on the sandy beach, opposite the ship's anchorage, and walked about a mile inland. I was greatly surprised at the total absence of mangrove along this whole

beach, a length of two miles. The country is openly wooded, gravelly soil, and rises gently in ridges until it reaches the foot of the first low hills, about one mile inland.

I had not time to dig for water; indeed, it appeared unnecessary, for wherever there was a hollow there we saw fresh water, and very good.

A deep valley seems to penetrate the country between this bay and Kennedy River, through which six or seven streams find their way into the sea, several of them of considerable size, and by which it is probable communication might be opened up a certain distance with the interior, as far perhaps as the first range of hills. Some four or five miles southward of the town site, is another river with thirteen feet of water inside the bar, and here there appeared to be a pass through the mountains, or at any rate, a considerable depression in the range. Altogether, should it be an object to make a port here, for the shipment of produce, the site I have mentioned, and marked on the plan, appears unobjectionable, and the anchorage equally so. It is true that ships of much draught cannot approach within a mile of the sandy beach, on account of a shallow flat; but flat-bottomed cargo boats could always land near high water, and if a pier were run out 100 yards, at most times of tide.

I consider Rockingham Bay, in point of shelter, convenient depth of water, and facility of entering, very superior to Moreton Bay. The land, with few exceptions, is fringed with a narrow belt of mangrove. I should say the climate was healthy, the temperature at this season not oppressive, though during the summer months the heat would doubtless be very great; on the whole, I was struck with the eligibility of the spot for a settlement. There are more than sufficient trees to form an agreeable shade, but very little clearing would be necessary.

*Thursday, 20th.*—At 6h. a.m. we left the anchorage, and at 8h. dropped our anchor off the Mackay River.

As I had still hope of procuring the palm, a specimen of which Mr. Hill, of the Botanical Gardens, had shown me at Brisbane, I went up the river with two boats, and the same officers who had accompanied me before. But for my desire to procure the palmas, I should have explored the river to the southward; this one having been already visited by Sir George Bowen and Commodore Burnett. We proceeded six or seven miles up the Mackay, in a westerly direction; on reaching three miles up, the stream became rapid, and at six miles much obstructed by snags and fallen trees, which, however, it would be easy to remove, and then the river would be navigable for a stern-wheel steamer; as far as we reached, the width was sixty or seventy yards, and there is little doubt that such a steamer could go considerably higher. The banks are thickly wooded, with a variety of palms and creepers, and the foliage very beautiful. At three miles up, we came to the wild banana, and shortly after to the cabbage palm, which grows to a height of seventy or eighty feet, with a straight graceful stem. The washing away of the banks, and the

prostrate trees, afford abundant proof that during the rainy season the stream is very rapid.

Though we landed at as many as a dozen places, and on both sides of the river, I did not find the palm I was in search of. We met no natives, but saw their camping places.

At 4h. p.m. we returned to the ship, weighed anchor, and passed out to the northward, between Dunk Island and the main. Kennedy Bay appears an eligible spot for a town; it rises gently, and has no mangrove. The anchorage under Dunk Island is also good, but I prefer Port Hinchinbrook both as a harbour and a site for a settlement. If Kennedy Bay should be chosen, the point Tam O'Shanter, which is a commanding eminence, should be reserved for government purposes; it would be a good point for defence. The N.W. point of Dunk Island should also be set apart for a naval depot.

If Port Hinchinbrook is selected, then "Hecate Point" should be reserved. If there is ever a town it must be in one or other of the spots I have mentioned. If merely a coaling station is required, then the low S.E. point of Gould Island would be a desirable reserve.

As to proposed settlement at Cape York, Captain Richards writes:—"I visited Albany Island, and the mainland opposite, and, after as careful a consideration of the whole question as I have been able to accord to it, I am of opinion that the site of 'Somerset,' selected by Sir G. Bowen and Commodore Burnet, is the most judicious one that could be selected." The only point about which Captain Richards hesitates is as to whether the first settlement should be placed on the mainland or on Albany Island, which is separated from the mainland by a channel one-third of a mile broad.

Captain Richards' general conclusions are as follows:—In conclusion, I may be permitted to offer a few observations—first, on the prospect of the inner route becoming a highway for shipping; and second, on the necessity of establishing a settlement near Cape York, and the influence such a settlement will exercise on the future advancement of Eastern Australia.

It is well known that large numbers of vessels annually leave Sydney, and other ports of Eastern Australia, for the East Indies and China; there are two routes, viz., by Torres Straits, and southward and westward of Australia. Between the months of March and October it is a fair wind, either by the inner or outer routes through Torres Straits, and the distance from Sydney to Singapore by the former is 4,306 miles, by the latter 4,385 miles. Westerly winds prevail southward of Australia, with little intermission for nine months in the year, or between the end of March and end of December; and large vessels, or indeed any sailing vessel adopting that route generally prefer to pass South of Tasmania, than working through Bass' Straits. The distance to Singapore by the latter route is about 4,600 miles, and for nearly 2,000 miles of that distance, or until round Cape Leuwin, it is a foul wind. It is not surprising then that captains of ships should be anxious to adopt the route by Torres traits.

The absence, until very lately, of reliable charts, and, consequently,

the natural disinclination to risk the navigation of a region, the intricacies of which, although much over-rated, are undeniably considerable, and call for caution and vigilance, have no doubt operated hitherto in deterring many men from adopting the inner route; still great numbers of vessels do sail to India by both the inner and outer routes, and I am not aware that any well-found ship has met with accident for very many years past. Many wrecks do occur among the Barrier Reefs, but they are confined to vessels ill-found in crew, anchors, cables, and, above all—charts; and they have either come to misfortune by entering one of the many dangerous passes through the Barrier Reefs, or being driven from their anchor while lying in an exposed locality with bad ground tackle, or have run on some of the off-lying reefs of the outer route, which, until lately, have been—many of them—erroneously placed on the charts. The late voyage of H.M.S. *Herald* has now made the outer route safe, and the admirable surveys of the inner route by H.M.S. *Fly* and *Rattlesnake* have nothing to be desired in the inner.

These charts are now all to be obtained.

There are, I am aware, differences of opinion as to the merits of the inner and outer route; I prefer myself the inner; by daytime the navigation is perfectly easy, and there is no occasion to anchor until after passing Cape Grafton, although anchorage at night can always be obtained, if desired.

I think merchant ships of the present day may calculate on making the passage from Moreton Bay to Booby Island, either by outer or inner routes, and by "Prince of Wales" Channel, in fifteen or sixteen days.

As regards the route for a line of mail packets by Torres Strait, I do not think it very material in point of time, whether the inner or outer route is adopted. In either case, I apprehend the vessel would come by Booby Island, through Prince of Wales Channel, to Cape York, and then, either by the inner route, or the outer one by Raine Island opening. I am in favour of the inner route myself. By the accompanying table of distances, it appears that it is some eighty miles shorter; and if I have made the fair allowances for detentions in both cases, supposing the vessel to average nine miles an hour, the passage from Sydney to Singapore would occupy, by either routes, about twenty-two days. There is no doubt but that the adoption of the inner route as a mail line would materially hasten the opening up of Eastern Australia; but it is merely a question of time.

Eastern Australia will, of its own resources, at no distant day, open itself up. The country is now occupied by squatters and stock from the extreme South almost to the Gulf of Carpentaria, and over a breadth varying from 100 to 500 miles inland; some outlets must be found for the enormous quantities of wool which will, ere long, be exported. It is absurd to suppose that the produce of Northern Australia is to be transported nearly 1,000 miles to Moreton Bay to be shipped. Port Denison, Rockingham Bay, Endeavour River, Cape York, and possibly many intermediate ports, will ere many years be

established, and then no extraneous aid will be necessary to render the inner route a thoroughfare for the ships of all nations.

With respect to the immediate establishment of a settlement at Cape York, the advantages of it are so obvious, and have been so generally acknowledged by all who have studied the question either theoretically or practically, that it appears almost superfluous to add any arguments in its favour.

It has been said, on no mean authority in matters of political economy, that a second Singapore may be expected to rise on the margin of Torres Straits. Without being sufficiently sanguine to predict so rapid and splendid a destiny as the great emporium of China has achieved, yet it is impossible to glance at the map without admitting that the idea is far from chimerical, and in no manner improbable. Java, with its rich dependencies on the West, on the East Polynesia, the cities of Southern Australia and New Zealand on the South, are within a few days' sail; while the magnificent island of New Guinea on the North, separated by scarcely 100 miles, as soon as Northern Australia is peopled, can no longer keep without the pale of commerce and civilisation.

As the tide of civilisation has steadily, and of late years rapidly, set northward from Sydney, and emigration from the mother country increased a hundred fold, so that Brisbane, which but a short time since claimed no higher title than village, now bids fair, at no distant time, to rank with the proudest cities of Australia, and Queensland adds 15,000 yearly to her white population; so, in like manner, when the capital of Northern Australia is once established, will civilisation and commerce march with equally rapid strides as the South; and perhaps within the lifetime of the present generation the whole of the eastern portion of this great country be thickly peopled by the Anglo-Saxon race.

The government of Queensland are now only waiting for the arrival of the detachment of marines promised by the Admiralty (with a vessel to convey them and the necessary stores, &c.) to undertake the formation of the new settlement at Cape York. It is not probable that they can now arrive before April or May, 1864.

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*Government House, Brisbane, Queensland,  
15th December, 1863.*

Sir,—I have the honour to acknowledge the receipt of the chart of Port Hinchinbrook with which you have furnished me, and which Lieutenant Heath, R.N., the Portmaster of this colony, will cause to be published for general information.

I have also to acknowledge the receipt of the valuable report (contained in extracts from your journal) on Rockingham Bay, the proposed settlement near Cape York, and generally on what is known as the "Inner Route" to Torres Straits.

I have much pleasure in conveying to you the thanks of myself



and the Government of Queensland for your able and zealous performance, at my request, of a service of great importance to the commerce of the Australian colonies and of the empire at large.

I enclose a copy of the Minute on this subject of the Executive Council of this colony. Another copy has been forwarded to the Secretary of State for the Colonies, with a request that his Grace will transmit it to the Lords Commissioners of the Admiralty.

I have, &c.,

G. F. BOWEN.

*Captain Richards, R.N., &c.*

*Extract from the Minutes of Proceedings of the Executive Council of Queensland, at the Government House, Brisbane, 4th December, 1863.*

Present:—His Excellency the Governor in Council.

His Excellency the Governor informs the Council that he had requested Captain Richards, R.N., of H.M. surveying ship *Hecate*, to examine carefully Rockingham Bay, with the object of selecting the best site for a port and township in that neighbourhood; and now lays before the Council a Report and Chart received by his Excellency from Captain Richards.

The Report consists of extracts from Captain Richards' journal, containing highly valuable and practical information respecting not only Rockingham Bay, but, generally, the Inner Route through Torres Straits. The Chart contains a survey of "Port Hinchinbrook," as Captain Richards has named the convenient harbour examined by him at the southern end of Rockingham Bay.

The Council request that his Excellency the Governor will be pleased to convey to Captain Richards the thanks of the Government of Queensland for his able and zealous performance of a service of great importance to the commerce of the Australian colonies and of the empire at large.

The Council further request his Excellency to be pleased to draw the attention of his Grace the Secretary of State for the Colonies to the fresh testimony supplied by Captain Richards as to the importance of forming immediately the proposed station near Cape York; and again to point out the public inconvenience arising from the delay of the Lords of the Admiralty in carrying out their engagements in this respect. The Imperial Treasury and the Government of Queensland have both already performed their respective parts; but the settlement cannot be formed without the promised co-operation of the Admiralty.

A. W. MANNING, *Clerk of the Council.*

H.M.S. *Salawander*, we believe, sailed from England in January last for this special service.—ED.

EVENINGS AT HOME AT THE NAUTICAL CLUB.—*Report of the National Life-Boat Institution—Trial and Execution of the "Flowery Land" Pirates—Earl Russell's Speech on American Affairs.*

Our first proceeding, said the Chairman, will be for the Secretary to read the Report of the last Meeting of the National Lifeboat Institution, held at its house, John-street, Adelphi, on the 4th of February, when Thomas Baring, Esq., M.P., its Chairman, presided. The Report stated that—

A reward of £13 was voted to the crew of the institution's lifeboat stationed at Palling, Norfolk, for putting off and saving the crew of three men from the Prussian sloop *Annette Catherina*, of Groningen, which was observed in distress off Palling, during stormy weather, on the 5th of January.

A reward of £15 was also voted to the crew of the Newbiggin (Northumberland) lifeboat of the society, for going off and saving fourteen men and one woman belonging to the Norwegian barque *King Oscar*, which, during thick and stormy weather, had struck on Newbiggin Point on the night of the 11th of January.

A reward of £13 was likewise voted to the crew of the lifeboat of the institution at Whitburn, Durham, for going off, on the night of the 13th of January, and saving seven men from the steam-tug *Rob Roy*, of Sunderland, which had struck on the Steel Rocks, off Whitburn, and afterwards became a total wreck.

A reward of £4 10s. was also granted to the crew of the Brightstone Grange, Isle of Wight, lifeboat of the institution, for putting off and rescuing the crew of four men from a small boat belonging to the schooner *Thetis*, of London, which had foundered during stormy weather off St. Catherine's Point, Isle of Wight, on the 19th of January. The cost of this lifeboat was presented to this institution by the Royal Victoria Yacht Club, and since she has been on her station she has been the means of rescuing 138 lives from shipwreck.

A reward of £4 was also voted to the crew of the Newcastle, Dundrum Bay, lifeboat belonging to the society, for going off and saving two of the crew of the barque *Hamilton Gray*, of Liverpool, which was totally wrecked during a heavy gale of wind on Dundrum Bar, on the 2nd of January.

Rewards amounting to £13 13s. were likewise granted to the crew of the society's lifeboats at Tyrella, Dundrum Bay, and at Porthcawl, for putting off in reply to signals of distress from vessels, which did not, however, ultimately require the services of the boats.

During the past year the lifeboats of the institution had saved 417 shipwrecked persons, and the society had also granted rewards for rescuing 297 persons by shore boats and other means. For these joint services the institution had awarded £1,351, and had expended on lifeboat establishments during the same period £13,819.

A reward of £14, was also voted to the crew of the *Scatby* lifeboat, called the *Prince Albert* for going off and saving the crew of fourteen men of the barque *Fifth of May*, which, during a gale of wind, had been wrecked off Hasborough Knoll, Norfolk.

A reward of £14 was also voted to the crew of the lugger *Dauntless*, of Kingsdown, for rescuing, at much risk of life, the crew of four men of the Hanoverian galliot *Cornelia*, which, during a heavy gale of wind, was wrecked on the Goodwin Sands.

The institution decided to station new lifeboats at Greencastle, at the entrance of Londonderry harbour, and at Dunbar.

The following legacies have recently been left to the institution, viz—

The late David Campbell, Esq., of Rothsay, £120; the late Richard Spence, Esq., of Gower-street, £200; and the late Miss Emma Keate, of Kensington, £300. A "Friend" had sent the institution £100 for the preservation of his wife for another year.

It was reported that Robert Whitworth, Esq., of the firm of the celebrated gun-manufacturers, of Manchester, had recently collected from his friends, and others in that city, the cost of two lifeboats, and nearly £100 a-year for their future maintenance.

Payments, amounting to £663, having been made on various lifeboat establishments, the proceedings terminated.

In a communication from Captain J. R. Ward, R.N., Inspector of Lifeboats to the National Lifeboat Institution, he states, in reference to the saving of property by lifeboats, that it cannot be too distinctly made known to the shipowners of this country and to the general public who are invited to aid the National Lifeboat Institution, on what principles its lifeboats' crews are paid, and on what occasions, and in what manner, claims are made on shipowners for services rendered to their vessels. And this explanation is perhaps the more necessary since some cases have occurred where the owners of ships and cargoes that have been saved through the instrumentality of the institution's lifeboats have complained that any claim should be made on them for such services, from the supposition, or on the plea, that the lifeboats are provided by the supporters of the institution for the purpose of saving their property, as well as the lives of their vessels' crews.

Now, it cannot be too generally known that the one sole function of the National Lifeboat Institution is to save lives, and that for that object, and that object alone, it appeals to the charity and the sympathies of the British people; and accordingly one of the most stringent obligations which it enforces, as far as it is able, on the volunteer crews who work its lifeboats, is that they are not to be used for the salvage of property, "so as to interfere with private enterprise," but to be reserved for cases involving risk of life.

In behalf, however, of the owner of property—in behalf, it may be said, of mankind—in order that valuable property, wrought and accumulated by the "wear and tear" of man's brain, and by the "sweat of his brow," might not be irrevocably lost in the depths of the sea—

in cases when no other help is available, or when the sea is too heavy to admit of the service being performed by any other description of boat, the institution allows its crews to use their lifeboats, after obtaining the sanction of its local representatives, with the understanding—first, that every care is taken of the boats; second, that they run their own risk of receiving adequate remuneration for any services they may render, the institution having no funds available to pay them for saving property; 3rd, that they do not on any account make exorbitant demands for payment in proportion to the service rendered; and lastly, that they pay to the institution two shares, i.e., an equivalent to the share of two of themselves, of any salvage award received, to cover risk of damage to the lifeboat.

This last clause is added with the object of preventing the men from using the lifeboat whenever it would be practicable to perform the service in any of their own boats, and also in justice to the supporters of the institution, who have not subscribed to it for the preservation of property, but of human lives. In point of fact, the lifeboats are, on such occasions, lent to their crews under certain stipulations, and we are accustomed to think that all parties are benefited by such an arrangement. Valuable property is saved at the cost of a small per centage on its value; the hard-working boatmen, on whose goodwill and cordial co-operation the institution is entirely dependent for the efficient working of its lifeboats, are kept in good humour with the work by the little advantage that may occasionally thus accrue to them through the means of their lifeboat; whilst the institution is sufficiently benefited to cover risk of damage or loss. Surely no liberal owner of ship or cargo can object to such an arrangement, which, after all, benefits himself more than any one else.

The question of payment for salvage of property, whether by the aid of lifeboats or ordinary boats, must always be a difficult one, which will be often matter of dispute, and not unfrequently of litigation, since the Merchant Shipping Act only requires that a "reasonable compensation" shall be given. In cases, however, where an agreement cannot be come to by the two parties immediately concerned, any two local magistrates can settle the point, unless the parties at issue appeal from their decision to the Admiralty Court.

With a few brief remarks on the subject of payments for saving lives and property on our coasts, I will conclude. On the former head the National Lifeboat Institution has established a uniform rate of payment for such services by the crews of lifeboats, varying from 10s. to £2 per man, according to the nature and amount of risk of the service, and whether performed by day or night; and it is only in very exceptional cases, of rare occurrence, that their crews are allowed to ask for any further payments from the owners of ships or property. Indeed, this institution even deprecates the raising of large amounts to reward such services through the medium of the public press by enthusiastic or talented writers, as tending to stamp them with a mercenary character, to make the men depreciate all ordinary payments at other times, and as being, in a certain sense, unjust to the crews of

lifeboats at less fortunate localities, where as noble and self-denying services have been quietly performed, with none but the inhabitants of a rural or fishing village to commend, and where the payment of 10s or £1 has given entire satisfaction.

On the latter head—saving property—it is to be regretted that our coast boatmen often make exorbitant demands for services rendered by them, asking sums of twice or thrice the amount which they expect to get, and which they will subsequently gladly accept. There are, however, other aspects from which to view the question. The ship-owner is apt to measure such services by too low a standard—to look on them in the same light as those performed on the wharf or in the store, to be adequately remunerated at the rate of a daily wage—forgetting that these men have often large and valuable boats to maintain (sometimes costing £300 or £400); that they must live all the year round, and support their families on the fruits of their labours at sometimes long intervals of time; and that unless on these occasions they receive sufficient to keep up and replace their boats, and to support themselves, they must disappear from our coasts, to the loss of the owners of ships and property, and of the nation.

These men, like the rest of us, have their characters varied, if not formed, by circumstances. Their lives, like ours, in the language of our great poet, “are of a mingled yarn, good and ill together.” Shabby or heartless treatment on the part of a shipowner or master will produce the natural result of ill feeling and extortion on theirs. Let us endeavour to do anything that may be within our province to improve them; and, in the first place, by showing towards them a spirit of justice, of forbearance, and of sympathy, instead of denouncing them for faults which may be only the natural results of treatment they may have received.

The reading of this produced much satisfaction in the Club.

Our metropolis, observed the Chairman, has been the scene of the execution of five pirates; one which has occasioned that display of brutality (for the term was quite applicable to what really took place) that was anticipated. And it is a question whether it may not eventually lead to the alteration of a system intentionally good but productive of an enormous mass of evil. It was remarked by experienced persons that it would be the last; so bad was it in effect, in producing scenes that were scarcely credible in a Christian land. In fact, these were thus alluded to in the *Daily News*:—

“While these inconceivably disgraceful scenes were being enacted, the obscene and blasphemous cries of the crew engaged in mocking the preachers in the crowd, the fierce cheers with which the constant fights were encouraged, the screams and whistlings, the hideous groans and indecent songs, formed an accompaniment which, as an open expression of abandoned depravity and rampant sin, has probably not been exceeded since the world began.”

The subject of these public executions had been brought forward in Parliament, and he was satisfied that some alteration of the system

must follow. It arose out of the conviction of seven men of the crew of the British ship *Flowerly Land*; and he would propose that the clear statement of the whole case made by the Solicitor General should be preserved among their records. This statement was as follows:—

The *Flowerly Land* left London on the 28th of last July for Singapore, with a general cargo. On board this vessel there were in all twenty persons; nineteen of them comprised the officers and crew, and the remaining one was a passenger. The captain's name was John Smith; his brother, George Smith, was the passenger. The first mate was a man named Carswell, and the second mate was John Taffir. There was also on board—the ship's carpenter, a man named Anderson; the cook, a Chinaman; the steward, also a Chinese, named Aboo; and a boy called lamp-trimmer, and fourteen seamen of different nations. Most of them understood English, and some of them could speak English quite well.

The voyage proceeded, and it would seem that at times the crew showed symptoms of insubordination, and it became necessary to inflict some punishment, although not of a severe character. On one occasion the rope's-end was used, and on another Carlos was lashed to the rigging by order of the chief mate for some act of disobedience. The captain, however, had the man removed, and learning that he was unwell, gave him some medicine, and sent him to his berth, thereby showing that the captain was a kind-hearted man. Although there were other acts of insubordination amongst the crew at times, there was nothing to indicate that they were planning a general mutiny amongst themselves, and the fearful crime which they unhappily succeeded in carrying out. If his instructions were correct, he thought the jury would come to the conclusion that the prisoners had formed a conspiracy, organized with the greatest secrecy, and executed with as great suddenness, to murder the captain and mate, then to plunder the ship of her cargo and what property they could find, and to scuttle the vessel and escape to that part of the world where their crime would be less likely to be detected.

That plot was carried into execution about three o'clock on the morning of September 10th. It was the first mate's watch. He was on deck, but the captain was below in his berth in his cabin, as also were his brother and the second mate, and the first mate would, therefore have no opportunity of communicating with the captain. It would be shown that the prisoners first attacked the chief mate with handspikes; they struck him several fearful blows, and while the poor fellow was crying for mercy, they dispatched him. They then went to the captain in his cabin. It would seem that the captain's brother heard the noise, and made an attempt to pass up the companion, in order to escape, but he was met by the men, and beaten with the handspikes and killed. Several of the prisoners entered the captain's cabin, and it would be shown that several stabs had been inflicted on the body, and that life had so been taken. They then tied a rope round the body of the deceased captain, with a view of throwing it over-

board, but Taffir asked that he might be allowed to pay the last duty to the remains, by sewing them up in canvas, which was permitted, and the body was then thrown into the sea.

Those were the circumstances more immediately attending the commission of the fearful crimes with which the prisoners were charged; but perhaps it would be required of him to show the part which each of the prisoners took in the transaction. But he would remark, that if the jury should be of opinion that all the prisoners entered into a common design to take possession of the ship, and that they did take part in the design, and the captain perished, it was immaterial whose hand inflicted the fatal blow, they would be all guilty alike for what followed. That, he believed, was the well understood principle of law, and which he believed would be so submitted by the learned judge who presided. It would be proved that Blanco and Durrana were the men who took most prominent parts in the murder of the mate, and John Lyons, who acted as a kind of ringleader and principal spokesman, and spoke English rather well, Watto, Lopez, and Santos, in that of the captain. With respect to Marchelino, it would be shown that he had been guilty of acts of violence, and had struck at Anderson, who had a most narrow escape of his life. Taffir, being fearful that his own turn would come next, secured himself in his berth, and it was only on being assured that nothing should be done to him that he came out. It would be seen that it was necessary to spare his life, as he was the only one on board that knew how to navigate the ship. Taffir was then desired by Lopez and Carlos to navigate the ship to the River Plate, and the prisoners next proceeded to plunder the cargo and the captain's effects.

They possessed themselves of the wine, and broke open the captain's boxes. About £70 in money was found, and Taffir was desired to divide the spoil; but he replied that he wanted nothing to do with it; but, fearing injury, he was compelled to comply. Watto proposed that it should be divided into eight parts; but Lyons, with considerable cunning, in order that all on board should be implicated, suggested that the spoil should be divided into seventeen portions. The second mate again said he did not want to have anything to do with the property; but a dread of losing his life gave him no alternative but to do as they desired. For several days there was a scene of continued wickedness and debauchery on board. An English vessel, the *Friends*, from Liverpool, was sighted, and the second mate was desired to give a false name and destination as to their own vessel, which he did. Even then Taffir would seem to have nearly suffered from complying with their wish. Some of the men thought that in speaking with the vessel he had betrayed them, and but for the assurance of Lyons that he had not, the probability was that he would have perished. On the 2nd of October land was made, and the men complained that it was sighted in day time, as it was ascertained afterwards that they wished to scuttle the vessel after night had set in.

They stood out to sea, and at night stood in again for the land. About a fortnight before, Anderson had been informed that he would

have to scuttle the vessel, and on the morning of the 3rd of October, about three o'clock, when they had arrived off the land, he was desired by Lyons, Carlos, Marcellino, and Durrana, to sink the vessel. Anderson, for the sake of his own life, dared not refuse, and four holes were made in the forward part of the ship and four holes in the after part. The men took to the boats, and the ship was left to go down, with the cook and another hand on board, who perished when the vessel sunk. The steward also lost his life in a somewhat similar way. They landed somewhere near Monte Video, where they represented that they belonged to a ship which had foundered some 300 miles from land. They proceeded to a place called Rocha, and eventually the true nature of the dreadful case came to the notice of the authorities, and the prisoners were arrested and sent to England to be dealt with.

Turning, however, from this subject, said the Chairman, grave matters are occupying the time of our legislators. Long discussions were going forward on public affairs, among the principal of which were the Danish war and the captures of Federal and Confederate cruisers. At our last meeting, continued the Chairman, the capture of the barque *Saxon* was announced in a Cape paper, and it was remarkable how her case had been distorted into an outrage by a Federal cruiser.

Captain Baldwin, of the *Vanderbilt's*, remark was to the point, observed Albert, when he said the cargo of the *Saxon* was American property.

Yes, continued the Chairman, and on which the *Saxon* was sent to New York. The whole case has been so fully given in the Cape papers that we could not have a more complete statement of it.—and the wanton act of the officer who shot the mate of the *Saxon*, it is said, will form the subject of trial. He, the Chairman, had alluded to this case merely as one among a host of others where much indiscretion had been displayed on the part of the Federals. Nor were the Confederates less to blame, whose rotten cause was that which had produced cases of severe injury to which the subjects of her Majesty had so largely contributed. He could picture to himself the satisfaction of the Southern President and his advisers at having placed our country in this unenviable position. They had outwitted themselves, however, in the case of the steam rams detained at Liverpool. But what Earl Russell has said on these subjects in his place in the House of Lords is so important that he thought it worthy of being placed for reference among their records. The speech which his lordship made in reply to the Earl of Carnarvon, and the following appears in it:—

The noble lord has impugned the opinion given by the law officers of the crown at the Cape of Good Hope, and says that they were completely wrong in the opinions they expressed; but I do not consider that in that case the vessel was wrongfully seized. The noble earl also referred to the wanton and barbarous murder of the mate of the *Saxon*. All that the government could do was to demand that the



offender should be brought before the proper tribunal at the earliest possible period, and that demand had been made. The noble lord said it was no satisfaction that the captain of the *Vanderbilt* expressed regret, but he had no concern in the occurrence, and what more could he have done ?

Lord CARNARVON—Did the captain order him under arrest ?

Earl RUSSELL—That is a circumstance of which we have no knowledge, but we know that the captain expressed his regret. It was stated that the offender was put under arrest ; but that was only a newspaper authority. With regard to the case of the *Tuscaloosa*, the law officers of the crown expressed their opinion that she should be detained, and orders were sent out accordingly. It would be for the noble lord to show that the law officers of the crown were wrong in that opinion, and that her Majesty's government acted wrongly. I now come to the case of the *Alabama* ; and I am glad to have an opportunity of clearing up a misconception into which the noble earl has fallen on that subject. We have always maintained that her Majesty's government were in no way responsible for the hostilities against merchant ships of the United States committed by the *Alabama*. We have maintained that from the beginning, and we have maintained it to the end.

The noble lord seems to suppose that in a letter of mine of the 26th October I admitted that this question might be referred to arbitration. My lords, I admitted nothing of the kind. I stated there, as I have already stated, that it was a question upon which her Majesty's government were not responsible ; but the government never consented, and never will consent to send the matter to arbitration. According to all the principles of international law her Majesty's government could not be held responsible for the doings of that vessel. Indeed, there has been a question of a commission, but her Majesty's government thought there would be no use in proposing a commission, because the United States government would be sure to propose that the case of the *Alabama* should be referred to it, and it would be impossible we could consent to such a proposition. We therefore never proposed what it otherwise would have been natural to propose, and what the United States minister intimated that he was ready to consider, namely, that a commission should be appointed to consider the claims of the two countries. I say her Majesty's government may well await the time when a calm and candid consideration may be given to the case of the *Alabama*. Everyone is well aware that for a long while there has been great excitement in America upon the subject of the *Alabama*, that she has constantly been called the British pirate, and that the American nation has been roused against this country in consequence of the depredations of the *Alabama*.

I have thought, therefore, that the time would come when the American government, considering all the precedents and principles laid down by their own judges, as well as by British judges, might consider they had no case to prefer in the matter of the *Alabama*. My supposition, therefore, was not that the British government would

change, but that the American government would change their mind when this time of excitement had passed. I went on to say, "the British government must decline to be responsible for the acts of parties who fit out a seeming merchant ship, send her to a port or to waters far from the jurisdiction of British courts, and there commission, equip, and man her as a vessel of war." I go on to say, that "if an admitted principle was thus made elastic to suit a particular case, the trade of shipbuilding in this country would be seriously embarrassed."

The noble earl, in a manner unaccountable to me—for it never, from the time I wrote that letter until now, occurred to me that such a sense could be put upon the words I used—supposes that I agreed to the determination of this case by a commission. Well, the noble earl says it is desirable that these cases should not be kept open, but that they should at once be settled. I agree with him if there were any any amicable way of settling them. The American government say they have a clear and undoubted case for reparation in the case of the *Alabama*. We say we have a clear and undoubted case for refusing reparation. In no way can this question be settled, unless indeed the noble earl would propose that the United States should push us to the verge of war for the sake of getting this case settled. The American government say that they have a very good case, but are ready to keep it in abeyance; that they are ready to keep upon terms of amity with us, that they are ready to carry on the most friendly relations with Great Britain if Great Britain will be content to follow their example; and am I to say we will do nothing of the sort? and am I to ask them to make war upon us and push the matter to an extremity? That is the case of the noble earl. It is very desirable, indeed, not to keep these matters hanging over, but how is that to be done while the position of the two parties is so entirely opposed?

I have had the good fortune in some cases to put an end to matters which have long been causes of dispute between this country and the United States. For many years there was a dispute going on with regard to the Mosquito shore and the Bay Islands. The President of the United States of that time said, if this were the only question of difference they had with the government of England they ought to endeavour to settle it. I, for my part, was quite ready to make concessions of what might be considered the fair claims of the British government, with a view of settling the dispute, and happily I was enabled to make a treaty which entirely put an end to it. There was another question which arose since the Ashburton treaty, and went on for some years, with respect to the Hudson Bay Company. That dispute it was agreed to refer to arbitration, and a convention to that effect has been made. So I am by no means indisposed to settle these questions which the noble earl says ought to be settled if possible. There is also the question of the island of San Juan, adjoining Vancouver Island, and upon that question likewise I have proposed arbitration, which proposal has been for some time under the consideration of the United States government. They thought the senate would

not agree to arbitration, but I trust there will be an agreement on that question also. For my part, I think it is far better that the question of San Juan should be decided by an arbitrator than that it should remain a cause of possible dispute between the two countries.

Well, referring again to the *Alabama*, the noble earl seems very much shocked because I said it was a scandal, and, in some sense, a reproach upon British law. I say that here, as I said it in my despatch. I do consider that, having passed a law to prevent the enlistment of her Majesty's subjects in the service of a foreign power and to prevent the fitting out or equipping within her Majesty's dominions of vessels for warlike purposes without her Majesty's sanction—I say that, having passed such a law in the year 1819, it is a scandal and reproach that one of the belligerents has been enabled at the order of the Confederate government to fit out a vessel at Liverpool in such a way that she was capable of being made a vessel of war—that after going to another port in her Majesty's dominions to ship a portion of the crew, and then going to a neutral territory and getting a further crew and equipment as a vessel of war, she has been enabled to capture and destroy innocent merchant vessels belonging to the other belligerent. Having thus been equipped by an evasion of the law, I say it is a scandal to our law that we should not be able to prevent such belligerent operations. I venture to say so much, because I do feel this in the Foreign-office to be a very great inconvenience. If you chouse to say, as you might have said in former times, "Let vessels be fitted out, go to Charleston, and there be sold to an agent of the Confederate government," I can understand such a state of things; but if we have a law to prevent the fitting out of warlike vessels without the licence of her Majesty, and yet vessels are so fitted out, I say it is a scandal and a reproach.

A very learned judge has said of this act of parliament, that not only a coach and six could run through it, but a whole fleet of ships. Well, then, if that be a proper description of our law, I say you ought to have it made more clear and intelligible. This law was said to be passed to secure the peace and the welfare of the nation, and I trust it may be found in the end sufficient for that purpose. But I say, that while the law remains in the present state its purpose is defeated, and its enactments are made of no avail by British subjects, who defy the Queen's proclamation of neutrality. To these observations I will only add, that if the noble earl wishes for any other paper relating to the *Alabama*—I believe there is only one—I shall be willing to give it, but as to the folio volume of papers to which I have referred, I trust the noble earl will not press for their production.

The Earl of CARNARVON wished to explain that he did not mean the correspondence in *extenso*, but a summarised return showing the names and dates and amount of claims. He quite accepted his noble friend's explanation, and could only say that he was rejoiced to receive it. At the same time, he thought it was most important that parliament should know the position in which we stood with regard to

the case of the *Saxon*. The noble earl had challenged him to give his case, and to show the government where they were in error. He would willingly take up the challenge, but he could not do so until he was in possession of the papers. He hoped his noble friend would give the papers with regard to the *Saxon*, and he must also press for a copy of the instructions sent out to the local authorities at the Cape of Good Hope with respect to the seizure of the *Tuscaloosa*.

Now the foregoing, said the Chairman, affords an insight to the complicated state of affairs brought about by the slaveholders of one or two of the Southern States of America,—that question of slavery alone which he regretted to say had too many advocates in this country; but one the consequences of which it was impossible to foresee. But he would not dwell longer on the subject, although he was anxious that the Club should keep these matters among their records.

The seizure of the *Tuscaloosa* at the Cape, observed Albert, seems to have been the leading event there, for the Cape papers thus alluded to it:—

The event of the month calculated to excite the most lively interest at home, in consequence of its possible influence upon the angry feeling already existing in the minds of the people of the Confederate States of America at the recent acts of the English government, has been the seizure by the local government, under orders from home, of the Confederate cruiser *Tuscaloosa*, formerly the Federal barque *Conrad*. The *Tuscaloosa*, which had visited Simon's Bay rather more than three months previously, returned to that port on Saturday, December 26th. Lieutenant Lowe, her commander, reported that since her last visit the *Tuscaloosa* had been cruising between the Cape and Brazil, and had spoken nearly one hundred vessels. But of that number only one happened to be a Federal. That one was the *Living Age*, which, having an English cargo on board, was released on giving a bond. During her cruise the *Tuscaloosa* put into one of the Brazilian ports for water and supplies, but was refused both; in consequence of which her crew are said to have been placed on short allowance. Lieutenant Lowe hoped on this visit to Simon's Bay to get the bottom of his vessel recoppered, as well as to take in all the supplies he needed. But his hopes were doomed to disappointment, for on the day after her arrival Admiral Sir Baldwin Walker dispatched from the flag-ship a lieutenant and a boarding party of twenty-five men to take possession of the *Tuscaloosa* in the Queen's name. The officer promptly executed the orders of the admiral, and the vessel was seized accordingly. Lieutenant Lowe lodged with the admiral a formal protest against the seizure, which will be transmitted to the home government. The United States Consul, Mr. Graham, has since been informed by the government that the vessel will be detained until "properly demanded" by her former owners, when she will be handed over to them. Whether this will be done without any preliminary inquiry as to the legality or otherwise of Captain Semmes's claim to condemn prizes by a court constituted by himself on board his vessel is uncer-

tain; but the legal advisers of the Crown appear to entertain no doubt that the entry of the *Tuscaloosa* into a British port was a breach of neutrality.

The *Tuscaloosa* still lies in Simon's Bay in the charge of the prize crew put on board her by the admiral. The return of the *Alabama* is expected almost daily. After leaving the Cape, she appears to have shaped her course eastward, with a view of intercepting homeward bound Federals. We last heard of her in the straits of Sunda. Captain Selfversparre, of the *Mary*, which arrived in Table Bay from Batavia on January 7th, reported that a day or two before he left, advices were received that the *Alabama* had burnt two large American ships in the straits of Sunda. The intelligence was confirmed by the captain of the *Camoens*.

It has been said that the *Tuscaloosa* is to be released, so that the Confederates will set that down to their account.

It appears, observed Rodmond, that the Table Bay Harbour works are being pushed forward very vigorously. The fine weather which has prevailed for so long has been highly favourable for their prosecution. During the month the number of convicts employed upon the works has been increased by about eighty, making the entire force, including both convict and free labourers, about 800 men and thirty-five horses. The iron paddle-steamer built in England, but put together here, answers admirably. It is now used in screwing piles for the breakwater. The reclamation of land between the central and South jetties has already been commenced.

But the great feat of the day at the Cape, said Albert, is the establishment of the electric telegraph between Cape Town and Graham Town, opened on the 8th of January.

The line, six hundred miles in length, is in the most perfect working order, and the transmission complete from end to end, and instantaneous. It is impossible to speak in too high terms of the manner in which this work has been executed. Its value has yet to become thoroughly understood in a country so far behind the march of the day as the Cape, and its probable effects can, of course, be only a matter of conjecture. The general impression appears to be that it will add greatly to the importance of Table Bay as a place of call for shipping. If supplies can be procured regularly and permanently at anything like the present rate, and information obtained as to the state of the markets from Cape Town to Natal, there is every likelihood that Table Bay will ere long become again what it once was, the centre point of the Southern Seas. The works at the new breakwater are advancing satisfactorily. But it is a subject of general regret that the proprietors of the patent slip should have found their undertaking seriously obstructed by a silting up of sand upon the lower portion of the ways. This injury to the works they lay to the charge of the breakwater, alleging that it is loose soil thrown in at the end of the embankment, which being carried over the ways by the current, and there deposited, is forming a shoal which threatens ultimately to bury

the slip entirely. The matter has been brought to an issue in an action in the Supreme Court. Judgment has not yet been given.

That invention of a Mr. Phillips which appears in our last *Nautical*, said Rodmond, for cleaning ships' bottoms, and turned by the action of the water, is very ingenious and deserves success.

Yes, and can be used either at anchor or under way, continued Albert. All it wants is to be known and the *Nautical* will do that.

The Secretary said he was requested to state at the Club that the new edition (eighth) of Horsburgh, revised by Commander Dunster-ville, of the Hydrographic Office, Admiralty, was just published.

### Nautical Notices.

#### PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 111.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	(Remarks, &c. Bearings Magnetic.)
5. Genoa	Mole	.....	..	..	..	(a.)
6. Marbella	Spain, S. east.	36° 31' N., 4° 54' 3" W.	F.	55	12	Est. 15th March, '64. (b.)
Vozes Malaga	Ditto	36° 44' N., 4° 9' 3" W.	F.	41	11	Est. 15th March, '64.
Isle Puercos	Ivica, S.	38° 48' N., 1° 29' 4" E.	Ffl.	94	15	Est. 15th March, '64.
7. Villaviciosa	Tazonos Pt., N. coast Spain	42° 35' 2" N., 5° 22' 9" W.	F.	220	7	Est. 15th March, '64.
Tina Mayor	Pt. San Eme- tario, N. coast Spain	43° 25' 2" N., 4° 34' 4" W.	F.	223	15	Est. 15th March, '64.
8. Karadakar Islet	Sweden	58° 8' 8" N., 16° 59' 7" E.	Ffl.	117	17	Est. 1st Oct., '53. (c.)
9. Salut Islets	Fr. Guayana, S. America	Royal Isle	F.	200	18	Est. not said.
Enfant Perdu	6 mls. N. & W. from Ca- yenne	French America	F.	33	19	Est. not said.
10. Black Rock	Black Sod Bay	54° 4' 2" N., 10° 19' 3" W.	Ffl.	263	22	Est. 1st June, '64.
Rathlin-o- Birne	.....	.....	F.	..	..	Altered from Ffl.

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

(a.) 5.—In consequence of the works now in progress for extending the outer or western mole at Genoa, vessels approaching the port during day, should keep to the eastward of the large buoy which is placed off the end of the mole, at about forty yards from that part at present above water. If entering the port by night, vessels should keep at least three-quarters of a cable eastward of the light on the western mole, as owing to the unfinished state of the works, that light is at present 100 yards from its extremity.

(b.) 6.—The light is a *fixed* white light, varied by a *red flash* every *three*

*minutes.* It is placed at an elevation of 94 feet above the level of the sea, and should be seen in clear weather from a distance of fifteen miles.

(c.) 8.—The light is a *fixed* and *flashing* white light. It shows a flash of *seven seconds* duration every *minute and a half*, followed by an eclipse of *nineteen seconds*, then a steady light for *forty-five seconds*, and then another eclipse for *nineteen seconds*, &c. The light is placed at an elevation of 117 feet above the mean level of the sea, and should be seen in clear weather from a distance of seventeen miles.

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#### DIRECTIONS FOR NEW CHANG.

*Foo Chou, 29th October, 1863.*

Sir,—As there is a fast increasing trade to New Chang (I being the 153rd this season), and very little is known, or at least said and written about wind and weather in the gulf of Leao Tong, I think a few remarks on my experience, and what I heard from others, will be useful to shipmasters coming here for the first time. The wind and weather here is very variable, seldom lasting longer than two days from any direction. When the wind is variable between S.S.E. and S.S.W., either light, with light rain squalls, or blowing fresh or a gale, with or without rain, from this quarter, we have to expect, in eight cases out of ten, a sudden shift to the North or N.W., blowing furious for about twelve hours.

When I came up this gulf (September 20th), not knowing this fact, I met with such a tremendous northerly squall that I had to keep the ship one hour right before the wind, to save my spars; and although the topsails were lowered down, lost them both, and two sails besides. The sea rose also very rapidly, and ran very short. As long as I have been master I never met a squall with less warning. The bar fell from noon to 5h. p.m. (the time the squall came) only 0·05 of an inch, which I thought of no consequence in this latitude. There was no banking up in the North, or any of the common warnings, except that there appeared more clouds of light Cumulus and cumulo-stratus, but through which the Cirrus could be seen in the upper sky.

In the fortnight I stayed in New Chang we had three such shifts. In the last I was lying inside the bar, bound out. It was blowing fresh from S.W. 9h. p.m. it blew a gale, with thunder and lightning, but no rain; a heavy nimbus in East to W.b.S., but no appearance whatever of a shift in the North, when all at once came a lull of about five minutes. Had just time to give the ship fifty fathoms of chain when, at 9h. 30m., a heavy squall came from the North, blowing hard, with rain, for ten hours. Bar. fell in the course of the day only from 29·91 to 29·85, but commenced rising, slow but steady, one hour after the squall came on.

The pilot informed me these sudden shifts were common through the summer, especially after August. So new comers ought to be careful, especially when in the vicinity of the Bittern Shallows, which

are very dangerous, and where a ship has no room to keep before the wind in these squalls.

The bar is very difficult to approach, especially in cloudy weather, or when there are no ships lying inside or outside the bar, as the land is very low hereabouts and the flats extend far out. The only leading mark is Tower Hill, a little round hill about 200 feet high, with a square pagoda or tower on the top of it. A ship should steer off and on, not coming nearer than four fathoms. When the pagoda bears S.S.E. (compass), and being in six fathoms, soft bottom, the ship is in the anchorage outside the bar; where she has to anchor and wait for a pilot. Or, when drawing ten to twelve feet, and being three hours flood, she may follow, on a N.E.b.E. course, the large five-masted junks going in, which keep strictly the mid-channel. But as soon as a ship has passed between the first fishing-stakes, and having  $4\frac{1}{2}$  fathoms, soft bottom (the bar is hard sand), she is inside the bar, and ought to anchor. There is good holding ground, having laid there twice in a S.W. gale, for fifty and seventy-five fathoms.

This year three vessels have been lost, and about forty been on shore on or inside the bar, and got more or less damaged; and even with a pilot on board ships run no small risk of being put aground: the pilots being mostly from Shanghai, coming here for one season and commencing piloting at once, without knowing much about the river.

It is high water on the bar at full and change at 4h. 50m.; rise and fall about twelve feet, so that there is from eighteen to twenty-two feet water on the bar in the proper channel. This latter depth is with fresh southerly wind, which raises the water in the North part of this gulf, and contrary.

Var.,  $2^{\circ} 45' W.$ ; bar. during my stay, 29.70 to 30.22; ther.,  $52^{\circ}$  to  $68^{\circ}$ ; water, on the surface,  $60^{\circ}$  to  $72^{\circ}$ , Fahr.

I am, &c.,

P. A. POLACK,

*Master of the Hamburgh barque Esmeralda.*

*To the Editor of the Nautical Magazine.*

P.S.—If you had an agent at Hongkong selling the *Nautical Magazine* and receiving information you would confer a great benefit to shipmasters, besides being to your own interest. I had lately no less than five offers from Hamburg and Danish captains to buy my edition of your magazine.

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**THE RALEIGH ROCK.**—The Raleigh Rock, at present in  $25^{\circ} 57'$  N. and  $124^{\circ} 7' E.$ , is lying about  $20'$  further East; for in 1861 I made its longitude in  $124^{\circ} 28'$ , and this voyage from Hongkong to New Chang in  $124^{\circ} 31'$ . Also, the Hoa Pin Sua and Ti a Usa Islands are lying  $6'$  further South, or in  $25^{\circ} 39' N.$  and  $25^{\circ} 49'$  (also found at two different times). While writing this a captain informs me that he found the Raleigh Rock also about  $25'$  further East.—A.P.

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EASTERN SEAS.—*Entrance of Mindoro Strait.*

9, *Mary-street, Sunderland, January, 6th, 1864.*

Sir,—On my passage from Manila to Liverpool last year, during the S.W. monsoon in the ship *Areta*, I passed over a shoal, which, as far as I can ascertain, is not noticed in the charts of the Mindoro Sea. Happening to look over the side when plying to windward between Palawan and the Quiniluban Islands, distinctly saw white and red coral under the ship—so clear indeed, that the small heads appeared to touch the ship. Immediately up helm and kept away to West, but in half a ship's length, and before the lead could be got down, the water appeared to deepen considerably, and at the first cast had nine fathoms, then had several casts of 8½, 9, and 10 fathoms, bright coral rocks visible at the time, then suddenly no ground at 30 fathoms. We had apparently been passing over the shoalest part when the ground was first seen, as in the ship's wake the discoloured water in that spot indicated. When in 9 fathoms I took the following compass bearings of the nearest islands, as named in the Spanish chart, viz :—

Peak of the highest northern Quiniluban, S.b.E. ½ E; highest part of Island of Monamoc, S.b.W. ½ W. : which would be about eighteen miles S.W.b.S. of the position assigned to the old Falmouth Bank. As far as we saw it, it extended about a quarter of a mile East and West, and probably further to the eastward. From what I observed in working down the western side of the Quiniluban and Cuyos Groups, it does not seem advisable to approach those islands too near, as I noticed several suspicious patches of light coloured water in their neighbourhood, the sun being in a good position at the time for showing them up.

I am, &c.,

HENRY SCOTT, *Master of Ship Areta.*

*To the Editor of the Nautical Magazine.*

Our correspondent has adverted to one of the worst known and perhaps the most dangerous parts of the Eastern Seas, viz. : the S.E. entrance of the Strait of Mindoro, between this island and the Quiniluban Group, S.E. of Busuanga. In the chart (Admiralty, No. 2,577) of this navigation, a bank of 22 fathoms is laid down due North of the Quiniluban Group, about six miles from which would be the coral rocks of our correspondent, but of which nothing appears in the chart. The master of the *Areta* has hereby warned his brother seamen of this danger which we recommend them to transfer to their charts, and we add our own caution to them to be most careful how they navigate this unsurveyed sea, especially when in the neighbourhood of the different rocky groups which it contains.—ED.

## DANGERS OFF WEST COAST OF FORMOSA.

*H.Neth.M.S.S. Djambi, Nagasaki, October, 1863.*

Sir,—I take great pleasure, for the sake of the science of navigation and the many, very many navigators frequenting the China Sea,

to state that much to our utter surprise we saw nothing of Harp Island, in lat.  $23^{\circ} 45' N.$ , long.  $122^{\circ} 4' E.$ , spoken of in the *China Pilot* of 1861, third edition, and also marked and laid down on the Admiralty chart, No. 2,463, although we passed that exact locality or position at daylight, on a very clear day, with a bright sky, anxiously awaiting a view of it; but all to no purpose. Again, the volcano reported in the same *China Pilot* as seen by Lieutenant Boyle, of the United States Navy, in lat.  $24^{\circ} N.$  and long.  $121^{\circ} 50' E.$ , we passed to the East of this located position about one quarter of a mile, and saw nothing of the burning mountaint

By inserting this in the columns of your very valuable *Nautical Magazine* you will much oblige, and I trust benefit the mariner in this section of the earth's waters.

I am, &c.,  
 Captain H.N.M.S.S. *Djambi*.  
 P. A. VAN REES.

*To the Editor of the Nautical Magazine.*

With much satisfaction we insert the foregoing letter. Our careful correspondent will have observed the P.D. on the chart, which Doubtful Position he shows that Harp Island does not occupy. The navigator will still be careful therefore that he does not fall in with the said Harp Island in some other position, and suffer from it, especially *by night* or in fog.

In respect of the "volcano" to the N.N.W. of it,—these are active and inactive dangers. It might have been in the latter condition when passed by our correspondent, so that we still caution navigators respecting it.—ED.

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NAVIGATOR ISLANDS.—We have been requested to give notice to ships cruising in the Pacific, that at Apia a large Signal Lantern has been placed for the benefit of vessels lying off and on; and also a large iron lighter for furnishing water, and a punt for discharging and keel-hauling.—*Sandwich Island Paper*.

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### New Books.

THE PILOT'S HAND BOOK FOR THE ENGLISH CHANNEL,—*Illustrated by Sixteen Plates.*—By Staff-Commander J. W. King, R.N.

A pilot's handbook, containing a pilot's knowledge and experience, or what may fairly be considered, with the chart, the pilot's representative, is about as valuable a companion to the navigator as he can well have: and when this companion is clear and explicit, and at the same time correct and concise, its assistance is more valuable still,—for it is always at hand, always ready, without hesitating a moment, to tell you what he knows in the most accessible manner and in the fullest but fewest words. Such a work, we say, is an invaluable friend to the mariner, and such a work we believe to be that before us. It professes to give concise general directions for all the English harbours and anchorages from Scilly to the North Foreland. No seaman should show

his nose in the Chunnel without it. He will rejoice over it many a time when he finds it making him independent of those sometimes difficult gentry, and not always the best of guides, although known by the name of pilots. The whole is well turned out of hand, and the plans it contains such as they should be.

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A NAUTICAL DICTIONARY, *defining the Technical Language relative to Building and Equipping Steam Vessels and Sailing Vessels, &c.*—By A. Young. Longman, 1863.

Not only does this volume profess an explanation of all relating to the foregoing particulars, but treats on a great variety of other subjects respecting naval architecture and maritime affairs generally, and winds up with a dissertation on the rules of the road, an extensive subject on its own affairs. Verily, in these changeable times in all that relates to naval architecture, such a work as this was much needed; and now that ships are assuming that immoderate length which they are doing—for we hear of four and five masts being necessary—it will require another edition speedily to keep pace with such changes. The work before us is tolerably explicit in sea terms, but their derivation and the source of their construction is hardly to be expected, and in many cases is wrapt up in the mysteries of dark ages, when our Saxon vernacular engrafted itself, as it so readily does, with the spoken tongue of every country which was visited by our seamen.

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#### THE GROTTO OF NEPTUNE.

Who of our sailor readers has not heard of the Grotto of Neptune, in Sardinia—that curious freak of nature, rich in the picturesque forms of the dependent stalactites in the mysterious cavern of the fabled deity. Those who have visited this interesting cavern will recognize its beautiful and picturesque representation in three elegant pictures by the late Commander Alfred Miles, that have just been published by his widow, with a poem dedicated to his memory. Such an occasion afforded a fitting opportunity for the widow to dwell in affectionate rapture on past scenes in lines well befitting the gloom of caverns and mysterious chambers hidden from the light of day. And those who have not visited it will gladly seize the opportunity of doing so when it presents itself, encouraged as they would be by the views before us. They are published by subscription, as announced in our pages, and form an elegant folio for the drawing-room table.

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#### CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, in February, 1864.

Mediterranean Sea, Sicily Island, Messina Strait, M. Darondeau, F.I.N., 1858, (1s. 6d.)

West Indies, Gulf of Mexico, Goazacoalcos River and view, French survey, 1861, (1s.)

African Lights, corrected by Commander Dunsterville, R.N., to January, 1864.

East India, China, Japan, and Australian Lights, corrected by Commander Dunsterville, R.N., to January, 1864.

United States Lights, corrected by Commander Dunsterville, R.N., to January, 1864.

EDWARD DUNSTERVILLE, *Commander R.N.*  
Hydrographic Office, Admiralty, February 20th, 1864.

THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle.

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APRIL, 1864.

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**A GLANCE AT THE POLITICAL AND COMMERCIAL IMPORTANCE OF CENTRAL BRITISH AMERICA.—By H. Y. Hind, M.A., F.R.G.S. Communicated to the Canadian Institute.**

The extraordinary commercial activity to which steam and the electric telegraph have contributed of late years, lead us to overlook the enterprise and daring which distinguished the early French colonists of Canada nearly two centuries ago. The history of their successful attempts to open commercial intercourse with Indian nations to the North and N.W., far beyond the present limits of Canada, their journeys of discovery and military expeditions to the shores of Hudson Bay, appear to have faded from the recollections of their descendants, at a time when the question of extending our civilization into the far interior of the continent is exciting general attention both in England and Canada.

If the proposal were now gravely made to send an armed force of 150 soldiers, or 150 emigrants, across the uninhabited wilderness between Lake Superior and James Bay, or between Quebec and Hudson Bay, to establish permanent settlements, a large majority of the public would treat the idea as simply absurd, and the projectors as probably insane.\* Yet these expeditions were actually undertaken

\* Persons who pretended to be familiar with the difficulties of the overland route from Canada to British Columbia, were only too ready to predict the disastrous failure of the Canadian emigrant party of 1862 to reach British Columbia in one season, "supposing they escaped the Indians and starvation."

when the population of the whole of Canada was less than one-fifth part of the present population of Montreal, and, consequently, less than one-half the population of Toronto.

That the early French colonists were pre-eminently distinguished by their desire for the extension of their territory, the following extracts from the Paris documents\* will establish beyond doubt, and at the same time convey some idea of their activity and enterprise in the infancy of Canadian history, and also of the projects they formed, and the conceptions they entertained of the extent of the country they intended to colonise as new France, North of the great lakes, 200 years ago.

As early as 1646, we read that *Sieur Bourdon*, with three Frenchmen, were sent overland from Quebec, to take possession of Hudson Bay for France. The French had already established a trade with the Indians of Hudson Bay, and in a few years induced them to come to Quebec to barter their furs.

In 1661, the Rev. *Claude Dablon* set out overland for Hudson Bay *viâ* the Saugenay, but he succeeded in reaching only the head waters of the *Nebouka*, 300 miles from Lake St. John.

In 1663 the Indians of the Bay du Nord (Hudson Bay) returned to Quebec in further quest of Frenchmen, and *M. Davaugour* sent thither *Sieur de la Couture* with five men, who proceeded *overland* to the said bay, possession whereof he took in the King's name, noted the latitude, planted a cross, and deposited at the foot of a large tree his Majesty's arms engraved on copper, and laid between two sheets of lead, the whole being covered with some bark of trees.

In 1671 *Pere Albelan* was dispatched overland to Hudson Bay by the Intendant *Talon*, *viâ* the Saugenay River; and in the same year

in continuous length, and wholly in a state of nature, which it would be possible for 150 people, including a woman and three children, to traverse during a single season, overcoming such apparently formidable obstacles as the Rocky Mountains have been supposed to present. The simple fact that these emigrants were enabled to take a large number of oxen and horses through the mountains by an undescribed pass, supplies a most satisfactory answer to those who have uniformly represented the dangers and difficulties of a route across the continent within British Territory, as insuperable without extraordinary outlay. Here we have an instance of a large party of emigrants, nearly all unaccustomed to the work, effectually combating those difficulties, and proving that they were either grossly exaggerated or in a great part imaginary. Another important fact which this journey has developed, is the ease with which the Fraser River is capable of being navigated by canoes or rafts as far down the stream as the forks of the *Quesnelle*, the point from which a road will, most probably, strike off in a nearly direct line to the Pacific, touching the ocean at one of those deep indentations which form so curious a feature of the British Columbian coast. There can be no doubt that great privations were endured by many of the party, but, at least until they reached the Fraser, there are, happily, no sad memorials left on the route they took, like those which distinguish every mile of the inhospitable desert which separates the valley of the Mississippi from the Pacific states and territories of the United States.

\* Documents relating to the Colonial History of the State of New York.

(1671) Sieur de St. Lussou was sent by Mr. Talon to Sault St. Marie, where he made a treaty with "seventeen Indian nations." The intendant, in his report, states that the place Sieur de St. Lussou reached is not supposed to be 300 leagues from the extremities of the countries bordering on the Vermilion or South Sea. He continues,—“The countries bordering on the western ocean appear to be no farther from those discovered by the French, according to the calculation of the distance made from the reports of the Indians; and by the maps there does not appear to be more than 1,500 leagues of navigation remaining to Tartary, China, and Japan.” Even at so early a period in the history of Canada did the French look forward to establishing communication overland with the South Seas, to command the trade of western Asia; and in another half century the French government were so impressed with the idea of an overland route to the Pacific, that they sent instructions to Quebec to have the exploration effected.

Du Chesneau writes in 1681,—“They [the English] are still at Hudson Bay, on the North, and do great damage to our fur trade.”

In 1683 M. de la Barre writes to M. de Seignelay,—The English of Hudson Bay have this year attracted many of our northern Indians, who for this reason have not come to trade to Montreal. When they learned by express, sent them by Du l'Hut on his arrival at Missilimakinak,\* that he was coming, they sent him word to come quickly and they would unite with him to prevent all the others going thither any more. If I stop that pass (Lake Superior to James Bay), as I hope, and as it is necessary to do, as the English of that bay excite against us the savages, whom Sieur du l'Hut alone can quieten, I shall enter into arrangements with those of New York, for the surrender to me of any guilty fugitives, but we are desirous to obtain an order to that effect from the Duke of York.”

And in the same year (1683) M. de la Barre writes to M. de Seignelay as follows,—“A small vessel has just arrived from Hudson Gulf, 200 leagues further North than the bay. . . . It is proper that you let me know early whether the King desire to retain that post, so that it may be done, or the withdrawal of the French, for which purpose I shall dispose matters in order to *aid them overland* beyond Lake Superior, through Sieur Du l'Hut, and to send to them by sea to bring back the merchandise and peltries.”

In Governor Dongan's report on the state of the province in 1687, we find a notice of the Hudson Bay in the New York Colonial Manuscripts:†—“Last spring he [the Governor of Canada] sent one De la Croa with fifty soldiers and one hundred young men of Canada to the N.W. passage, where, I am certainly informed from Canada, they have taken three forts.”‡ In Mr. Nelson's memorial about the

\* Michillimakinak, Green Bay, and Lake Huron.

† Documents relating to the Colonial History of the State of New York.

‡ Governor Dongan refers to Chevalier de la Troye, an account of whose expedition to Hudson Bay, in 1686, is contained in Charlevoix's History.

state of the northern colonies of America, dated 1696, he says,—  
 “There are actually, this instant, now at Versailles six sagamoes or chiefs sent from Canada, Hudson Bay, and Nova Scotia, to solicit such help and assistance against us,” &c., &c.

M. de la Verandère was sent on an overland expedition by the desire of Count Maurepas, in the year 1738, to discover the Pacific Ocean. He set out with his party from Montreal, passed through Lake Superior, and proceeding nearly due West, ascended the Assiniboine River, and directed his course towards the Rocky Mountains. Without reaching the Rocky Mountains, M. de la Verandère was obliged to abandon the prosecution of his expedition. Three hundred miles West of Lake Winnipeg, on the Assiniboine River, the French erected Fort la Reine. Three others were built farther West, the most remote of which stood on the bank of the River Paskoyac.\*

Mackenzie speaks of Canadian missionaries who penetrated “2,800 miles from the civilized parts of the continent long before the cession of the country to the English in 1763!

The names of several lakes and prominent hill ranges date from the occupation of the country West of Lake Winnipeg by the French prior to the conquest: such as Dauphin Lake, Dauphin Mountains, Fort Bourbon, on the Saskatchewan, near the West end of Cedar Lake. The most remote of the French settlements on the Saskatchewan appears to have been “at Nipawee, in lat. 53½°, long. 103°.”†

When we consider these great enterprises in connection with the population of Canada at the time, we cannot fail to be astonished at the energy of the French colonists, and the desire they exhibited to extend their empire even to the frozen North, and to secure the overland trade with Hudson Bay and the far unknown West—even to “South Seas.”

During the period when they were undertaken the population of Canada, from 1666 to 1738,‡ was as follows:—

1666 . . . . .	3,418 total population.
	1,844 men bearing arms.
1667 . . . . .	4,312 total population.
	1,566 men capable of bearing arms.
1668 . . . . .	6,870 total population.
	2,000 men capable of bearing arms.
1679 . . . . .	9,400 total population.
1685 . . . . .	17,100 French inhabitants, men, women, and children.
	3,000 men capable of bearing arms.

\* Foot note to New York Colonial Manuscripts: Paris Documents.

† The name “Nipawee” is perhaps the same as Nepowewin or “The Standing Place,” the present name of the mission opposite Fort à la Corne. Before the conquest the French had settlements at Dauphin Lake, the Pasquis, (near Carrot River or Root River), and at Nipawi, “where they had agricultural instruments and wheel carriages, marks of both being found about the settlements.”—*Mackenzie's Voyages*.

‡ Paris Documents.

1738 . . . . . 45,000 population. The year M. de la Verandère was sent over-land to discover the Pacific Ocean.

At the period of which we write, Upper Canada, and a large portion of Lower Canada, was a wilderness, and yet the French sought to extend their territorial jurisdiction to the shores of Hudson Bay; and, some years later, had visions of grasping the Indian and China trade from the shores of the Pacific, which they hoped to reach over-land from Canada.

At the present time Canada numbers some 2,700,000 souls, and we have the official statement from the highest authority, that the best lands in the country have already been sold.\* With this unexpected and startling announcement before us, we are justified in assuming that the present surveyed lands of the province on the North side of the St. Lawrence determine with considerable accuracy the boundaries of the portion likely ever to be settled with an agricultural population, and, until manufactures spring up, they are a rude measure of the future increase in our population through immigration.

Lumbering operations are constantly retreating farther North, and must soon find their limits; but they merely sweep the wilderness of its best forest growth, and do not lead to permanent agricultural settlements if the soil be not favourable. Emigrants prefer to go further West in search of good land, and if this is not to be found in Canada they must betake themselves to the United States, or to Central British America. We cannot look to mining enterprise as at all likely to lead to centres of population in the back country North of the St. Lawrence for very many years to come. Iron and copper ores exist in almost unlimited quantities within a few miles of the shores of the great lakes or great rivers, and, indeed, in Lower Canada, within easy reach of the Grand Trunk Railway, and they are much nearer to coal and to markets than the mineral wealth of the back country.

That part of the valley of the St. Lawrence which lies within the limits of Canada occupies about 330,000 square miles, and of this portion 280,000 square miles lie wholly on the North side of the St. Lawrence. By far the greater portion of this vast region is intersected with lakes, and—"The profusion in which the lakes exist, with, in some instances, only a short interval of land between them, though they may belong to different river-systems, affords, with the aid of birch-bark canoes, a ready means of passing from one navigable stream to another, in whatever part an explorer may be; and then, if he is well acquainted with the country, he can reach almost any

\* It is the fact that the best lands of the crown in both sections of the province have already been sold. The quantity of really good land now open for sale is, notwithstanding recent surveys, much less than formerly, and is rapidly diminishing.—*Report of the Commissioner of Crown Lands for 1862.*



position he may wish to attain without any very great deviation from a direct route."\*

The length of the Province of Canada from Quebec to the Fort William, on Lake Superior, is about 1,100 miles, and the greatest depth likely to become well settled North of Lake Ontario and the River St. Lawrence is 120 miles. On the banks of the Ottawa and some of its tributaries, and of the St. Maurice, this distance may ultimately be increased by a few miles; but on the shores of Lakes Huron and Superior it is far from probable that any but thin and sparse agricultural settlements are possible, even in the rear of the lakes. Excluding the peninsula portion of Western Canada, the average depth of the country available for agricultural settlements does not exceed seventy-five miles between Quebec and Fort William. Excluding the North shores of Lakes Huron and Superior, we have the probable limits of Canada as an agricultural country defined by a frontier 800 miles long by 100 miles deep, on an average, on the North side of the St. Lawrence. All the best land in Canada is sold; in what direction then can British settlements extend by immigration, assuming that the natural increase of the present population is sufficient to occupy the profitable wild lands already owned by private individuals? The fact is that Canada is really nothing more than a narrow fertile strip, 1,000 miles long and 75 miles broad on an average, backed by an undulating mountainous region, susceptible only of agricultural settlements in valleys, neither numerous nor broad, considering the immense area occupied by this region.

It is clear, then, that in order to preserve our nationality in the face of the astonishing strides towards wealth and political importance which have been made by the United States, we must strengthen our position by extending British civilization where there is room for it to grow and expand.

The North, as an agricultural region, is practically closed against us by the conditions of soil and climate, although it contains abundance of inert wealth, which may yet become productive and valuable.

The East is already preoccupied: the West alone remains to us. We are separated from Central British America by six degrees of longitude, which must be traversed before we can reach a region possessing a soil of remarkable fertility, and occupying a greater extent of surface than the whole available portion of Canada; abounding also in iron ores of the richest description, salt, and lignite coal, and almost entirely unoccupied by man. This barrier has frequently been upheld as an insuperable objection to a practicable commercial communication between Canada and Central British America, in the absence of correct knowledge of the physical features of the country. The utmost length of the barrier which requires the construction of a road scarcely exceeds 200 miles. From its western extremity there is an unobstructed navigation, with but one break, to the edge of the fertile prairies of Central British America, *via* Rainy River and the

\* Report on the Geology of Canada, by Sir W. E. Logan, F.R.S.

Lake of the Woods; and its eastern extremity is connected uninterruptedly with the sea by the great lakes and the St. Lawrence. The highest point over which the road from Lake Superior to the northern indent of Rainy Lake must pass is not 900 feet above Lake Superior; and for the first thirty miles it would traverse a country susceptible of tillage for several miles on either side. Then follows a sudden rise, marked by the great drift bank of Dog Lake, which forms the eastern limit of a drift-covered country, stretching in a N.E. and S.W. direction, and having a breadth of about ninety miles where the road would cross it. This accumulation of drift covers the height of land to a depth certainly exceeding 150 feet, as shown by the hills at the summit level at Prairie Portage, 885 feet above Lake Superior, and the highest point on the line of road. There are no serious physical impediments to overcome between Lake Superior and the northern indent of Rainy Lake, either for a waggon road or a railway; and this short link of 200 miles completed, the distance between Fort William, on Lake Superior, and the commencement of the arable prairies of the valley of Red River would be reduced to 200 miles of road or railroad and 180 miles of steam navigation.

Here, then, we see no formidable impediments, which an impression derived from the custom of traversing the country in canoes through the rocky channels of rapid rivers or hill-embosomed lakes had created in the minds of the few who have traversed that region;—impressions which, too eagerly accepted by the public, notwithstanding the imperfect knowledge of the physical conformation of the country, which a rapid journey without special geographical objects in view is fitted to obtain, have retarded the settlement of the fertile prairies of Red River.

The communication between Central British America, British Columbia, and the Pacific Ocean, is the next point to be considered. The recent successful journey across the Rocky Mountains of the Canadian emigrant party of 1862, by an old and long unused trail, called the "Old Columbia Trail," with numerous horses and oxen, dissipates all fears for the passage of the Rocky Mountains. Where 70 horses, 130 oxen, and 150 men, women, and children can journey without difficulty, the road still being in a state of nature, it is reasonable to suppose that a small expenditure would convert it into an excellent waggon road.

The Miette Pass and the Thompson River Trail join Cariboo with the plains of the Saskatchewan\*, and Cariboo is now only seven days'

\* The Canadian emigrant party of 1862 took through the mountains 130 oxen and about 70 horses. When in the mountains they killed a few oxen for provisions; others were sold to the Indians at Tête Jaune Cache, on the Fraser; and others were *rafted* down the Fraser River to the Forks of the Quesnelle. At the Tête Jaune Cache, a portion of the party separated from the rest, and, with fourteen horses, went across the country by an old well-worn trail to Thompson River, and thus succeeded in taking their horses from Fort Garry through the Rocky Mountains—through a supposed impassable

journey from New Westminster,—thanks to the energy which has pushed the government roads so rapidly through that “impassable” wilderness, as to bring the crests of the Rocky Mountains within a week’s travel of the Pacific seaboard.

It is not, perhaps, unreasonable to anticipate that difficulties of a political character will arise between the Northern and Southern States with reference to the American Telegraph and Pacific Railway, as now constructed and contemplated on and near the 32nd parallel. The route offering most advantages, next to that running near the 32nd parallel—the one selected, is the Northern Route, or that lying between the 47th and the 49th parallels. But since the survey of it

part of British Columbia,—to the wintering station on Thompson River and Kamloop Lake for the pack-animals of the British Columbia gold-seekers.

The Leather, or Miette Pass, lies in lat. 54°, and has long been known to the *employées* of the Hudson Bay Company, and is called by them the “Old Columbia Trail,” or “Jasper Pass.” It will be observed that it forms an immediate and direct connection with the great artery of British Columbia, namely, the Fraser River. The other passes to the South connect with the Columbia River, which flows for many hundred miles through Washington Territory. It will not fail to be noticed, too, that the existence of this route *vid* the Leather Pass has only very recently appeared on published maps. It is shown on Arrowsmith’s map of British Columbia, published in 1860; but the success with which its long-established connection with the Fraser was concealed by the late Hudson Bay Company, is a singular instance of the unity of purpose which has pervaded all the actions of that powerful corporation during their long tenure of absolute control over a portion of British America containing more land suitable for the abode of man than the Province of Canada itself, and which has already cost in its defence from aggression many millions of money and many thousands of lives.

It seems remarkable that the Leather Pass, and its easy connection with the Fraser River, escaped the attention of the exploring party sent by the British Government, under Captain Palliser, in 1857–8–9. If the existence of this unobstructed communication between the Athabaska Valley and British Columbia had been made known to the world as one of the results of that expedition, probably long ere this the British Government would have taken measures to establish a separate government in Central British America, and to open a communication across the continent through British territory. Dr. Hector actually passed the “Old Columbia Trail,” but neither his guides nor the people at St. Ann or Edmonton appear to have informed him of its existence. Fortunately, the Leather Pass has now been traversed by men, a woman, children, and numerous oxen and horses;—the Fraser River has been safely descended for 400 miles from its source, in canoes and on rafts, by a very numerous party, and it has been *ascended* in a boat from Cariboo to the *Tête Jaune Cêche*; and from this last named place there is a well known trail for horses to the Thompson River, and thence to New Westminster, which has also been traversed by Canadian emigrants with horses; and more recently, according to Victoria papers, by Lord Milton, with thirteen horses. The difficulties of the Rocky Mountains have in great part melted away, and the “impossibilities” of the overland route have vanished, just as the “uninhabitable deserts and swamps” of the Saskatchewan have given place to boundless fertile prairies, which will probably become—even in our generation—the seat of an enterprising and prosperous people.

was made the passes in the Rocky Mountains have become better known, and there can now be little doubt that the Leather or Miette Pass is between 2,000 and 3,000 feet lower than the pass on the 47th parallel.

It is, however, the remarkable character of the country through which a railway or postal road from the Lake of the Woods to the Miette Pass would traverse which gives this line of route an extraordinary prominence. The present President of the Southern States, when Mr. Secretary Davis, summed up the comparisons of the different routes in the United States, as regards the character of the country they traverse. The following is an abbreviation of the summary:—

Route near the 47th and 49th parallels, from St. Paul to Vancouver . . . . .	1,864 miles.
Number of miles through arable land . . . . .	374 „
Number of miles through land generally uncultivable, arable soil being found in small areas . . . . .	1,490 „

The greatest number of miles of route through arable land on any one of the lines surveyed is 670 miles, in a distance of 2,290 miles. The least number of miles of route through generally uncultivable soil is 1,210, on a line of 1,618 miles in length, near the 32nd parallel.

From the Lake of the Woods, or from Pembina, a line in British territory, instead of passing through a desert incapable of supporting human life, would traverse a fertile belt of country, averaging 100 miles in breadth,\* fully able to sustain five times as many people as Canada now possesses, and leading directly towards the lowest and by far the most facile pass in the Rocky Mountains.†

\* The arid region of the Missouri Valley commences West of the 100th degree of longitude; but the 100th degree of longitude divides the United States into two nearly equal parts on the 40th parallel of latitude. The eastern half is the present fertile and peopled part of the country. The western half is a comparative desert all the way to the Pacific. It is in comparison with this immense desert that the fertile belt at the edge of the woods, stretching in the Saskatchewan Valley from the Lake of the Woods to the Rocky Mountains, stands out in such surprising contrast. Sixty thousand square miles of arable land in Central British America mark out the true pathway across the continent, which alone is capable of sustaining an efficient means of communication, whether in the form of a stage road or ultimately of a railway, by the growth of a local population. But the favourable comparison does not rest here. The mountain region, which offers such a difficult barrier to communication between the Pacific and the Valley of the Mississippi, possesses peculiarities in British America which are in themselves of a very striking character, and quite sufficient to establish the line of route, cutting diagonally the 50th, 51st, 52nd, and 53rd parallels, as far superior in point of physical conformation to any other lines of route which have been explored in British America or the United States.

† Table of comparison between the different passes in the Rocky Mountains, in the United States and in British territory, North of latitude 38°:—

Apart from the advantages which Central British America affords as a railroad route over any portion of the United States, the direction and magnitude of its navigable lakes and rivers are of the utmost importance. These border on or directly traverse the fertile belt, and thus afford a splendid means of access by steamer from Red River to within 200 miles of the Rocky Mountains.\*

<i>United States:—</i>	<i>Altitude of Pass: Feet.</i>
Surveyed route between the 38th and 39th parallels of lat. . . . .	10,032
Route between the 41st and 42nd parallels . . . . .	8,373
Route between the 47th and 49th parallels . . . . .	6,044
<i>British Territory:—</i>	
Kananaski Pass, from the South Saskatchewan to the Kootanie River . . . . .	5,985
Kicking Horse Pass, from the South Saskatchewan to the Columbia . . . . .	5,420
Vermilion Pass, from the South Saskatchewan to the Kootanie River . . . . .	4,944
“Old Columbia Trail,” or Leather Pass, from the Athabasca to the Fraser—the Canadian emigrant route—probably below . . . . .	4,500

The breadth of country forming a continuous mountain region is far greater in the United States than in British America. The United States are crossed by three great systems of mountains, extending generally from North to South. The first system, beginning with the Sierra Madre, and terminating in the Black Hills of Nebraska Territory, is partially gorged by the Rio Grande, completely cut through by the North Platte and the Sweet Water Rivers, and turned by the Missouri. It does not extend into British America. The total breadth of mountainous country, in the proper acceptation of the term, within the limits of the United States, varies from 500 to 900 miles. In British Columbia the greatest length is not more than 380 miles, from the Leather Portage to the Pacific; and the actual distance, in an air line, from the Leather Portage to the extremity of Belhoola Inlet, the possible terminus of a route, does not exceed 400 miles.

\* The successive links in a road and steam navigation across the continent, through British America, may be as follow:—

1. Road from Fort William to the northern indent of Rainy Lake, <i>viâ</i> the Matawan River . . . . .	200 miles.
2. Steam from the northern indent of Rainy Lake to the Falls opposite Fort Frances . . . . .	40 ”
3. Steam from Fort Frances to the N.W. corner of Shoal Lake (Lake of the Woods) . . . . .	130 ”
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/> 370 ”
4. Road from Shoal Lake to Fort Garry . . . . .	90 ”
5. Steam from Fort Garry to the Grand Rapids of the Saskatchewan . . . . .	280 ”
6. Steam from Grand Rapids to Edmonton . . . . .	700 ”
7. Edmonton to the Frazer, <i>viâ</i> Miette or Leather Pass, by road. . . . .	290 ”

Total distance from Lake Superior to Frazer River:

Road, 580; Steam, 1,150 . . . . . 1,730 ”

If an inclined plane or a short canal were constructed at the Grand Falls

JAPAN :—PORTS OF THE WEST AND NORTH.

It is at Nagasaki, not very far from Shanghai, the great centre of commerce, that he who is intent on visiting the coasts of Japan can best prepare for this long and interesting voyage. Nagasaki is well known even to foreigners, or strangers as they are called in Japan, and China, who come from the West ; but Nagasaki well deserves this preference, for it is not only one of the most picturesque of towns but has an incomparably healthy climate.

But it is on leaving Nagasaki that the voyager has to encounter the most tedious part of his cruize round Japan. If he makes for Hakodadi, or for Yokohama and Yeddo, he soon finds out that the climate is not so temperate, and at the same time he has to put up with local annoyances. Hakodadi, one of the three towns open to strangers by the treaty, is according to all accounts less favored than Nagasaki. The position of Hakodadi to the North of the islands of Kiusiu, Sikok, and Nipon, which, with their dependencies, form Japan proper, takes him far away from the intercourse between the extreme East and West. Hakodadi seems destined to be of use only as an anchorage for Russian ships of war from the coasts of Mantchuria or perhaps to American whalers, or to the few craft which carry on a commerce between Yeddo and China, or between California and Nicolaiefsk, the veritable commercial emporium of the Amour. Besides the country about Hakodadi is not to be compared with that of Nagasaki and its climate, without being unhealthy is by no means so agreeable. Like the Isle of Yezzo, of which Hakodadi is the chief place, up to the present it has been frequented by a very few travellers. Nevertheless Hakodadi has been selected as the first port after Nagasaki. We hoped to collect certain information there on the principal Russian establishments lately formed on the coast of Mantchuria and *en route* we hoped to touch at the island of Tsusima, commanding the entrance to the Japan Sea.

In October, 1861, we left Nagasaki, a cool morning, and scarcely had we cleared the two islets of Ticosima, which cover the entrance of Nagasaki bay, when the breeze freshened up and drove us off deck into the spacious saloon of the *St. Louis*. I found myself abundantly well off in my position on board—the only passenger in a large, beautiful vessel where I had nothing to do but to please myself. As companions I had the proprietor of the vessel, an amiable, well informed man, and the captain, an old sailor who had navigated every latitude and visited every country of the globe, who was a cheerful, pleasant companion, and who had the good fortune to have not only a most experienced but an

of the Saskatchewan, there would be an uninterrupted navigation for shallow steamers—such as ply on the Upper Missouri—from Georgetown, on Red River, already in communication by stage with St. Paul, and Edmonton, within 200 miles of the Rocky Mountains. The dimensions of the Grand Falls or Rapids of the Saskatchewan are  $2\frac{1}{2}$  miles long, and a total descent of 43 $\frac{1}{2}$  feet.

excellent memory. Our vessel carried the American flag, and her crew consisted of English and Dutch, some Malays and Chinese, and a black cook. There was also a French sailor on board, but he was never seen till towards the end of the voyage in the midst of a storm which we encountered in the Japan Sea. Until now he had not emerged from his den, obstinately refusing to work, living on biscuit and water, and passing the time in swearing, crying, and singing. It is not easy when one does not know them to imagine how far a sailor will carry an idea which he has got into his head. For a long time every attempt to bring this man to reason was vain, and it is only when severe privations have weakened the physical force that, conquered without being persuaded, they become tractable.‡

About four in the afternoon we found ourselves at sea clearly outside that string of islands which stretch along this part of the Japanese coast, and which renders its navigation so dangerous. The wind had become fair and we got along merrily for Tsusima, the first place of calling on our voyage. This island is about a hundred miles from Nagasaki to the N.N.W., governed by a prince who pays tribute to the Tycoon ; it is not open to intercourse with strangers. A short time previously it had been visited by some Russian ships of war, and this apparition had given rise to a variety of opinions as to what was the meaning of their visit to this extreme East. But Tsusima is a place of considerable importance in a strategic and commercial point of view. At the same time it is one of the handsomest islands of Japan, occupied by a population at once numerous, rich, and intelligent. Situated between the Corea and the Japanese Archipelago and dividing the Corea Strait into two channels, called Broughton to the West and Krusenstern to the East, it commands the Southern entrance of the great interior sea called the Sea of Japan. This sea has become of great interest to Russia because it washes the shores of a part of that vast territory which General Igratief, the Minister Plenipotentiary to the Czar exacted from the weakness of the Court of Peking at the conclusion of the last treaties between France, England, and China.

Some time before my departure from Nagasaki in 1861, the English Admiral, Sir James Hope, was cruising on the West coast of Japan ; and anchoring at Tsusima, he found there to his extreme surprize three Russian steamers. On making a closer inspection of the bay he discovered that the Russians had formed a veritable establishment on the shore of it, in the vicinity of Fatchou, the chief place on the island. Now, as this port was certainly not among those which had been opened to strangers, the Admiral considered that he had a right to enquire what the designs of the Russians were in landing so many things here. The reply was, that they were busy in surveying to form a chart of the island, and that in the meanwhile the numerous cases of sickness among the crew had obliged them to find a place for them on shore ; but that they should not prolong their stay, and should soon re-embark their people ! The Japanese, however, on being questioned on the subject had given a very different account for the presence of the Russians, and evinced no little uneasiness at it. From the Admiral's visit it was

soon reported at Shanghai, on which the English papers in China soon spread the intelligence far and wide, and soon after it appeared that the Russians, not caring to excite the attention of a suspicious and clear-sighted public, had suddenly disappeared from the ground of their recent conquest. They took care, however, to protest their pacific intentions and to impute to the English themselves the project of the Russian ships, the execution of which they had prevented. However true or not these assertions may be, to the jealous watchfulness of the English and the envy of their invaders, the island was re-established wholly to its natural masters.

We knew nothing of the conclusion of this affair on approaching to Tsu-sima, and by means of our glasses we explored the horizon and the shores of Tsu-sima without seeing anything of the Russian flag. The bay was scattered with junks and fishing craft, the inlets of the shores were filled with Japanese vessels of all kinds, but we could not discover a European ship, and our attention was then devoted to the character of the islands before us, and certainly this at first sight seemed to be worthy of the praises which have been bestowed on it by visitors.

Tsu-sima Island extends in a North and South direction between  $131^{\circ}$  and  $132^{\circ}$  E. and  $34^{\circ}$  and  $35^{\circ}$  N. lat. for about 36 miles, its mean breadth being about eight miles. It is divided into two nearly equal parts by an arm of the sea by which it has obtained the names of Tsu-sima North and South. This strait, of some importance to the West, very much indented and nearly closed to the East, forms a magnificent bay, at the bottom of which is seated the town of Fut-chou. It reckons some thousand inhabitants and forms a port of call in the commercial intercourse between Japan and the Corea. The island is of volcanic formation with a healthy and temperate climate. The face of the island, rich and varied, presents a succession of hills cultivated and wooded, separated by large valleys through which small limpid rivers run to the sea. In the centre of the island, at a considerable height above the level of the sea, there are lakes, in the vicinity of which even in the heat of summer there is an agreeable temperature. Certainly Tsu-sima is one of the healthiest places in the West of Japan, but it is too far from Shanghai to be desirable either to French or English. The Russians, on the contrary, would find it commodious, and could not have a better position in their way in connection with China, and their possessions on the Amour.

In a few hours we left the bay of Fat-chou; in the evening we had lost sight of the island, and on the following day were out of sight of land, navigating the Japan Sea. But by this name must be considered an immense lake rather than a sea, for the islands of Sagalien, Yezzo, Nippon, Kiu-Siu the peninsula of Korea, and the coast of Mantchuria almost completely enclose it, and it is about 900 miles long and 400 broad. After a passage of six days, in which we only saw the Isle Dagilet, we arrived, on the 1st November, at the Russian port of Vladivostock situated on the coast of Mantchuria at the Southern point of the Albert Peninsula in about  $133^{\circ} 58'$  and  $43^{\circ} 3'$  N. This entrance to



Vladivostock, or Port May of English charts is difficult. After passing Aiguille Point and entering the channel, a vessel must pass through Hamelin Strait, which separates Albert Peninsula from the island of Poutiatine. Hamelin Strait contains four ports tolerably spacious, but the last, that of Vladivostock, is frequented by Russian ships. The entrance to this port is about half a mile wide; it is remarkable for the masses of rock which form it and which have been strangely disposed by volcanic action. Vladivostock has about the same extent as Nagasaki; it is rather more than three miles East and West, and three-quarters of a mile wide, and is well sheltered from all winds. The hills by which it is surrounded are not more than 300 feet above the sea. It has but a poor vegetation, some clusters of oak, firs, ash and birch, are scattered here and there. But everything is melancholy, with not a trace of cultivation, and the miserable dwellings which form the Russian establishment seem lost in the solitude by which they are surrounded. In summer, when nature is in her full dress and the plains covered with verdure, the country may look pleasant, but at Nagasaki we are far from the brown of autumn. Here at the end of October there is absolute winter, there is a piercing cold, the trees, without their leaves, are covered with frost, in fact we can see no inhabitants but crows, the noise of which contributes to the still melancholy of the place.

The Russian establishment of Vladivostock was formed in 1861 (and probably no change has been made since), and consists of nine wooden houses and one in plaster inhabited by two officers and 66 soldiers. These poor men have a sad life and I could not help being kind to them and admiring the resignation with which they endure their exile. As soon as we had anchored a boat was prepared and we went on shore; we had scarcely landed when we saw a young naval officer in uniform coming out of the best of the houses approaching us rapidly. He accosted us with that politeness always ceremonious and studiously particular in certain classes of Russian society, and begged us to visit his house. It was strongly built and with a good handsome roof, a sailor opened the door, gave us the military salute and conducted us to the parlour. This was a large low room, with whitewashed walls and warmed with an enormous stove; the windows were closed and all crevices were covered with pasted strips of paper, and the stagnant air of it bespoke indolence. The furniture was most simple—nearly in the centre of the room stood a round table covered with an old cloth, and on this were cups and saucers, cigars and cigarettes (*papelitos* the Spaniards call them) a book lying open and some journals. Behind the table stood a sofa which bore the marks of long service; in one corner of the room was a square stand for writing at, and under it as a carpet, a magnificent bear-skin on which human foot was evidently never placed; a hanging book case was against the wall containing tracts on navigation and meteorology and some French romances. Near a window was another table, the fabrication of some sailors, and on this table, as well as on the cill of the window, were specimens of uniform lying any how, a roll of tobacco, boxes of cigars and several books, odd volumes of Pouchkine and

Gogol, Sermontif and Krylof. The walls were garnished with bad prints representing the Czar and members of the imperial family. These official portraits mingled with those of the family and friends of the master of the house were photographs; a trophy of arms decorated another side of the apartment, composed of a good gun and a revolver, two officers' sabres, a brace of pistols, a flask, a pair of spurs, a cravat and a sailor's spyglass; a barometer to the right and a thermometer to the left, which had no kind of pretence towards any picturesque effect.

Our host did the honors of the house with extreme politeness. His cigars and cigarettes were immediately at our service; wines, brandy, and tea as soon as those, and he would not be seated on the worst chair in the room until we were installed on the sofa, and in a huge elbow chair which was another piece of furniture in the room. Very soon afterwards another young officer joined us. He was one of the small garrison, and the only companion of our host in his exile, who filled the office of governor of Vladivostock. This last person was a young man of about thirty years old, with an active figure, intelligent but grave, probably from *ennui* and banishment. He did not, however, utter any complaint, but there was evidently a badly concealed resignation to his sad lot. He was very attentive to the intelligence we gave him of what was going forward in the world and he was lavish of his thanks for a collection of English and French papers which we left him. For four months he had been an utter stranger to what was going on in the world, and the most recent intelligence he had of events were those of a year old. My friends who were with me having expressed their intention of a run for shooting, I remained *tête à tête* with the lieutenant of Vladivostock. He was a youth scarcely twenty years old who seemed to have an indolent and suffering manner about him, but when I questioned him as to his liking the kind of life he was passing, he would not allow that he was a victim to *ennui*. "There is no want of work" he said. "It is necessary to look after the soldiers, to the building of new houses, the cultivation of the fields and the gardens. All that requires time, and we have plenty of it, and therefore what we do, we do easily and at our ease. If the weather permits we make excursions in the interior; hunt, and game is by no means rare here, either in birds or beasts. Besides partridges and ducks, there are snipes and pheasants, hares, foxes, and ermines, and by chance we might find a bear or even meet with a tiger. In the winter time the cold is very severe and snow which falls in abundance keeps us prisoners in our houses. We remain there till it becomes warmer. The days are very short, and we sleep a good deal. We smoke and read as much as we like, and we enjoy our meals greatly. One day follows another, weeks and months slip away without our perceiving it. We have plenty of time for amusement, but we do not fatigue ourselves with it. On a fine morning in spring the sun shines in at our windows and we wake as if from a long sleep, and we are willing to forget that we have been nearly dead for six months."

In the estimation of the Russians Vladivostock passes for the principal of the ports which they possess on the coast of Mantchuria, because

without much expence it would be easy to place it in communication with the Amour and thus connect it with the mother country. To attain this result it would be sufficient to open a communication with the River Sinfric, a tributary to the port of Vladivostock to Lake Hankai. Ships freighted for Nicolaiefsk, which are prevented by ice for half the year from reaching their destination, would then unload at Vladivostock their cargoes of European goods destined for Nicolaef, and the Chinese and Japanese produce destined for Western Russia. This merchandize, once on Lake Hankai, would be easily transported to the Amour, which communicates with this Lake by the Rivers Hugateki and Oussouri.

There are some fine grounds about Vladivostock, and in the environs of Albert Peninsula there are some good building woods. Gold has also been discovered there, but up to the present time neither gold nor fine grounds, timber or metal avail much for Vladivostock like all Manchuria is entirely shut out from the commercial world and contains only a miserable and benighted population. Even in this establishment and its vicinity there may be some hundred Chinese of the species called *Mansas*. These are, for the most part, escaped prisoners from the penal settlements to the North of China, who have travelled through Manchuria one after another without money or family, and who obtain from hunting and fishing their very scanty means of subsistence. In some parts they are grouped in villages and work at the ground; sometimes they are met with settled three or four together. They observe great hospitality towards each other, but condemned to live out of all society without their wives or children, they have gone down to the very lowest degree of human existence and remain wallowing in a state of abject depravity. On the other hand, they are vigorous, patient and resigned, and in the rare quality which they have imbibed with the Russians, to whom they sell furs and *quin-sing*, an edible root highly prized by the Chinese, they appear to be animated by that commercial spirit which characterizes the whole race. I saw some *Mansas* on board the *St. Louis*, who brought furs which they wished to exchange for rice or bar silver. They were hideous, absolutely from sheer filth and ugliness, and their wild and extraordinary look had something of the deer about it. The governor of Vladivostock told us that, generally speaking, he had found them very inoffensive, although he would not trust their honesty. He tolerated their presence about the colony, and always found them ready, for most trifling remuneration, to give their services as far as they were able. "They are the most indefatigable of men," he added "who assuredly love work." If it were possible to find them wives and to keep up their establishment they would soon form a quiet community of labourers and tradesmen. These poor wretches eke out a hard and pitiful existence and attach no other importance to their liberty than what allows them their roaming habits. They serve me with zeal, and those whom I keep near me, although I am not able to give them anything except their food and lodging, are considered as the most favoured of their tribe.

We left Vladivostock on the evening of the 3rd of November. Our

stay there although brief had sufficed to establish a certain acquaintance with the two officers whom we left there. Up to the last moment they remained on board our vessel and it was easy to perceive that our departure caused them much regret. To them we were the representatives of the distant world where their affections and hopes were. We were returning there, and our departure was but a renewal of the sentence of their banishment, and return of that *ennui* which is the main feature of their monotonous life. They left us and returned to the shore, where they stopped and followed our ship with their gaze as she slowly took her course, As long as I was able to distinguish them, there they remained in the same place standing as still as statues. Daylight was going fast and night soon enshrouded them and their establishment in darkness, but I still thought of them, and I fancied them in my mind walking pensively to their distant dwelling, meditating on what had passed in our short visit.

Olga Bay, another Russian port which we intended to visit, called in the English charts Port Michael Seymour, is in about  $38^{\circ} 46'$  N. and  $137^{\circ} 39'$  E. and 190 miles from Vladivostock. In the course of the passage we lost sight of the Mantchuria coast for a short time. This is formed by an uninterrupted chain of mountains about 1500 feet high, and which joins another chain very much higher, the crests of which are covered with snow and their summits lost in the clouds. These mountains are composed of masses of black rocks, steep, arid, and covered here and there by groups of trees flanked by stunted trees and by large masses of yellow moss, but nowhere discovering the least trace of any habitation. The bays and creeks which indent the shore were equally deserted and all betokened a melancholy loneliness. Olga Bay, above two miles long and a mile and a half wide offers a good refuge for ships, except from S.E. winds. The entrance of it is easy and is formed by a precipice of rocks on each side, marked by an island, another bare granite rock called Isle Begdone. The country about Olga Bay is much the same as that of Vladivostock. In winter its solitary character is complete. The Gilbert River, which is a large stream, falls into the N.W. angle of the port ; it has a deep bed, is concealed among mountains, and at some leagues from its mouth becomes divided into many branches, which are not navigable.

To the N.E. is a small interior port, which has a bar that prevents access to any vessel drawing more than 14 feet of water. It is on the shores of this harbour that the Russians have established themselves. This colony is composed of two officers and 43 soldiers lodged in barracks formed of four wooden houses. As to the native population about Olga Bay, it consists of the Tartar race, and in point of morality is superior to Vladivostock ; but the people are so poor, so ignorant, and wild, and moreover, of so mingled a breed that even the Russians have hitherto disdained to have anything to do with them.

The immediate vicinity of Olga Bay is all fertility ; it is surrounded by much fine meadow land, and forests which are the habitation of animals with valuable furs, and where the few hunters who have penetrated those solitudes have found the ermine animal in abundance.

What the country really wants, is a ready European communication, and capitalists capable of turning its riches to account. The Russian government, I am informed, intends to send some hundreds of colonists to Olga Bay; but the immense desert proposed for their operations would be nearly an insurmountable obstacle to their success. Again, Olga Bay is far from being so important as that of Vladivostock. Without any great expence this place might be put in communication with Siberia, and sooner or later would probably be abandoned. The colonists of Olga Bay will become connected with those of Vladivostock, the only port of Mantchuria for which a certain future seems reserved. In these distant parts, life seems to be a frightful monotony, and is insupportable, except to those of great energy of character, or barbarian beings, who are strangers to the wants of civilization. We found the *Japonitz*, a Russian steamer, at Olga Bay, employed in postal service between Nikolaiefsk and Shanghai, and visits once every year the establishments of Castries, Emperor Bay, Doui, Koussounai, Hakodadi, Olga Bay, Vladivostock, and Passiat Bay. The *Japonitz* arrived there from Hakodadi, and brought news to the establishment at Olga; the most recent of which was six months old.

During our passage from Olga Bay to Hakodadi we encountered a storm which placed us in danger, and our ship lost her mainmast and mizenmast. The repairs of this disaster delayed us five weeks at Hakodadi; this gave me the opportunity of adding to the notes which I had made on a former visit to this place, referring principally to the race of the Ainoes, the most ancient inhabitants of the island of Yezo, of which Hakodadi is the capital.

Before closing this paper, the following notice of the Russian possessions in this part of the world under consideration is important.

Besides Vladivostock and Olga Bay, the Russians possess on the coast of Mantchuria, and on the Western coast of the island of Saghalien, Passiat Bay, Koussounai, Emperor Bay, Doui, Castries Bay, and Nikolaiefsk. At Passiat Bay, in 42° lat. N., peat has been found. Koussounai, and Doui, in the island of Saghalien, afford no shelter for shipping. At Koussounai, in 48° lat. N., military posts have been established to watch the Japanese frontier, and at Doui, in 51° lat. N., on account of the coal mines which have been discovered there. The colony of Emperor Bay has an excellent anchorage, but is without any communication with the interior, and a small detachment of soldiers is sufficient to protect it. Castries Bay, in 52° lat. N., is next to Vladivostock, the place of most importance that the Russians possess in these parts. It is connected by an easy route with Lake Kisi, from whence, with swift boats, the River Amour is easily gained.

The Russians were established at Castries and at Emperor in 1854, at Doui in 1856, at Koussounai in 1857, at Olga in 1858, and lastly at Passiat and Vladivostock in 1860. The necessity for all these establishments is not yet certain, for Nikolaiefsk, even on the Amour the only great town of the Russians in this part of the world, is by no means of any commercial importance. The formation of these distant colonies by Russia was of no importance until the projects of the Tar-

tar government on China and Japan had assumed a certain consistence. The natural riches of Mantchuria are but imperfectly known, and to bring them out will be attended with immense difficulty. I have already mentioned the coal of Passiat Bay and Doui, to which may be added the discovery of marble at Olga Bay, and gold at Vladivostock. Building wood of all kinds abounds in the interior of Mantchuria, and the fur trade, if set afoot, will produce satisfactory results. The great obstacle to the civilization of these distant countries, that which for a long time yet will remain insurmountable, is the want of population. To the northward some wandering tribes are found; the Guilakes, the Toungouses, and the Orotches, who in the latitude of Olga Bay mingle a little with the Chinese. To the South of Olga, on the coast, the Mansas only are found. The Russian botanist Maximovitch considers that the whole indigenous population of the coast of Mantchuria, from 42° N. as far as 52° N., does not exceed a million of people.

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CHANGES IN COAST LINES,—By S. M. Saxby, Esq., R.N.

(Continued from page 135.)

It is surprising to find through what channels many useful lessons present themselves to us in our search after truth. Could we only register our experiences, and tabulate and arrange them for occasional use, the world might be wiser. We are told that facts are “stubborn things.” They are, and in some instances cling to us in our memories beyond our power to detach them.

While writing the closing paragraph of the last chapter, the vivid remembrance of one fact, *as to a spider*, “hung on to me” with great tenacity. Yes, it was as to a garden spider. It may puzzle many to guess what this has to do with coast lines; and more especially if we put the question in a becoming form, thus:—Given a garden spider and the Bay of Biscay, to show a connection between them. Surely it is a riddle!

Some two or three years since, a young sailor boy of particular smartness in this ship prided himself among his messmates on his activity aloft, and, indeed, evidently considered himself cut out and shaped for a boatswain of a man-of-war. Hand over hand, by legs and arms, would he climb a rope, or swing and caper, until what he held fast by seemed a mystery. He was “prehensile” to the very eyelids,—so much so that on his regaining the deck one would incline to take another look at his feet and face to see if he were really human.

One day I noticed his attentive watching of something as he was about to clean one of my windows. On asking what he saw there, his reply was as follows:—“Why, Sir, blest if I aint dead beat by this here spider, and I will never kill another. I’ve been watching

him make his *net*, and 'tis wonderful!" On asking him how it was done, he said,—“Oh! that's what bangs me out and out. But I see him do it. There! if he didn't first stretch his line across from here to here, and then double it, and then jump upon it to see if it was hauled taut enough. Then he run up to the middle of it, and sat himself down and turned about him,—I suppose to see if it *was* the middle. And then he caught a half hitch and run back again, and made the end fast just in that corner, and kept on doing this with all these shrouds, and set them up taut as he went along, just as you see them—now and then running out a guy, as you see here, and there, and to that spot of paint, where he's put a backstay to keep all steady. He works with all his legs at once,—but no, they can't be legs either, they must be all *hands*. Well, you see, Sir, next he goes to rattle down his shrouds, and how do you think he done it? As I'm alive, if he didn't make fast the end of his line round one of them in a moment, like winking, and round and round the middle of the net did he work, *catching a turn*—it couldn't have been more than a single turn—round each shroud as he went along like smoke, until his work was done. I only wish I was as clever,—wouldn't I rig a ship first-rate, that's all! He's took the shine out of me, though, this time. I'll never kill another spider.”

Now this sailor boy in his answer did precisely what I am doing with my respected readers. He had brought his powers of observation to bear on a natural operation, and having satisfied himself as to what he supposed were palpable *facts*, *explained them upon his own hypothesis*, just as I am doing with mine and the Bay of Biscay. The “catching of the turns” and the “making fast” the ends of the “line” were all conclusions formed from *analogous experiences*, and he was satisfied. But suppose a more experienced observer had brought a powerful microscope to bear upon the round turns which he described,—his faults in observing would have been easily detected.

It will not do then for me to deal, like the sailor boy, in vague generalities; we must assist the ordinary powers of mental vision in order, as I have said, to secure the base of our argument. Now, this boy and this spider have read us a useful lesson. Let us, in our speculations, keep our eyes open, and think of the microscope.

The two present extremities of the Bay of Biscay offer every indication that the formation of the bay has been *progressive*. There is every appearance of its having been formed by the encroachment of the sea; and as this is the question upon which many of our main proofs will hinge when we examine the coasts of the Channel, it is necessary, before proceeding another step, to secure this—our said base of argument.

Observations have demonstrated that the branch of the Florida Gulf Stream runs eastward until it meets the European continent; indeed, that the branch of it to which we are specially alluding has a direction even southward of East before it quite reaches Europe. That the indraft of this current towards the land forms still the main source of danger, from remaining debris, to those becalmed off Cape

Finisterre or Cape Ortegal. It might, therefore, be urged by some that, ages since and before the present bay existed, the current ought to have *worked its way into the land southward*, rather than towards the English Channel.

Now we, hitherto, in order to simplify our method of proof, supposed that Capes Finisterre and Ortegal have always, since the final elevation of Europe (or, as the case may have been, the subsidence of the ocean), been the established barriers of those localities against the sea, as we now find them. But let us admit, what cannot be reasonably disputed, that what are now those capes once stood inland, and that the sea has worn away the outlying portions precisely as it did with the Cornish coast, and all question as to what might have been the form and *direction* of the very ancient coast line which influenced the former current in its course must be left to speculation. Soundings show that such encroachments could scarcely have exceeded a distance from the present headlands of more than forty or fifty miles; whereas the depth of the bay on an East and West line is nearly 300 miles.

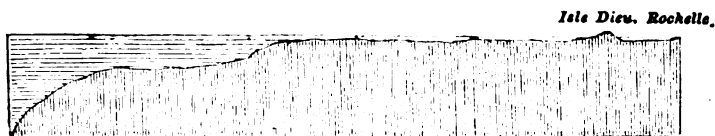
As in former cases to which allusion has been made, the duration of the existence of the present headlands of Cape Finisterre and Cape Ortegal has been due to the nature of the rock of which they are composed. And we have the fact before us that each of these promontories is the end of a bold spur of that Asturian mountain range which runs parallel to the present northern coast line of Spain at only a short distance inland. Which range, in its slopes and adjacent hills, proved an impregnable barrier to further devastation from the sea *southwards*; and in throwing back the current gave it full power to act effectively upon the sea bottom and greatly increase its depth towards the very bight of the bay, as we now find it. For within forty miles northward from the coast, off Estaca Point, we get 1,700 fathoms water; but at about sixty miles further into the bay, to the eastward of Cape Peñas, we find a depth of 1,900 fathoms,—considerably over two miles! Of course the mountain barrier of hard limestone along the North coast of Spain throws all the principal force of what is now called the Rennel Current, as it washes along the escarpment of the submerged European plateau, into a N.W. direction, at a very large angle; while recent observation proves that along the N.W. angle of Spain runs a deflected current from the bay *westward* with a velocity of  $1\frac{1}{2}$  knots, and this draws along the coast of Portugal southerly; so that the Gulf Stream Current, after entering the bay and meeting with obstructions, actually splits into two others, *turning right and left*. It should not surprise us, then, that in its passage it has denuded the granite and other primitive rocks near Ushant (which is a mass of granite); whence it afterwards bored its way (as already explained) across the mouth of the English Channel, along the foot of a submerged mountain, 2,275 fathoms perpendicular.

A few diagrams will greatly assist us.

The first is a section along a line of about 200 miles westward of



Rochelle, in the Bay of Biscay; and if the plateau has not so decided an abruptness as we find further northward (see page 73), we can attribute the difference beyond the 100 fathoms' depth to the greater power of the current setting almost perpendicularly upon some parts of it, and to the greater eddyings and deflections of streams in its vicinity.

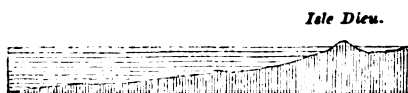


*About 200 miles.*

The following sections (all to the same scale) show that the deep water (say to 100 fathoms) does actually lie nearer to the coast, on the southern part of the bay, near Bayonne, and shallows as we search northwards towards Ushant, confirming the accuracy of our hypothesis as to the result of water action on this coast.



*About 110 miles.*



*About 90 miles.*



*About 100 miles.*



*From Cordouan Tower westward about 85 miles.*



*D'Arcachon about 30 miles.*



*Parallel of lat. 44° N. about 32 miles.*

When we consider that the immense body of water of which we speak as traversing the Bay of Biscay, runs partly along the foot of a slope, in one place about 13,600 feet below the surface, and between that and the shore along "steps" of sea bottom of various heights; while the upper 7,000 feet of the current (gradually or abruptly, as

the case may be) runs along in a less horizontally deflected direction, until it sweeps the shallows even to the very shores of the bay,—we cannot feel astonished at the greatly and proverbially disturbed sea surface which mariners have occasionally so much reason to dread in that district.

Non-nautical readers can have little idea of what is called a “calm” in the Bay of Biscay. Nothing ever impressed me so deeply with a notion of the awful powers of water as the sight of the rolling hills of it moving there as if with an object. The absence of any *apparent physical causes* of such gigantic movement is of itself exciting. The very ship trembles as suspicious of such unbreaking masses and fairly groans in every timber,—bolts and treenails threaten to yield to a power which, even in its uncrested sleekness, seems to be a menacing fury.

The silence of air and ocean give a solemnity to the life-like wailings of a mere oaken frame in its struggles to obey immutable laws. All parts of the ship are troubled; the masts work and bend as the rigging “gives” under the immense impulses of flapping canvas, and well is it if the masts stand at all. Seams work—bulkheads scream, and the half maddened ship shakes her plunging sides until the very glass and crockery rebel and resist confinement. Long afterwards do the chips and flaws and fractures in the pantry records register the expenditure of such a “calm” in this terrible bay. Happy indeed is he who, in a “rolling ship,” escapes with a whole skin. What, then, must be the condition of a ship when all this turmoil of waters is lashed into *breaking* mischief by the impulse of a *gale* in the Bay of Biscay? Those only who are accustomed to visit outlying sands and dangers like the Goodwin, or ledges and dangers like the Shambles and the rocks near Alderney, can rightly estimate such a confusion of waves.

Now, enough has been shown to justify our proposition that the Florida Gulf Stream scooped out the Bay of Biscay. If we allow (and it cannot be reasonably disputed) that such was not a sudden operation, but *gradual*, it clears the way for other important and interesting researches.

Another word as to rocks. It is necessary to remember that rocks of average similar chemical composition assume so many appearances as to colour, &c., that it is useful to examine varieties whenever opportunity is afforded. In the cliff faces large areas may present the same features, but it is worthy of notice that the poor itinerant collectors upon a coast often greatly assist us with their stores; where every little bronzed urchin in the summer finds a sale for his “curiosities” picked from the shore or cliff. I would say, as a rule, neglect no opportunities of examining their little, but often important, collections. Not only do you in them frequently have a conspectus of the geology of the district, but these often intelligent and precocious, and indeed, mostly orphan children, can prove very able *guides* upon the coast. Nor is it only for scientific purposes you

would examine their little collections. Do you want to prove to a fond relative or friend that you had him or her in your thoughts when away in the enjoyment of seaside hilarities?—Take then from the so needy and destitute child or widow your cheap credentials.

Often in a London walk do we pass the choice and costly mineral or rocky fragment,—the most rare fossil,—the lump of valuable ore, scarcely deigning a second glance through the shop pane near which they are exposed; but on the coast and near the native beds, how is it that insignificant specimens claim our attention? Is it because the commonest samples may lie in the same basket with the choicest? Undoubtedly. Ye buyers of “thunderbolts,” “crystallized water,” “lucky stones,” “mermaids’ purses,” “aqua marines,” &c., &c.,—what if these be mere pyrites, quartz crystals, perforations of spongy flint, glass bottle fragments, &c.!—these little wayside stalls are often the shrines at which gratitude, love, and kindness are rekindled when memory suggests a recipient for certain purchases, so easily converted into *mementos to last a lifetime*; while the mites exchanged in such purchases go towards the diminution of a day’s needs and a day’s anxieties in the sellers. Bear homeward if ye will, then, the so-called “trash,” but treasure them as receipts in full for your contributions towards the relief of the poor fisherman’s widow and the fatherless.

We will now consider what might have been the former condition of that which is called the English Channel.

Geology tells us that the strata between England and France are continuous. Certain upheavals near the Isle of Wight and Kent were mere local disturbances, as we shall see.

I have quoted Sir C. Lyell, &c., in speaking of a former grand upheaval of some 2,000 to 2,500 feet. I would further notice that whatever changes of level have been effected in Great Britain, they appear to have been perfectly uniform and equable. Mr. Robert Chambers has shown that throughout Great Britain certain terraces remain, indicating periods of important *general* upheavals of land or subsidences of sea (as the case may have been), and that these may be traced at the same present levels along considerable distances, and with so much regularity that not a foot of derangement can be detected between Inverness and Paris. Now, this is a strong fact in favour of our attributing the present form of the southern English coast line to the ravages of the sea, rather than to any change of level of the land itself *since man was created*.

Sir Roderick Murchison (perhaps the greatest living authority on such a subject), when recently addressing the anniversary meeting of the Geological Society, stated his opinion that the eastern shores of Great Britain have certainly undergone no changes in relation to *sea level* since the time of Cæsar; and also that at a comparatively recent geological period England and France were united. The sea is *known* to be still gaining at the present day in many parts of western Europe (as I shall have occasion to show), and therefore the ground

of our argument has been sufficiently cleared of doubt to leave us untrammelled in our investigations of the probable advance of the ocean upon many of our coasts.

Now, the Florida Gulf Current, which had sufficient power to hollow out a bay so large as that of Biscay, would have produced, unquestionably, stronger results when running in the direction of the full force of flood than when running nearly across it, as it does off Cape Finisterre. Hence would be the greater indentation and larger destruction of land between the present England and France westward, while the shape of the French coast gave a north-easterly direction to the stream. It is, moreover, likely that at the time of which we are speaking, Ireland had not been separated from England (as we shall hereafter nearly prove). It is even probable that some considerable period elapsed, during which the indentation between Ushant and the Lizard was being accomplished, from the harder nature of the strata at that part. And, indeed, the extensive ruins of which Guernsey and Jersey are the remnants show that the stubborn rocks of Alderney and of Cape La Hogue and La Manche long and successfully opposed a barrier to the seas. Thus the encroachment must have then appeared in its area as a deep "lagoon," which every year increased in its eastern limits, until continuous water action, urged on by the strength of southerly gales, ruptured the impeding rocky boundaries, and permitted the ocean full flood tide and the assisting branch of the Gulf Stream to penetrate the softer strata eastward of Cape Barfleur, and extend the eastern limit of this lagoon into a lengthened gulf or arm of the sea.

It is curious to search if any trace of the probable extent of this gulf on its northern part is remaining. It is traceable,—for if we notice the soundings between the Start Point and Beachey Head we shall find a sounding of about thirty fathoms running pretty evenly along at about eighteen or twenty miles distance from the English coast, the deeper water lying over towards the French side.

But such ruins as the Needles, Warbarrow Bay, &c., seem to be the result of a much more powerful water action than the dashing of the waves at their *present average level*; and yet we have the highest human opinions that the present level has been constant through a vast period, probably long antecedent to the boring out of the English Channel. I much question whether even the united power of the Gulf Stream and flood tide at its present level could possibly have produced such desolations of which evidences still exist. The absence of any detectable change of sea level adequate to our needs has been an obstacle to investigation on this subject.

With the Needles Rocks, as a grand ruin, most of us are familiar; but I remember, many years since, roughly sketching a chalk cliff on the French coast, which has been to me the source of much thought. The accom-

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panying outline is copied from the margin of my note-book, taken on the spot, from a vessel's deck somewhere, I think, off Étretat, not many miles from Cape de la Hève.

Ages may have elapsed since any particular change has been perceptible, but there it stands a striking monument of the power of the sea which *once* held sway over "the destinies" of cliff and shore in that locality. That such power has naturally, however, diminished should next be proved; indeed, that the ancient Channel sea level during the lagoon period was *not that of the present day* should at once be shown, or we travel with unnecessary encumbrance in our path of inquiry.

Now, *I can pretty clearly demonstrate that a higher sea level was actually at work on these cliff faces*, and this, happily, without challenging the dictum of any distinguished geologist.

It is difficult, however, to dive into the so remote past without the impression that even in our own times wonderful social changes have been perfected under our eyes, and which future generations will refer to as among the marvels of human progress,—thus contrasting with the steady, gradual, but inevitable changes produced by the natural agencies of "the elements."

If we confine our remembrances to the present century a few singular contrasts will present themselves. Less than fifty years since a trip from London Bridge to Gravesend was considered a voyage. The railway companies of the kingdom had not then brought our sea cliffs and our sea ports within a forenoon's ride of the metropolis. The excursionist of that period if he *saw* much *endured* much. (We will leave till another chapter the subject of coast lines, to follow up this unavoidable digression.) He selected, for instance, in the first place, a wardrobe, not so much as adapted to the needs of travel, but as least incompatible therewith. Costume had not then conformed to the requirements of ease and comfort in the wearer.

I remember the long "great coat" and its struggle for supremacy with the sightly and convenient "Chesterfield." Nor had the small literature of the day its treasures temptingly exposed, at the very setting out upon one's journey, to beguile the tedious leisure of the sea-side pleasure seeker. "Murray" and "Black" had scarcely seen the light. Guide books were plentiful, but such were merely compilations from various legendary and antiquated, rather than from truthful and amusing informants.

In those days information as to a locality was rather sought in conversation with "the travelled" of our acquaintance than from printed guides. But above all, what, at that period, was the shore to visitors? Merely a place where, under pretence of amusing our children, we inhaled the sea breeze on the sands after the tide had left them,—bused ourselves by daily, exhausting, morning walks *without an object*,—and by evening attendances at "assemblies," *endured without enjoyment*. A straw hat of some considerable diameter and pig-skin slippers, conspicuously marked those who essayed to endure a sea-side visit with becoming propriety.

How much times have altered! Instead of loaded pistols and sword-sticks, then considered necessary for security in "outlandish" places, we may now securely depend for protection upon a heavily charged "pocket" pistol, while a sandwich case contains only "ammunition." Days of "banyan" to travellers are days of yore. To examine any special district is now the province of an "excursionist;" but these are gradually becoming *students,—students of nature*. A large portion of their time is devoted to reading,—reading in a locomotive, or on the cliff, or the beach,—the very best symptom of progress, *provided such reading be well directed*.

But what do they read? Novels, tales, romances, serials, the daily press? Whatever share these may have of the attention of sea coast visitors, certain it is that works treating of the natural history of a district are becoming quite indispensable to the majority. This improvement is especially traceable in lady visitors, who (as we like them to be) are so often the earnest pioneers of good for us in our social life walk.

*(To be continued.)*

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#### THE LIFEBOAT AND ITS WORK.

There is, probably, no subject which is more deserving the attention of the philanthropist than that which concerns the welfare of our seamen. We are, therefore, induced to make a few remarks on the great and successful exertions that have been made during the past year in saving the lives of nearly 5,000 of our shipwrecked sailors, on the coasts of the United Kingdom, as detailed in the Annual Report of the National Lifeboat Institution laid before its fortieth annual meeting, on the 15th ultimo, when the Right Honorable Sir John S. Pakington, Bart., G.C.B., M.P., took the chair.

It commences by referring to the success which, with the Divine blessing, had rested on the labours of the Committee, and by expressing their gratitude to a liberal public for its continued generous support.

Perhaps the most striking feature in the history of the Institution during the past year is the large number of noble gifts, in the shape of the entire cost of new lifeboats, which had been presented to it by philanthropic individuals. Through such assistance the Committee had been enabled to replace several lifeboats.

To one of those splendid gifts we have much pleasure in drawing especial attention, not alone on account of its large amount, but as one springing from the very highest order of motives on the part of a commercial firm, and which cannot but be appreciated in this great mart of commerce, while it is invested with additional interest as proceeding from members of one of the most highly respected native communities amongst our fellow-subjects in India. The splendid gift to which we allude, is that of 2,000*l.* given by Messrs. Cama and Co., Parsce ner-

chants, London, for the purpose of providing the whole cost, and the future maintenance of a lifeboat establishment, on the coast of the United Kingdom, in acknowledgement of the success which had attended their business transactions during eight years' residence in this metropolis, and in testimony of the courtesy and kindness which they had invariably received from its inhabitants.

The last remaining of the County Shipwreck Associations, viz., that in Lincolnshire, had decided at a preliminary meeting on coming into union with the National Lifeboat Institution, and a complete renovation of the four lifeboat stations on the coast of that county will, as soon as practicable, be effected. New boats, carriages, houses, and equipments are to be provided, and the several establishments made thoroughly efficient in every respect, at a cost of about 2,000/., which will be defrayed jointly from the funds of the Parent and Branch Institutions.

It is satisfactory to find that the Lords of the Admiralty are taking steps to provide every ship-of-war with an efficient lifeboat, and that their Lordships had paid the Institution the compliment to consult it on that important subject. Experimental lifeboats are now in course of construction, and we trust that their general adoption in the Royal Navy may lead to improvement in the lifeboats of the Mercantile Marine.

The Institution having now formed stations on almost every dangerous part of the United Kingdom where a lifeboat can be effectively manned, contemplate entering on another sphere of usefulness, by introducing an improved mode of fitting the interior of the larger class of open and half-decked fishing and hovelling boats on our coasts, so that they could at any time be made insubmersible. Our fishing boats number about 40,000, and are probably manned by 160,000 men and boys, who are ever ready to risk their own lives to save those of their fellow-creatures on occasions of shipwreck.

The Institution proposes to accomplish this important object by building and placing at some of the principal fishing stations model or standard boats, from which, after sufficient trial, others might be built in the several localities; and thus a permanent improvement be established, which might lead to the saving of many lives on occasion of such boats being overtaken by gales of wind when at long distances from land.

During the past year the Institution has been enabled to send no less than fifteen new lifeboats to the coast, and numerous others are in course of construction. The stations to which they have been sent are Drogheda, Fishguard, Budehaven, Tenby, Lytham, Hastings, Blakeney, Swansea, Teignmouth, Filey, Arklow, Eastbourne, Pembrey, Palling, and Greencastle, near Londonderry. The whole of these, except that at Greencastle, have gone to replace worn-out or obsolete boats. No less than eight of them are gift boats.

The lifeboats of the Institution now number 132; and some of them were the means of saving no less than 417 lives during the past year, nearly the whole of them under dangerous circumstances, amidst high surfs, when no other description of boats could have been launched

with safety. They were also instrumental in taking safely into port or materially assisting seventeen vessels, which had stranded or otherwise got into danger. On forty-nine other occasions the lifeboats of the Society were launched, and proceeded to the assistance of vessels that had shown signals of distress, or that were in evident danger, but which did not ultimately require their services. The crews of the lifeboats also assembled during the stormy weather on many occasions, in readiness to proceed to the aid of vessels. For these services—and for saving 297 shipwrecked persons by fishing and shore boats or other means—the Institution has granted rewards amounting to 1,308*l*.

Transporting-carriages and boat-houses had been provided for nearly all these fifteen lifeboats.

We regret to have to report that the number of wrecks during the past year was, as usual, very large, and that the gales of October and December were perhaps the most destructive that ever visited the shores and the seas of the British Isles. The widows and orphans, caused by the storm of the three early days of December, are to be numbered by hundreds in the towns of Yarmouth, North and South Shields, and other places.

It is, however, most gratifying to be able to report, that during the time that storm lasted, the lifeboats were providentially the means of rescuing no less than 250 shipwrecked persons. Of these, 120 were saved by the Ramsgate lifeboat, in conjunction with the steam-tug *Aid*, and forty-eight by the Holyhead lifeboat. Noble deeds of daring were also performed by the crews of the Institution's lifeboats at Bacton, Fleetwood, Southport, Tenby, Llanddwyn, Skerries, and other places.\* On

\* During the storms of October and December last some of the lifeboats of the Institution, and that at Ramsgate, which belongs to the Board of Trade, were the means of saving the lives of 385 persons from the following wrecked vessels:—

Brig <i>Marietta</i> , of Lisbon . . . . .	1	Fishing boat of Tenby . . . . .	3
Schooner <i>Sir Colin Campbell</i> of Whitby—Saved vessel and crew . . . . .	6	Schooner <i>Margaret and Jane</i> , of Dublin . . . . .	6
Ketch <i>Snip</i> , of Amsterdam—As- sisted to save vessel and crew . . . . .	5	Barque <i>Duke of Northumberland</i> Fishing boat of Filey . . . . .	18 2
Brigantine <i>Arion</i> , of Workington . . . . .	4	Ship <i>Jupiter</i> , of London—As- sisted vessel and crew of eight men, after a collision . . . . .	8
Schooner <i>Giulia</i> , of Palermo— Saved vessel and crew . . . . .	10	Schooner <i>Economy</i> , of Port- madoc—Saved vessel and crew . . . . .	5
Schooner <i>Northern Lights</i> , of Preston . . . . .	4	Lugger <i>Vigilant</i> , of Peel—Saved vessel and crew . . . . .	7
Smack <i>Gipsy</i> , of Drogheda . . . . .	4	Schooner <i>Maria</i> , of Amlwch . . . . .	4
Italian Brig <i>Camogliano</i> —As- sisted to save vessel and crew . . . . .	8	Schooner <i>L'Esperance</i> , of Nantes . . . . .	2
Barque <i>Tamworth</i> , of Skien, Norway . . . . .	17	Schooner <i>Harry Russell</i> , of Glasgow—Saved vessel and crew . . . . .	8
Barque <i>Providence</i> , of Dantzic . . . . .	7	Schooner <i>Elizabeth</i> , of White- haven . . . . .	4
Smack <i>Saucy Jack</i> , of Inverness . . . . .	14	Barque <i>Elizabeth Morrow</i> , of Glasgow . . . . .	10
Ship <i>David White Clinton</i> , of New York . . . . .	8		



occasions when numerous services were equally perilous and gallant, it is difficult to select any particular cases for narration, but they are all briefly detailed in the Appendix to the Institution's Report.

With a shipping representing about fifty millions of tons, and 300,000 vessels which cleared outwards and entered inwards from British ports during the past year, a large number of shipwrecks has become almost a natural sequence. Accordingly it is found that 1,602 casualties took place last year on the shores and in the seas of the British Isles, accompanied with the loss of 568 valuable lives—lives of the utmost consequence to the commerce and defence of the country.

However, it is gratifying to find that during the same period 4,565 persons were rescued by lifeboats, the rocket-apparatus, shore boats, and other means; 498 of these owe their preservation to lifeboats, 329 to the rocket apparatus and 3,738 to ships' own boats, steamers, fishing-boats, and other means.

Those saved by lifeboats, which are, as it were, the "forlorn hope" of the army of rescue, have, in nearly every instance, been saved under perilous circumstances, when they probably must have perished in the absence of such aid. The British public are now sensible of that fact, and their generous support to the National Lifeboat Institution has been proportionately liberal. Our countrymen in all parts of the world manifest by their contributions their interest in its welfare; and its successful operations on our coasts have awakened in foreign countries a desire to provide similar means for saving life from shipwreck on their shores.

The total number of lives saved during the forty years from the establishment of the Institution in 1824 to the end of the year 1863, either by its lifeboats or by special exertions for which it has granted rewards, is as follows:—

<i>Year.</i>	<i>Lives Saved.</i>	<i>Year.</i>	<i>Lives Saved.</i>	<i>Year.</i>	<i>Lives Saved.</i>
1824 . . . .	124	1832 . . . .	310	1840 . . . .	353
1825 . . . .	218	1833 . . . .	449	1841 . . . .	128
1826 . . . .	175	1834 . . . .	214	1842 . . . .	276
1827 . . . .	163	1835 . . . .	364	1843 . . . .	236
1828 . . . .	301	1836 . . . .	225	1844 . . . .	198
1829 . . . .	463	1837 . . . .	272	1845 . . . .	235
1830 . . . .	372	1838 . . . .	456	1846 . . . .	134
1831 . . . .	287	1839 . . . .	279	1847 . . . .	157
Barque <i>Confiance</i> , of Liverpool	23	Brigantine <i>Ellen</i> , of Jersey	8		
Brig <i>Mary Ann</i> , of Scilly—		Ship <i>British India</i> , of Liverpool			
Saved vessel and crew . . . .	7	—Assisted to save vessel and			
Smack <i>Lewis</i> , of Campbeltown . .	3	crew . . . . .	27		
Schooner <i>Caledonia</i> , of Preston		Fishing-boat of Aldborough . . .	3		
—Saved vessel		Emigrant ship <i>Fusileer</i> , of Lon-			
Schooner <i>Fame</i> , of Maryport—		don . . . . .	102		
Saved vessel and crew . . . . .	5	Barque <i>Demerara</i> , of Greenock	18		
Barque <i>Graces</i> , of Shields . . . .	15				
				Total	385

<i>Year.</i>	<i>Lives Saved.</i>	<i>Year.</i>	<i>Lives Saved.</i>	<i>Year.</i>	<i>Lives Saved.</i>
1848	123	1854	355	1860	455
1849	209	1855	406	1861	424
1850	470	1856	473	1862	574
1851	230	1857	374	1863	714
1852	778	1858	427		
1853	678	1859	499	Total	13,568

Who does not feel thankful in seeing such a noble list of their fellow-creatures rescued from the perils of the deep, and restored to their families and to the service of their country. Every contributor to the Institution is unquestionably entitled to participate in that satisfaction as an assistant in the great and good work. It will likewise be felt, that the thanks of all are eminently due to the gallant men who have so readily manned the lifeboats on every occasion, and to all others who have personally aided in saving so many thousands of persons from a watery grave.

*Rewards.*—It appears that during the past year fifteen silver medals, fourteen votes of thanks inscribed on vellum, and 1,308*l.* have been granted for saving the lives of 714 persons by lifeboats, shore and fishing boats, and other means, on the coasts and outlying banks of the United Kingdom.

In reference to these grants, our boatmen and fishermen everywhere know that their exertions in saving life from shipwreck will be promptly rewarded by the National Lifeboat Institution in proportion to the risk and exposure incurred in the service. Thus a spirit of emulation and activity is fostered and encouraged by the Institution on the coasts of the British Isles, productive of the best results.

With the special object of enhancing the value of the medals of the Institution, they are never granted except when risk of life is believed to have been incurred, and great gallantry displayed; and the most careful investigation is made of every case before it is decided on. In that important work the Institution has received the prompt and cordial co-operation of Commodore A. P. Ryder, R.N., Controller-General, and Capt. J. W. Tarleton, R.N., C.B., Deputy Controller-General, and of the Officers of the Coast-guard service, to whom the best thanks of the Institution are tendered.

The proceedings of the Institution on this head may be thus briefly stated:—Since the formation of the Institution it has expended on lifeboat establishments nearly 100,000*l.*, and has voted 82 gold and 736 silver medals for saving life, besides pecuniary awards, amounting together to 17,830*l.*

The cordial co-operation of the local Branch Committees, which constitute so important a portion of the machinery for the supervision of the several lifeboat establishments of the Institution is duly acknowledged.

The total amount of receipts of the Institution during the past year was 21,101*l.* 6*s.* 3*d.*; and of this sum 4,944*l.* 5*s.* 0*d.* were special do-

nations given to defray the cost of the twelve lifeboats, a list of which we must publish.

	£.	s.	d.
Filey—Lord Mayor and Lady Mayoress of York, R. W.			
Hollon, Esq., and Mrs. Hollon . . . . .	250	0	0
Bridlington—Collected in Manchester by R. Whitworth, Esq., and the Rev. E. Hewlett . . . . .	250	0	0
Palling—Messrs. Cama and Co., for the station, and its per- manent maintenance . . . . .	2,000	0	0
Eastbourne—J. S. D. . . . .	300	0	0
Teignmouth—Collected in China by W. H. Harton, Esq. . . . .	251	15	0
Budehaven—Family of the late R. T. Garden, Esq., for life- boat, boat-house, and transporting-carriage . . . . .	600	0	0
Pembrey—Collected in Bath by F. Bedwell, Esq. . . . .	180	0	0
Tenby—F. R. Mageuis, Esq., . . . . .	262	10	0
Lytham—T. Clayton, Esq., Wakefield . . . . .	250	0	0
Dunbar—Lady Cunningham-Fairlie . . . . .	300	0	0
E. W. Cooke, Esq., R. A., F. R. S. . . . .	200	0	0
Sir Hugh Myddleton Lifeboat Fund, on account . . . . .	100	0	0

We observe that amongst the most gratifying recent donations to the Institution occur the following :—

100*l.* from a Sailor's Daughter, per Messrs. Drummonds; 100*l.* as a Thank-Offering for preservation at sea during the storm of the 31st. October last; 1*l.* 6*s.* 9*d.*, being the amount of a Collection at St. John's Sunday School, Manchester, per Mr. R. Hanley; 3*l.* 18*s.* 8*d.* collected in Mochrum Parish Church, as a New Year's Offering to the Institution, per Rev. R. Craig; 20*l.* as a Thank-Offering from E. Jones, Esq., and Mrs. Jones, for preservation from imminent danger at sea; 100*l.* from "A Friend," in gratitude to God for the preservation of his wife for another year; 20*l.* from a Seaman's Daughter (C.T.), the produce of her Needlework, and 200*l.* Consols, from George Wheelhouse, Esq., of Deptford. W. N. Rudge, Esq., collected 607*l.* 15*s.* 6*d.* on the London Stock Exchange, for the Institution; and Robert Whitworth, Esq., and the Rev. E. Hewlett, collected nearly 1,000*l.* amongst their friends and others in Manchester.

The following Legacies, less duty, have also been bequeathed to the Society since the publication of the last Report:—James Miller, Esq., of Glasgow, 100*l.*; Wm. Currie, Esq., of Cornhill, London, 200*l.*; John Farnell, Esq., of Isleworth, 1,000*l.* (free of duty); Milborne Williams, Esq., of Whitchurch, 50*l.*; Beriah Botfield, Esq., M. P., of Norton, 10*l.* 10*s.*; Miss Emma Keate, of Kensington, 300*l.*; and Richard Spencer, Esq., of Gower Street, London, 200*l.*

The expenditure of the Institution in the year 1863 was 16,672*l.* 6*s.* 8*d.*, of which 11,377*l.* 14*s.* 1*d.* was spent on its lifeboat establishments, 1,351*l.* 6*s.* 4*d.* in rewards for services to shipwrecked crews; and 2,441*l.* 9*s.* 1*d.* for coxswains' salaries, and the quarterly practice of the boats' crews.

For a considerable saving in the item of transport to their stations of new lifeboats and carriages, the thanks of the Institution are

given to the several railway and steam packet companies, who have most liberally conveyed them to all parts of the United Kingdom, free of charge.

The items of receipt and expenditure are detailed in the financial statement annexed to the report, which, as usual, have been audited by a public accountant.

Considering the magnitude and unavoidable costliness of the operations of the National Lifeboat Institution, embracing the whole of the coasts of the British Isles, a large permanent annual income is clearly indispensable to enable it to maintain, in an effective state, its one hundred and thirty-two lifeboats, and to increase their number, should circumstances render it desirable to do so.

Its Committee appeal to the British public with fresh confidence for support to an Institution whose mission of mercy must come home to every one, and plead for sympathy and support; and they feel assured that they will not make that appeal in vain; for if it be a high privilege and duty to feed the hungry, to cloth the naked, to heal the sick, and to teach the ignorant, it is surely, if possible, a still higher privilege and duty to rescue from a premature and sudden death fellow-creatures who may be preserved for a long career of future usefulness.

ON A GOVERNMENT SCHOOL OF NAVAL ARCHITECTURE,—By  
*Sir W. Snow Harris, F.R.S., &c.*

I.—The professional naval architects educated at Portsmouth between the years 1812 and 1830 being now either dead, having left or retired from the service, or otherwise so advanced in life as to be on the point of retirement, it has become a question of great importance to our naval interests in what way their places can be best supplied, either for the present or future times. It is admitted on all hands that a government school for the education of naval architects and dockyard officers expressly for the public service is imperiously called for, more especially in the advancing transition state of naval warfare. The Board of Admiralty, as is well known, has found much difficulty in obtaining professional naval architects competent to carry on the shipbuilding department of the navy.

II.—This question has undergone, at various times, much discussion, and several proposals have been submitted for an improved school or schools of naval architecture, adapted to the requirements of the public service.

It has been suggested to found an establishment for the training of professional men to fill the higher offices in naval construction, analogous to the Royal Engineers and Artillery at Woolwich. Another proposal has been to establish a national college in the vicinity of London for the cultivation of naval architecture, not only for the

government service but also for the merchant service and maritime interests of the country generally. A third proposal has been to appropriate the Department of Science and Art at South Kensington as a school of naval architecture, in which government as well as private students will be entered and instructed, during the winter months, in physics and mathematics, to attend lectures on chemistry, "on substances used in shipbuilding, wood and iron for instance;" Admiralty pupils to be sent to the dockyards during the six summer months under the guidance of proper persons, such as should be selected for their instruction.

III.—The first of these proposals seems to have been abandoned, either as undesirable or impracticable. The second, being of a complicated character, has received but little encouragement. The last proposition, as coming more within the immediate requirements of the government, appears to have been seriously entertained by the Admiralty.

A little reflection on the already existing state of things, however, in our dockyards will be sufficient to show that the training of naval architects and naval engineers, and dockyard officers generally, for the public service cannot be any very difficult undertaking: the Admiralty has only to make use of the means already in its possession in order to obtain all it possibly can require.

IV.—Our naval arsenals being the great workshops of the navy, and the arenas on which are to be exhibited the acquirements of the students in naval architecture, it is obvious that there cannot be found any other localities in which the mind can be so effectually disciplined and familiarized with the practical application of physical science to shipbuilding, as in our naval arsenals themselves.

Now, it is to be observed that there already exists in some of our principal dockyards the nucleus of schools of mathematical and physical science, in which dockyard apprentices have been already well educated; in fact, so well educated that many of them have left the dockyards at the expiration of their term of apprenticeship, having obtained lucrative and commanding situations elsewhere. Not long since, our celebrated mercantile establishment at Lloyds' offered prizes, open to public competition, for the most approved set of drawings for iron ships adapted to the merchant service. Now, it is worthy of remark, as bearing on the question under consideration, that out of six prizes, no less than four were awarded, by the best authorities, to young men educated at the school of science in the Devonport Dockyard.

It may then be asked, what more is wanted or called for by the government than to extend and perfect the machinery of such a school or schools, especially when we find at the head of the Devonport school a philosopher of high attainments in mathematics and physics, an accomplished experimentalist, not only in natural philosophy generally, but especially in mechanics and all that relates to shipbuilding?

Why, the gentleman lately selected by the Admiralty as Chief-Constructor of the Navy came out of the dockyard schools; and

the most competent men in the Comptroller's Department of the Admiralty, as Sub-Constructors—Messrs. Barnes, Barnaby, and Crossland—passed through the same schools.

V.—The conversion of the Kensington schools and the employment of lecturers and other officers there, whilst it would involve a considerable annual expenditure and inconvenience, is hence quite superfluous. The outlay of a comparatively small sum upon the building and school at the Devonport Dockyard, so as to give greater facilities to the lecture department, by furnishing it with a better lecture-room, a laboratory, and a room for models and philosophical apparatus is all that is required.

It may not be out of place here to state that there already exists in the school-building of the Devonport Yard a decent laboratory and workshop, in which the students, under the direction of Mr. Rae, the head-master, are accustomed to make mechanical and other apparatus required for the lecture-room. This is as it should be: There is no reason whatever why the students should not be taught how to construct chemical and philosophical apparatus, and make their own models of ships and machinery generally.

Philosophical apparatus thus made by the students themselves, with the assistance of skilled workmen in the arsenal, whilst it would be the property of the government, would be far better, and more immediately applicable to sound instruction, than the philosophical toys so frequently purchased at a great expense for schools, at opticians' shops; and often selected by persons having little practical knowledge of experimental science, and who really know little or nothing of the matter. Every good experimentalist should be enabled to construct his own apparatus, or have it constructed under his own immediate eye and direction.

Similar facilities, we believe, already exist at Portsmouth, where the School of Naval Architecture of 1812 was located. At Portsmouth we have the Admiralty chemist, Mr. Hay, who has in the Portsmouth yard an excellent chemical laboratory and workshop, and who is in the habit of giving instruction and lectures on chemistry to the dockyard apprentices. All this being already provided and paid for, why not turn it to account?

VI.—It is to be further understood that the expense of establishing these dockyard schools has been already incurred, and the Admiralty would only have to provide the small additional sum requisite for a higher and more extended physical and mathematical education than that at present existing. This could be easily and economically effected; so that we might have, at very little cost, in one or more of our dockyards, schools of science which might vie with any establishment of the kind in this or other countries.

It is also to be especially observed that such a school established in one of our great naval arsenals—such as Devonport—would be highly beneficial to the public service generally, the lectures being open to all naval officers and engineers in the steam reserve and ships stationed in the port, or others who may be in the port at the time.

It must be admitted that to naval officers, lectures on general physics, mechanics, the steam-engine, &c., would be most valuable. Any establishment at Kensington could not be made thus useful to naval officers generally; and when we consider that these advantages may be secured at a trifling cost to the public exchequer, it seems bad policy indeed to neglect them.

VII.—With respect to practical training in the business of ship-building, there can be no question as to the eligibility of our naval arsenals for that purpose. Here we have building-slips, docks, sail and mould lofts, rope-walks, engine-houses, and, in fact, every possible source of practical knowledge in naval science. Nor is there any want of first-rate workmen in our naval arsenals, competent to overlook students and instruct them in the fashioning of timber, planking, and such like.

Such is evidently the conclusion arrived at by those who desire to appropriate the schools at Kensington to the purpose of educating naval architects, it being intended to send the students during the summer months into our dockyards for practical instruction. This being admitted, why not carry on the whole business in one or more of our naval arsenals at once? Why, to use a homely phrase, “make two bites of a cherry,” more especially when it is evidently not called for. The Admiralty would find it very undesirable to mingle the government students with private pupils in an establishment not immediately under their own control. Still more inconvenient would it be to withdraw them for a certain number of months in the year from the discipline of that establishment, in order to send them to the dockyards and place them under a new and different course of things; by which kind of half-education in two establishments there would be a great chance of their losing in one six months much of the knowledge they had acquired in a preceding similar period, and so “between two stools they come to the ground.”

VIII.—The course immediately open to us is plain and simple. Let one of our great naval arsenals—the Devonport Dockyard, for example—be considered as a college of naval architecture. Enter at once upon competition from twenty to thirty students—or as many as the government may deem necessary for present or future requirements,—to be considered as Admiralty apprentices. These government pupils to be taken from the respectable classes of society, and certified to have been carefully brought up and educated. Accommodation to be provided for them, at their own expense or that of their friends, for a certain period of their apprenticeship, in reputable private houses outside the dockyard gates. The students to attend the working hours of the dockyard daily; to be placed for a certain number of hours under the supervision of experienced working shipwrights or others selected for the purpose, and who should be instructed to train them by actual experience in the mould-lofts, building-slips, at the dock’s side, or other places, in all the practical manipulation of shipbuilding; as much other kind of knowledge to be acquired in a similar way in the engine-house, sail and rigging

lofts, &c., &c., as may be deemed expedient: other portions of their daily time to be occupied in the school of mathematical and physical science, pretty much in the same way as at present.

The advantage of this kind of training over any kind of divided training in two establishments distant from each other is manifest. In the first place the government students would not be mixed up with any other class of persons. The establishment would be altogether, as it should be, a government establishment, under the supervision and control of the Admiralty; the education would be continuous, as it were; practical shipbuilding and science would go daily hand in hand, and be carried on under the same roof. It would be, in fact, an education in naval architecture and construction in all its generality and detail. We should not have to break off the students for several months in the year from their mathematical and physical pursuits, in order to take up practical shipbuilding. The lectures which they would attend in the dockyard school of science would be expressly constructed upon the principles of an education in naval architecture, conducted by persons having competent and practical knowledge of the subject; and not be lectures of a more general character, less calculated to inform the mind upon points more immediately and directly bearing upon naval engineering and the shipbuilding of the Admiralty.

IX.—It may be worth while to further consider what kind and class of men the country requires. We want, in fact, as responsible shipwright and other officers, men not only well versed in mathematical knowledge, but men of general learning and mental power, possessing administrative capacity. It is not enough for a man to be skilful in working out algebraical or other problems through the instrumentality of geometrical analysis or the integral differential calculus. He should further possess invention and powers of philosophical reasoning and induction; all of which would result from a judicious educational legislation, so that the government would in a few years have at their command educated naval architects equal if not superior to any at present existing, and that too without entailing any heavy burden upon the public exchequer.

X.—On a careful revision of the views enunciated by the Secretary of the Admiralty, as reported in the debate in the House of Commons of 29th February last, we find that a sum amounting to £2,300 will be at once expended upon the Kensington apartments, merely to render them available to the purpose intended. The noble lord further stated that the expense of this school would not end here. The whole cost of the Kensington schools was calculated at £5,000, and might be more; and it is clear from the speech of the noble lord, the Secretary of the Admiralty, that it is quite impossible to say what the ultimate expense of the proposed establishment may not amount to.

Moreover, it is proposed to provide the Admiralty students with board and lodging; the lowest estimate for this would be £50 a



year each; hence, for thirty pupils,—proposed to be entered as a commencement only,—there would be immediately incurred an expenditure of £1,500 per annum. It was further contended that the Kensington Schools would be open to the public, and would be a national advantage, *beneficial* to the commercial as well as the royal navy. Are we to understand from this that the institution undertakes to train up at Kensington naval architects for the whole merchant service of the country? Are private pupils, who are invited to partake of the instruction at Kensington during the winter months, also to enjoy the advantages of the Admiralty pupils, by being allowed to attend the dockyards during the other half of the year? If not, here is at once a great line of demarcation between the government and the public interests. On the other hand, if private pupils are also to be sent to the royal dockyards for one half the year, the annual expenditure must be very considerably increased.

Unless some encouragement of this kind be conceded, it is in vain to imagine that the proposed school at Kensington will ever become popular as a public institution of naval architecture. Such is now the advanced state of education and general knowledge among the working classes, that respectable persons looking to train up their children as shipbuilders, would scarcely be at the great cost of sending them to the Kensington schools, where they would have to pay large fees, when they could obtain through Mechanics' Institutions and private tuition an education much better adapted to their purpose in private shipbuilding yards.

XI.—It will be found very undesirable to confound in the same establishment government students with private pupils. Thus, it would be very invidious, whilst professing the school to be a popular public establishment, to provide board and lodging for government pupils only. If both the government and private pupils are to attend the dockyards for practical instruction in shipbuilding, that would be very inconvenient to our government establishments.

If only the government pupils are to go to the dockyards, private pupils are denied a most important element of their education. A moment's reflection will be sufficient to show that the training of naval architects for the especial wants of the royal navy and the public service generally, is quite a distinct thing from the education of private pupils for the merchant service or any other service which may spring up in this country: the two things are not altogether consistent with each other.

XII.—In conclusion, it may be as well to consider how far it is reasonable or politic to expend large sums of money upon an hypothetical scheme for the education of a limited number of government naval architects at Kensington, when a moderate outlay could be applied to so much better advantage, by extending and perfecting establishments already organized in our dockyards. We have pointed out how all that is required can be attained with economy and certainty. Why not, therefore, perfect the establishments already existing for the

education of young men, who are to supply the places of the present generation of officers? If this were accomplished, the present scarcity of well qualified naval architects would never again be known.

Why is it necessary to resort to an elaborate and costly institution for the education of naval architects generally, when all we immediately require for the public service is a comparatively small number of educated professional men, competent to fill the higher offices of the shipbuilding department of the Admiralty?

XIII.—A great public national institution at Kensington for the advancement and cultivation of science generally, similar to that of *L'Ecole Polytechnique* at Paris, would no doubt do honour to the government and the country. Such an establishment, however, is not called for in the present case. By immediately converting one of our naval arsenals into a College of Naval Architecture in the way proposed, we at once apply the remedy to the disease, and we should do well to remember that in waiting for the development of a new and elaborate institution, "whilst the grass is growing the horse is starving."

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EVENINGS AT HOME AT THE NAUTICAL CLUB.—*The Chairman's Address: a Contrast.—A Danish Iron-Clad.—"Royal Sovereign," Turret-Ship.—American Monitors.—Parliamentary Records.—Southampton and Falmouth.—The "Great Eastern."—Naval Construction.*

'Tis a happy state of things—for us, at least,—observed the Chairman, in taking his seat, while everything is going forward in its usual course here, to be enabled to point to our noble volunteers—numbering 23,000 from Middlesex alone—going through sham fights and such like soldiers' amusements as a mere pastime, while in an old European country across a few miles of salt water from our shores the actual game of war is mercilessly going forward. Our island home, so happily saving us free from continental trammel, it is to be hoped will soon be imitated in its advantages by the Danes in their own islands; where, if they are to be assisted, as he hoped they would be, by Norway and Sweden, as proposed, he had no doubt they would give a good account of their Austrian and Prussian invaders. There was little apprehension for the Danes afloat, he considered; and he hoped that England would yet prove their friend, and put an end to this aggressive and most unjust of wars. However, he would not pursue a subject so unpopular amongst us, and which generally met with the wishes of defeat and discomfiture to the invaders of Denmark. He would move that the following account of the proceedings of a Danish frigate be entered on their minutes. It was the first account we had received of a Danish iron-clad under fire.

The Chairman's proposal was met by the cordial assent of the Club.

The subjoined letter has been received from an officer who was on board the Danish cupola ship, the *Rolf Krake*, during the engagement with the Prussian batteries at Egersund. The *Rolf Krake* was built by Napier, of Glasgow. She is plated with  $4\frac{1}{2}$  inch iron, and has two turrets, but they carry only four 68-pounders. She is of 1,200 tons, and draws but sixteen feet of water. This is the first turret ship that has been under fire on this side of the Atlantic. The correspondent writes:—

Nine days ago (Feb. 10th) we left the roads at Copenhagen, and sailed, in consort with the *Dagmar*, to Sonderburg. Our crew only came on board the morning of our departure. The men were unpractised, and had rarely been under fire. On the evening of the 17th we heard that we were next morning to see what was to be done against a bridge which the enemy had thrown across at Egersund, shortening the route to Broagerland and the position at Düppel. At 7h. a.m., on the 18th, we left Sonderburg, and steered for Flensburg Bay. You know the appearance of the *Rolf Krake*. She has two towers, each carrying two heavy guns; apertures at the top of the tower admit light and air; mechanical arrangements allow of the ship being lowered until her deck is only a few inches above the surface.

We passed Holnis without replying to the fire of the battery stationed there, and took up the position which had been designated. Here we anchored, with our broadside towards two fixed batteries and one moveable field battery, which opened upon us a murderous fire with round shot, conical shell, and shrapnel. A tongue of land prevented our seeing the bridge we had been ordered to destroy. The enemy fired very well. His fixed batteries were masked, and it is therefore impossible to say how much damage we did him; but I sent a couple of shells at a rifled gun that rained conical shell upon us from the heights, and when sheering off bombarded a mill and a house. We returned to Sonderburg after being engaged one hour and a half.

The *Rolf Krake* stood the trial well. She was hulled sixty-six times, each shot being of itself sufficient to sink a wooden ship. The towers were hit several times. Sixteen shots went through the funnel, one through the steam pipe, three through the foremast, one through the mainmast, two through the mizen, and sixty to seventy through the bulwarks, small boats, sails, and rigging. The deck is torn up in many places, the tackle much injured, the three boats penetrated; every vulnerable point was hit, and I should like to have seen any part of the deck where a man could have been stationed without certainty of death. We calculate that about 5,004lbs. of iron were expended upon us, and you may suppose that we contributed our share. The noise was deafening, produced as much by our fire as the missiles of the enemy, whose shells flew about in all directions. One, which burst directly over the tower in which I was stationed, sent in a shower of pieces, which set fire to two mattresses, damaged my frontispiece, grazed my leg, smashed my telescope, and penetrated a coat lying by my side in half a dozen places. I am still deaf of one ear from the din, otherwise not much

hurt. One man in each tower was also slightly wounded, and curiously enough each in the left cheek.

The following is an extract from another letter :—

I was sorry to see the *Rolf Krake* sent to destroy a bridge that could not be sufficiently approached, indeed not even got sight of, and sent upon a business where there was nothing to be obtained except proving her resisting power ; but in this respect at least she has proved very satisfactory. The action lasted one hour and a half, during which time the vessel was fired at from three different batteries, containing altogether fifteen or sixteen guns, probably 24-pounders rifled, the distance about 600 or 800 yards. Although the *Rolf Krake* was hit about 150 times by shot, shell, and shrapnel, besides an immense number of rifle bullets, and although her rigging, bulwarks, funnel, boats, &c., were a great deal cut up, yet after the action the hull, machinery, turrets, and guns were in perfect fighting order, and only three men had been slightly wounded. The indents made upon the armour plates by the shot were in some instances as deep as  $1\frac{1}{2}$  inch, and the concussion occasioned by the striking of the shot against the side was so strong that some of the bulkheads in the cabin and gunroom fell down. The turning of the turrets and the working of the gun—from which about sixty rounds were fired—were perfectly satisfactory. It appears that the opening between the iron bars in the top of the turrets and the hatchways (three inches) is rather too large, several pieces of broken shell having found their way through them. I think it would be as well if the bulwarks might be let down inside instead of outside the vessel, as they would be less illtreated during the action. I thought of this while I was in Glasgow, but could not hit upon any arrangement that I thought sufficiently strong to resist the waves in a heavy sea. I think Captain Coles may feel proud of the first action fought by a vessel upon his plan, at least in Europe.

Success to the Danish cause was the cordial feeling of the Club.

Some accounts, said Albert, of Captain Coles's converted ship will, no doubt, be acceptable. On which the following was read :—

The *Royal Sovereign*, turret ship, has just been floated out of No. 3 dock, Portsmouth, in the presence of a considerable number of spectators, chiefly naval officers. The *Royal Sovereign* was formerly a line-of-battle ship, and we may attribute her transformation to her present form to the famous action between the *Monitor* and the *Merrimac*, which seemed to supply a strong argument in favour of Captain Cowper P. Coles's plan of arming ships with heavy guns, protected by cupolas, on the upper deck, and Captain Coles at once became a famous man. The Admiralty, urged by the House of Commons, at last consented to the construction of a Monitor for the British service, and the *Royal Sovereign* was assigned as the vessel upon which the experiment was to be tried. She was, therefore, cut down, so as, when cased with iron, to bring her upper deck within a few feet of the water line, and so to limit the surface exposed to an enemy's fire. But the ship, as she

is built, exhibits a very material alteration from the original design. The cupola, or dome, has been dispensed with, and the turret is substituted. These turrets (of which there are four in number, each armed with a heavy gun), are sunk into the upper deck of the ship, and are made to revolve on the same principle as a railway turn-table, the motive power being within the turret, so that the gun may be moved in a lateral direction to any point of a circle. In each turret there is a narrow oval port-hole for the muzzle of the gun to be run out, and this is but a short distance (perhaps a foot or two) above the surface of the deck, which falls from the centre to the side. The top of the turret is protected by parallel bars of iron, in which there are three circular holes, through any one of which the officer of the gun may insert his head to take sight of the object to be fired at, and at the same time to direct the movements of the men inside. The bulwarks of the ship will be attached at the lower part by hinges, and will fall back so as to hang over the broadside when the guns are fired.

The turrets being thus sunk, so that the basement rests on the main deck, do not form a conspicuous mark for the enemy. They are heavily cased with iron, and are of such strength that each weighs no less than 138 tons. The deck, however, is not bomb proof, consisting only of plates of iron one inch thick and covered with the usual planks of wood, so that if a heavy shot were to fall vertically it is not improbable that it would find its way out of the bottom of the ship. In the interior the cabins are lofty, but, as a matter of course, not well lighted.

A very important invention has, however, been introduced to improve the ventilation. It is a plan designed by Dr. Edmonstone, staff-surgeon of her Majesty's ship *Victory*, and consists of air channels running the whole length of the ship, and communicating with the hold where the foul air accumulates, and is carried off through these tubes into the funnel, instead of permeating the decks to the injury of the health of the crew. It is believed that it will answer perfectly, inasmuch as even when the fires are not lighted to increase the draft of the chimney stack, there is a considerable current of air upwards through the tubes which communicate with the funnel. The ship under water is coated with Muntz's metal, and to prevent galvanic action a band of vitreous sheathing has been attached for some distance below and above the water-line. This sheathing consists of small plates of iron covered with a preparation of glass, and is intended to be an anti-fouling as well as protective agent. Contrary to the expectation of many persons, the displacement caused by the *Royal Sovereign* when she floated was found to be rather less than was anticipated, and she now draws, without her stores, rigging, or guns, eighteen feet forward and twenty-four feet aft. Although an unsightly ship on the water, and strangely at variance with a seaman's notion of what a man-of-war should be, there can be no doubt that the *Royal Sovereign* is a most formidable vessel for the purpose for which she was designed.

The American Monitors seem rather to have disappointed their constructors, observed Rodmond, according to report, but no doubt thin iron,

as well as the seaway of the Atlantic coast, are not favourable for them; still, in Danish waters they would appear to be invaluable.

The official reports of the commanders of the American Monitors made to Admiral Dupont immediately after the failure of the attack upon Fort Sumter, in April last, were submitted to Congress by Secretary Welles with his annexed report, and show that these vessels were incapable of resisting the concentrated fire of heavy rifled ordnance. Captain Drayton, of the *Passive*, says:—

“I was struck in quick succession in the lower part of the turret by two heavy shots, which bulged in its plates and beams, and forcing together the rails on which the carriage of the 11-inch gun worked, rendered it wholly useless for the remainder of the action; a little after a very heavy rifle-shot struck the upper edge of the turret, broke all of its eleven plates, and then glancing upwards struck the pilot-house with such force as to send it over, open the plates, and squeeze out the top, exposing the inside of the pilot-house, and rendering it extremely likely that the next shot would take off the top entirely.”

Captain Rogers, of the *Weehawken*, reports:—

“Two or three heavy shots struck the side armour near the same place. They so broke the iron that it only remained in splintered fragments, much of which could be picked off by hand, and the wood was exposed. The deck was pierced so as to make a hole, through which water ran into the vessel; thirty-six bolts were broken in the turret, and a great many in the pilot-house. To the *Patapsco* no damage was done which disabled her, although injuries which she received, if multiplied, would do so. Forty bolts in the funnel were broken. After the third shot from the 15-inch gun of the *Nantuck* a port stopper became jammed, several shot striking very near the port and driving in the plating. It was not used again. A number of the same plates were started so much that another shot in their vicinity would have knocked them off. The deck plates were cut in twelve places; one shot cut through the iron, and about two inches into the beam, starting the plates, several bolts, and the planking, for some feet below. The plates on the side armour of the *Nahant* were badly broken in several places, and one, where struck by two shots in close proximity, partly stripped from the wood, and the wood backing broken in, with edging of back plates started up and rolled back in places. The deck was struck twice damagingly, one shot near the propellor wheel quite shattering and tearing the plate in its passage, and starting up twenty-five bolts, another starting plates and twenty bolts in the turret. There were marks of nine shots; fifty-six of the bolts were broken perceptibly, the heads flying off inside the turret, and the bolts starting almost their length outside, some of them flying out completely, and being found at a considerable distance from the turret, on the deck. One shot struck the upper part of the turret, breaking through every plate. The pilot-house was much damaged and wrecked, and four more such shots as it received would have demolished it. One at the base broke every plate through and evidently nearly penetrated it.”

Looking over our parliamentary files, observed the Chairman, the session seems to have been varied by an incident,—some account of which, as a remarkable event, he considered should be preserved among their records. On which the Chairman read from a paper, an extract from a speech of the Chancellor of the Exchequer, which ran thus:—

We are invited to move a resolution that the statement of the Procureur-General, on the trial of Greco, implicating a member of this house and of her Majesty's government in the plot for the assassination of the Emperor of the French, deserves the serious consideration of this house. Now, I maintain that a statement of the Procureur-General does not deserve, and cannot fitly become the basis of consideration in this house. What is the duty of the Procureur-General? He is the dignified advocate who pleads the case of the crown in the court where Greco is to be tried. What is his duty? His duty is to raise the case to the highest against Greco, against M. Mazzini, and every one else whom he considers to be implicated. It is no part of his duty to take a calm, unbiassed, and dispassionate view of every individual. His duty is to put the case at the highest, and without the slightest imputation upon him or the French government, it may be said that his is essentially an *ex parte* statement, and as such ought to be submitted to the searching scrutiny of a legal tribunal before it deserves the consideration of this house.

Now, the motion to which this was a reply, was lost by a majority of ten, and on the next evening the following answer was made to a question by Lord Palmerston:—

Sir, I cannot but regret that my noble friend, in asking this question, which he might have done simply and without dilating upon other matters, has thought fit to revive the discussion of last night. I shall, therefore, abstain following the example of my noble friend in going into that question again. I will simply answer the question he has put to me. The noble lord asks whether my hon. friend did not, subsequently to the notice taken of this matter by the hon. member for Finsbury, tender the resignation of his office? My hon. friend immediately made a communication to me through a common friend, to the effect that he placed his office entirely at the disposal of the government, and that at the slightest intimation from me he would tender his formal resignation of that office. My answer was, that I did not wish him to take that step; and if there is any responsibility attaching to that decision, I am perfectly willing to take that responsibility.

His friends around him need hardly be told that the hon. member alluded to had placed his office at the disposal of the government. Which appears in the speech of Mr. B. Osborne, which might be considered as a comprehensive winding up of the whole affair, as he believed it was the last speech to which the occasion gave rise. This gentleman, with characteristic, *naïvété*, and good humour is reported to have thus taken leave of the subject:—

Sir, the right hon. gentleman, the member for Oxfordshire, in the few remarks which he made to the house, commenced by saying that this was a painful subject. No doubt it is a very painful subject, but somehow or other I have remarked in the course of my parliamentary experience that there is nothing which this house so much delights in—nothing which will bring such a numerous attendance, as a purely painful and personal subject, and my noble friend the member for Haddingtonshire (Lord Elcho), when he addressed himself with so much unction to-night to this painful subject may have reflected that this painful subject was assuming the aspect of a painful persecution. No two lads lately emancipated for the holidays from school could, I am sure, have presided over the impalement of a cockchafer with greater glee than had the hon. gentleman the member for Southampton (Alderman Rose) and the noble lord the member for Haddingtonshire (Lord Elcho). Sir, the civic dignitary, the hon. alderman, having on a recent occasion, not being satisfied with hunting M. Mazzini through every gyration, put a question to the hon. member for Halifax as to whether it was true that Mazzini had ever lived in his house, concluded by asking whether he paid for his washing. To-night another hon. gentleman, a member from the sister country (Major Knox) rises and asks the hon. member for Halifax whether he voted in the majority. Why should he not have voted?

Major Knox—It was against the rules of the house.

Mr. B. Osborne—I have no sympathy whatever with the views of the hon. gentleman, but I wish to correct a statement made by an hon. member opposite, that the hon. member for Halifax had been offered a seat in the cabinet. Why, the hon. gentleman only fills a humble seat in the Admiralty barge, and what this persecution calls for is that this clever young man shall be hunted out of this minor office of the administration. I am reminded by the discussion of last night that we have so little to do in the way of real business that we appear to be doing nothing but debating personal questions, and then getting up with hypocritical faces and saying they are very painful subjects. It appears to me that, next to roasting a bishop, there is nothing so agreeable to the house as that of baiting a member of the administration. Now, sir, I have no particular confidence in her Majesty's government, or in any of the members of the administration, but I should be ashamed of myself if I were to pitch upon any one member, and that a very humble member, who has no aristocratic connexions, and who has made himself a character by his remarkable abilities, and hunt and bait him night after night, and use opprobrious expressions towards him, as we have seen during the last few nights.

I lament the indiscretion of the hon. gentleman in regard to M. Mazzini. I am not acquainted with M. Mazzini, and his views I do not much like, and I am not very anxious to meet that gentleman at dinner or in this house; but let this be recollected, that Mazzini has not yet been put upon his trial. He has to undergo a trial in Paris on this very business which we are now debating. Therefore, if we are that which we are not, a judicial assembly (because we are incapable and



disqualified by our passions), do not let us condemn a man unheard, not having the facts of the case before us. Now, as regards the indiscretion of the hon. gentleman, I would ask the house in sober sadness, are we not rather carrying this matter too far? We had the question debated last night, and the hon. baronets have come out pretty strong. First we had the hon. baronet the member for Devonshire (Sir L. Palk), and then last night we had another performer, for I never saw a melodramatic part played so well as the dagger and bowl business by the hon. baronet the member for Great Yarmouth (Sir H. Stracey), who not only spoke but looked the character.

Well, sir, we had an animated debate last night on the subject, and we came to a division, and I voted with the majority, not that I approved altogether of the conduct of the hon. gentleman, but I felt bound—as I always shall feel bound to—take a denial which he has given so explicitly, instead of taking a dirty advantage, and of wreaking a small revenge on the government. An hon. member on the other side of the house, who represents some place in Cornwall which I do not remember, has referred to that respectable legal functionary Mr. Calcraft—why and wherefore I cannot understand; but if all the indiscretions of English gentlemen in their youth are to be visited upon them in after life, would the hon. member (Mr. Haliburton) escape? I think the course which we are pursuing upon this occasion is unworthy the character of an English parliament, and if I were in the position of the hon. member for Halifax—for I think the position which he holds in the government is unworthy of his talents—I would resign, and I would not consent to hold my seat while these imputations were hanging over me. It is unworthy of us as members of parliament, and it will not be responded to out of doors, to bait night after night a junior lord of the Admiralty.

Thus it appears, added the Chairmain, the collective wisdom of Parliament took a dignified view of their own position and that of the office of a French Procureur.

I see, said Rodmond, there seems to be an excellent move in contemplation, if report speaks truth;—neither more nor less than the removal of the Southampton packet-station to Falmouth, from whence our old sailing packets in former days used to put to sea to look for a fair wind. It is said that:—

At Falmouth extensive works are being carried out, which when completed will be one of the most commodious in the United Kingdom, as there will be a tidal harbour (now nearly finished) of 42 acres, giving an interior quay space of upwards of 4,000 feet, and a floating dock of 14 acres, with a quay space of about the same extent; two graving docks, one 350 and the other 400 feet in length, are finished, and there can be no doubt government would make use of these works, should the necessity arise, in preference to sending the vessels to Plymouth or Portsmouth, presuming that an engagement had occurred to the south of the Lizard. I perceive there is a likelihood of the mails, which are at present landed and shipped at Southampton, being shipped from Fal-

mouth, from which port (after being the mail packet station for 162 years) they were removed owing to the want of railway communication. There is no doubt that a saving of twenty-four, and in many cases of forty-eight hours in the delivery of letters, especially to the great seats of commerce in the North, would be effected by the change.

*La Plata*, Royal Mail steamer, arrived off the Needles at 11.30 p.m., on the 14th inst., and her mails were not delivered in London until four p.m. of the 15th, thus barely allowing merchants twenty-four hours to answer them; had *La Plata* landed her mails at Falmouth they would have been delivered twenty-four hours sooner, and consequently have given merchants that extra time to reply.

Now that Falmouth has got its railway it has every thing in its favour, and will beat Southampton out and out, with its miles of channel navigation, and its tortuous channel of Needles, Solent, and its own river. The following notice seems to set the question at rest:—

It is with much satisfaction that we are enabled to inform our readers that in consequence of representation made by the Liverpool, Manchester, and Glasgow Chambers of Commerce, her Majesty's government have entered into negotiations with the Royal Mail Steam Packet Company, with the view of arranging that the company's magnificent steamers shall in future call at Falmouth to land and receive their mails. During the past week some of the Royal Mail Company's officials have been engaged in examining the extensive dock and railway accommodation recently provided at Falmouth, and it is confidently anticipated that at no distant date the public will derive the full benefit of a greatly accelerated mail service. We have not heard that any arrangement has been made respecting the East India mails. Doubtless, however, this will follow in due course; the reasons which have induced the government to move in the matter of the West India mails apply with equal force to the seaborne portion of the East India mails, and we may reasonably expect that in a short time all contract mail steamers will land their mails at the most westerly port in the English Channel, and that the immense stream of traffic which pours through the narrow seas will be relieved from the dangers incidental to the increase of swiftly-propelled steam-vessels.

We have followed the progress of the *Great Eastern*, said Albert, in all her fortunes and misfortunes—we may now record the following among her distresses. She seems to have been a troublesome venture from beginning to end, gigantic in proportions, gigantic in failures, as might have been expected, when the pigmy powers of man are to be placed in defiance of the powers of nature.

The cotton sales room at Liverpool was crowded with merchants and shipowners on the occasion of the sale, this time "without reserve," of the *Great Eastern* steamship. The auctioneer was Mr. Cunard, of Cunard, Wilson, and Co., and the conditions of sale were for the most part the ordinary ones, with the addition that if the purchaser made

any objection which the vendor could not remove he was at liberty to rescind the contract on returning the deposit. The auctioneer explained that there was a clear title guaranteed to the ship, which would be made out satisfactorily to the purchaser. All claims would be discharged by the vendors; the money in the meantime remaining at the Liverpool Bank, to be returned if the title were found incomplete. The first bid was for £20,000, made by Mr. Yates on behalf of the Great Eastern Steamship Company (Limited). The next bid was for £25,000 by Mr. John Rea, but as Mr. Rea declined to consent to the deposit of 10 per cent., the bid was not entertained. The next bid was from Mr. M'Gee, (shipowner), for £21,000. Mr. Yates then bid £22,000, which Mr. M'Gee capped with £23,000, but at length the vessel was knocked down to Mr. Yates for £25,000. As the company which Mr. Yates represents has previously purchased bonds of the Great Ship Company amounting to £70,000, the actual cost of the vessel to the new company, after receiving the dividends on the bonds purchased, will be about £80,000. At the close of the sale Mr. Rea made a claim to the ship, on the ground that he had bid £25,000 and had not had time to arrange relative to the deposit. The claim, however, was not entertained by the auctioneer.

It will be a fortunate event, observed the Chairman, if the powers of nature should prove favourable to her laying down the Atlantic cable; should they not be so, nothing that she can do with her unwieldy hull will effect that business.

In the way of naval architecture, observed Albert, he believed it might be said with much truth that the navy of England was yet in a state of transition. The late meeting of the Institute at the Adelphi, had shown the whole subject to be in abeyance. The naval constructor was lost between the means of offence and defence. We had not yet determined on what should be the naval gun, for no sooner is a gun produced than an armour plating is found that it will not penetrate. But as the question of the proper manageable size of a ship lies within a certain range, so must the naval gun to be a manageable weapon. We may go for heavy calibre as being most effectual, as it no doubt is. The *Alabama's* 100-pounder sunk the *Hatteras*, and such a gun might do the same for an iron ship, were the shot of steel, and that lodged in a vulnerable place. But the question of Turret *versus* Broadside had yet to be decided, and he was glad to see their friend, Captain Coles, in an advanced condition for experiment. The present year, he hoped, would go far towards deciding the question; but until it was decided, all we could do was to maintain our position with things as they are. One apparently good effect this state of things has produced, appears to be the establishment of the School of Naval Architects,—of which we shall hear more hereafter.

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## Nautical Notices.

## PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 163.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
11. Foul Point	Ceylon	8° 32' 2" N., 81° 18' 8" E.	Ffl.	..	17	Est. 1st February, 1864. (a.)
Round Island	Trincomalee	.....	F.	..	10	Est. 1st February, 1864. (b.)
12. Patras	Mole head	.....	Ffl.	55	7	Flash every two minutes.
Port Tiganí	Possidon Pt.	37° 41' N., 26° 56' E.	F.	72	6	Est. 31st January, 1864.

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

(a.) 11.—Showing a *flash* every *half minute*, and first seen in clear weather from a distance of seventeen miles. Beyond the distance of seven miles the eclipses will be total between the flashes and the light will appear as a revolving light, but within that distance a faint continuous light will be seen between the flashes.

(b.) 11.—When bearing between W.b.S.½S. and S.W.½S., and within a distance of seven miles, it shows *red*, as approaching between these bearings the white light is not seen.

*Directions.*—In approaching Trincomalee Harbour from the southward, bring Foul Point light to bear West, two miles; and steer N.W. until Round Island light bears W.S.W.; then steer for this latter light until Chapel Hill (the high bluff eastern extreme of land on the north side of entrance, and easily seen in the darkest night) bears North, distant about 1½ miles; then steer W.b.N. until Round Island light bears S.b.E.½E.; then steer N.b.W.½W., passing midway between Osterberg Point and Sober Island, and anchor with the light bearing S.b.E.½E. in 12 fathoms water. After passing Osterberg Point the water shoals rapidly from 25 to 12 fathoms.

Approaching from the northward, when Foul Point light is seen, bring it to bear S.b.E.½E., and steer for it until Round Island light bears S.W.½W.; then steer for Round Island light until the extreme point of Chapel Hill bears N.b.E.½E.; then proceed as before.

The *red* light is intended to direct vessels clear of the dangers off Foul Point; and the Chapel Rock, off the headland of the same name; and in working in or out should be kept in sight to avoid these dangers.

All bearings are magnetic. Variation 1° 0' E. in 1864.

## HYDROGRAPHIC NOTES ON THE WEST INDIES.—By Captain W. W. Kiddle.

*Steam Ship Bolivar, at Sea, October 18th, 1863.*

Sir,—Being in command of the abovementioned steamship I have the honour to send the following remarks on my passage to Vera Cruz:—

1st. When 200 miles E.N.E. of Turk Island I encountered a strong current setting E.S.E., one mile per hour.

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2nd. During the whole passage I had no N.E. Trade.

3rd. In coming through the Mouchoir Passage, I could not see either of the beacons mentioned in the Admiralty charts as standing on the cays to the southward of Turk Island, although I passed within four miles of each.

4th. Between Port-au-Prince and Mole St. Nicholas the current was setting North, and bringing with it large quantities of trees and brushwood.

5th. A lighthouse is erected on Point Lemantin, Port-au-Prince, and one is also to be built on Fort Isle in the same bay.

6th. During the passage from the coast of Jamaica to Cuba I had nothing but calms and light westerly airs, with an *easterly current*.\* A gentleman, long resident in Jamaica, informed me that at the season of the year when gales prevail in the Atlantic (September) the current often runs two miles per hour to the East along the South side of the island.

7th. On October 7th I struck soundings on the East end of the Campeachy Bank; before entering on it the sea was heavy and confused. Along the edge, North and South, ran a line of heavy ripples as far as the eye could reach. On passing this line the water changed colour, became quite smooth, and the surface was covered with countless medusæ. Along the bank to the westward the current was West.

8th. It is generally stated in all books of sailing directions that the Northers do not commence at Vera Cruz and the bottom of the gulf until the middle of October. A fatal mistake calculated to lead to error. This year, on September 19th, six ships were thrown on the beach by one, and thirty-four of their crews perished. I encountered one on the 29th of the same month which blew for eight days, but not violently.

During the violent Northers, the current runs between San Juan d'Ulloa and the shore at the rate of five miles per hour. In the offing, to a distance of thirty miles from the shore, it runs at the rate of three miles; this renders it difficult for a sailing ship to clear the reefs of Anegada, if she does not haul off in time when running for Vera Cruz.

At Tabasco a brig drove on shore on the 19th of September, the wind and sea being directly in. A nun-buoy was thrown overboard with a line attached in order to open a communication with the shore, but the strength of the current overcame wind and sea. A water cask was at last floated in, and a line attached to the beach.

During a Norther, the current at a distance of thirty miles from the land sets in an opposite direction.

To predict the certain approach of a Norther is an impossibility, but the following signs should caution the mariner:—If the clouds bank up in the North, or a heavy dew falls. If Mount San Martin is distinctly visible during the day, especially if a South wind is blowing. If wild geese or other birds are flying southward.

\* See *West India Pilot*, vol. ii., p. 261.

When one comes on suddenly it is most to be feared, but it seldom lasts more than twenty-six hours.

If a Norther is threatening and heavy rain sets in, it will beat it off for some days.

When there is an increase of wind on the second day it lulls on the third, but should it moderate on the second day for a few hours (especially at full and change) it commences again on the third, and often lasts for a week. Again, if they commence gradually their violence is seldom great, but no one can predict their end, although lulls take place between 6h. and 10h. a.m.

As a rule all Northers commence about midnight or 10h. a.m.

In my passages over the Campeachy Bank I have always remarked the singular smooth state of the sea immediately you come within the outer edge; coasters know this, and always run for it if caught outside.

I remain, &c.,

W. W. KIDDLE, R.N.,

*Commander of L. W. and S. A. s.s. Bolivar.*

*To the Hydrographer of the Admiralty.*

P.S.—The following remarks on the S.W. current between New York and Hatteras may be useful:—

In running from Vera Cruz to New York I tested the currents as laid down in Blunt's charts; I found them correct until I had passed Cape Hatteras. From thence they only mislead.

I quote the following example:—At noon, October 29th, I was by the mean of a.m. and p.m. sights, and a good meridian altitude, thirty-five miles E.N.E. of the cape. The wind had been blowing strong from the N.E. for several days, but on this veered to E.b.N. I steered N.b.E. and calculated that the Gulf current would set me to the N.N.E. one mile per hour. (In the preceding twenty-four I had been set sixty-three in that direction.) The noon and morning of the 30th were gloomy, but the horizon being visible I did not sound. At 4h. p.m. thick fog set in. At 5h. p.m. I stopped and sounded in 24 fathoms, and a few minutes afterwards got an excellent observation of ☉. Sumner's method showed that the ship had made a N.  $\frac{1}{2}$  W. course, distance equal to that on the log slate, checked by P. log. Had the fog continued and the lead been disregarded the ship would have been lost near the Delaware, as I was nearly forty miles to the S.W. of the position given by the D.R. Observations of the  $\star$ s during the night confirmed the Sumner, and on arriving at Sandy Hook I found the chronometers correct. I mentioned the circumstance to the examiner of the pilots at New York, and he informed me that after a continuance of N.E. winds the current set from Nantucket W.S.W., and gradually veered to S.W. running two and a half miles per hour. The pilots are well acquainted with this, and after a continuance of N.E. gales often run fifty miles South of New York to look out for ships which had been set down without knowing it in thick weather.—W. W. K.

9, *Rumford Street, Liverpool.*

Sir,—In steaming between Portland and Wreck Reef (Jamaica), I had shoaler water than that marked on De Mayne's chart of the island; and there are also cays and reefs which I could not identify, but I might have been mistaken in this.

I was running through the Strait of Florida, and had reached, by dead reckoning, the latitude of  $27^{\circ}$  N., long.  $79^{\circ} 30'$  W. As the weather had been very cloudy, I had not obtained a good observation of the sun since entering the strait. A little before noon I heard the order "Stop the engines," and on going on deck I saw what at first I conceived to be a line of heavy breakers extending right across the bows. Their crests appeared quite brown, as if charged with sand. For a moment I was puzzled, as I could see no outlet; but on consulting the chart I saw that it could not be a reef, or my track must have passed over the shoals of the Bemini Group. I therefore went on, and in a few minutes the mirage suddenly vanished. Half an hour afterwards a meridian altitude made the lat.  $26^{\circ} 50'$  N., long., by sights,  $79^{\circ} 28'$  W. Had I been skirting the mirage in lieu of approaching it, I should without hesitation have pronounced it a reef. The passengers could not for some time recover from their astonishment.

*Low Reef off Vera Cruz.*—In the Admiralty chart of the West Indies, sheet 3, distant fourteen miles N.E.  $\frac{1}{2}$  E. from the castle of San Juan d'Ulloa, is marked a danger named Low Reef,  $2\frac{1}{2}$  fathoms, see plan. I tried unsuccessfully to get this plan in Liverpool, because, *if it really exists*, it lies in the direct route to Vera Cruz; and as I am running this steam-ship to that port it has caused me great anxiety, and induced me to ask for the chart of the lower part of the Gulf of Mexico on a large scale. When you liberally offered me any chart I might require,—as you did not send me one, none larger than those which I possess can be published.

Since my arrival in Vera Cruz I have made the most careful inquiries of the oldest fishermen in the city—men who have fished over the spot for forty years. I have also consulted the harbour-master and pilots, and the reply is always the same,—“No reef exists on the spot marked in your charts ‘Low Reef,  $2\frac{1}{2}$  fathoms, see plan.’” I feel assured in that. You will excuse me for challenging its existence, unless the survey has been made by a competent person. If it does not exist its removal from the chart would be of great service to seamen, by enabling them to gain an offing in a Norther without the dread of striking on such a danger.

The before mentioned authorities also gave me the following information regarding the existence of supposed shoals in this gulf, and it has since been confirmed by the survey of one by the French steamer *Vulcan*. The officers found, to their surprise, that what was supposed to be a shoal with only a few feet water on it, was in reality nothing but a monstrous growth of weed; and on forcing a passage through it by other means the lead ran down six fathoms. The fishermen say that these banks of weed are frequently met with in deep

water moored to the bottom, and give rise to so many reports of imaginary dangers.

In lat.  $19^{\circ} 53' N.$ , long.  $95^{\circ} 20' W.$ , a bank of some extent exists, as I distinctly marked the great change in the colour of the water both on entering and leaving it. Unfortunately, I could not stop to examine and sound on the spot; which I much regret, as it lies in the fairway and might prove useful in thick weather.

I can again confirm my former experience regarding the set of the current in a Norther, viz. :—within a line distant about forty miles from the coast it sets very strong to the southward; outside that line the set is in the opposite direction, as I have twice run 240 miles S.W., with a strong N.W.b.N. wind and a heavy sea, and made a direct course without the slightest allowance for leeway.

Since the Caribbean Sea is becoming so much cut up by steamers, a few additional lights are becoming a necessity. In hazy weather, one on Pedro Bluff would be of great service when steering for Kingston. One on the Morant Cays would also be of service.

Our charts of the West end of Hayti are also very indifferent; and since Port au Prince is now visited weekly by steamers from Europe, the want of a good survey is severely felt, especially as the coast is quite unlighted and, generally speaking, unsounded.

The light on Point Lemantin is now probably lit, as the machinery was on its passage from New York when I sailed.

A temporary light has recently been exhibited on Fort Isle (see Owen's chart of Port au Prince).

I remain, &c.,

W. W. KIDDLE.

*To the Editor of the Nautical Magazine.*

P.S.—I mentioned in my remarks on a preceding voyage that between Jamaica and Cape Antonio I had encountered an easterly current. This voyage I have experienced it in returning. In two days I steamed 477 miles dead to windward, but the log only gave 452.—W. W. K.

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#### PORT OF BILBAO.

The following has been forwarded to us for publication :—

*H.B.M. Consulate, Bilbao, March 1st, 1864.*

Sir,—I had the honour, in my despatch No. 4, of the 14th March, 1862, to report, for the information of the Lords of the Committee of Privy Council for Trade, certain particulars respecting the Port of Bilbao of considerable interest to British Shipmasters trading thereto.

The increasing number of British ships frequenting this port—134 having arrived during the past year—the large importations of machinery and heavy material, combined with the very inadequate means hitherto adopted for discharging such cargoes, and the misapprehension which still appears to exist regarding the nature of the port, induce



me again to submit to their lordships the following facts, the substance of which was contained in my former despatch.

The Port of Bilbao extends from Portugalete Bar to Bilbao Town, a distance of about eight miles and a half. About three miles from the bar is San Nicolas, and about three miles further up the river is Olaveaga, to either of which places vessels of any draught of water that can cross the bar, can safely proceed and discharge afloat. Excepting for vessels specially chartered for San Nicolas, or steamers of great length, Olaveaga is the customary place of discharge.

On spring tides it is possible for vessels drawing nine, or even ten feet, to come to Bilbao Town on neap tides when drawing seven feet; but in either case the vessel grounds at low water, and at Ripa, or the railway quay, the laying ground is uneven and bad.

Charter-parties should, therefore, be carefully worded to meet the above conditions, the form, "to proceed to Bilbao or as near thereunto as she can safely get," being too indefinite, and giving rise to inconvenient questions.

Under the circumstances above referred to, their lordships may, perhaps, be of opinion that it would be desirable to give renewed publicity to this information.

I have, &c.,

HORACE YOUNG, *Consul.*

*The Secretary to the Board of Trade, Marine Department.*

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#### SIGNAL STATION,—*Cape Point, Cape of Good Hope.*

*Colonial Office, Cape of Good Hope, 18th November, 1863.*

His Excellency the Governor directs it to be notified, for general information, that a Signal Station has been established on Cape Point, Cape of Good Hope, close to the lighthouse.

By signaling off Cape Point, therefore, commanders and masters can in future ensure their vessels being duly reported.

By command of his Excellency the Governor,  
RAWSON W. RAWSON, *Colonial Secretary.*

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#### **New Books.**

**HAND-BOOK OF THE DOUBLE SLIDE RULE, Showing its Application to Navigation, &c.**—By W. H. Bailey, late H.M.E.I. Civil Service. London, Bell and Daldy, 186, Fleet Street, 1864.

The old sliding "Gunter" scale has done its work afloat in the hands of the expert navigator, and here is the *double slide rule* to take its place;—but only, as we observe, in the hands of those who are not only expert, but who have already mastered their problems in navigating the ship by the usual tables. Indeed, we have always looked on slide rules as useful adjuncts to prove in an off-hand way the accuracy of the navigator's deductions. The author has shown by an extensive series of problems the applicability of his

double rule; and assuredly, when its use is thoroughly mastered, he has placed in the hands of the navigator a most valuable and useful appendage to his nautical store, for the diversity of problems to which it is applicable is certainly very considerable.

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**SQUADRON TACTICS UNDER STEAM.**—By *Forshall A. Parker, Commander, United States Navy.* New York; and Sampson Low, Son, and Co., Ludgate Hill, 1864.

We have here the first series of evolutions through which a steam squadron may be placed, amounting to seventy-seven problems. The author takes a squadron of eight steamers, and shows the mode of manœuvring them in divisions and half divisions, from columns, &c., into all the various positions of which they are susceptible. In fact, he has adopted military tactics for the steamers, considering that they are as easily moved, in spite of currents and winds, as an army is in comparison with irregularity of ground, &c. He has seen the advantage, with Sir Howard Douglas, of preserving the "lines of bearing," not only in order of movement, but of anchoring, so that no ship can drive into another's hawse. The volume is enriched with a series of plates illustrating the modes of proceeding combining simplicity of formation with celerity of execution. Our naval commanders should look after this work, which promises to be the forerunner of a work on fleet tactics under steam on the whole subject of naval warfare.

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**WORDS OF ADVICE TO YOUNG NAVAL OFFICERS.**—By *E. A. Inglefield, F.R.S., Captain, Royal Navy, &c.* Liverpool, Webb and Hunt, 1864.

"Surely," we said, on dipping into this little volume here and there, "this is an old friend," and the conviction became stronger and stronger as we read some glowing passages which had made a deep impression on that "magic spell" which sometimes belongs to "memory." Enough,—we referred to our volume for 1833, and there stand *in extenso*, as the printer says, the whole of the letters which form this winning little volume.

Shall we say how they came there? In the course of a long middy's career we found a copy in the hands of a messmate in 1818, and were so captivated by them that, with his permission, we preserved a copy of them, little dreaming of their subsequent fate. But so it was fated that in our desire to be of service to the cloth we obtained permission of their author to print them; and full often have we been congratulated, not as the author of them, but on having given them to the world in the pages of this work. Indeed, we had intended to print them separately, but intentions are not always fulfilled, and Captain Inglefield has saved us the trouble.

Now, we have reason to believe that more copies than our own were abroad, that in fact it was extant in H.M. service long before Captain Inglefield entered it, and no doubt among them the one to which he alludes in his preface. Which one, with slight alterations, a trifling addition or two, and a kind of adaptation to the change in the lapse of years—not many short of half a century, for we had ours in 1818—has enabled him to produce the present copy.

But we content ourselves with claiming for the *Nautical* the credit of having first given the solid advice, the excellent sentiments, the clear, experienced, masterly, and Christian views so beautifully expressed in these letters, to the world, for the benefit of the young naval officer, above thirty years since, under the title of "A Sailor's Advice to his Son on Going to Sea."<sup>\*</sup>

\* *Vide Nautical Magazine for 1833.*

We have neither time nor space to say further here. We are glad to see them even in their present shape, not that we think the matter improved by the slight alterations made in it; but for the good effect which they cannot but produce among those for whom they are intended,—and we may possibly hereafter assist Captain Inglefield in his excellent object by again printing our own copy amended for lapse of time, since the early volumes of this work are no longer to be had.

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**THE INDIAN DIRECTORY,—or Directions for Sailing to and from the East Indies, China, Japan, Australia, and the interjacent Ports of Africa and South America.** By James Horsburgh, F.R.S., Corrected and Revised according to the most recent Surveys, by Edward Dunsterville, Commander, R.N., Naval Assistant to the Hydrographer of the Admiralty, 1864. London, W. H. Allen & Co., 13, Waterloo Place.

The seaman will rejoice in the appearance of a new Horsburgh. We have preserved the title in extenso that he may gloat over it, and will add to it for his satisfaction that it is the eighth edition of this most valuable work. But if we can congratulate the seaman on acquiring this old established work in its new dress, we may also congratulate the representatives of the original author on its having fallen into the hands of a discreet navigator, who knows well the importance of keeping pace with the maritime discoveries of the day, and hence the navigator will not be disappointed when he seeks for the latest information on the coasts of China and Japan as well as those coasts of the intervening seas, which, as a matter of course, he has to navigate. The resources at the hand of Commander Dunsterville, of the Hydrographic Office, along with his own experience, supply all that can be desired both of matter and method to enable Horsburgh's *Directory* to sustain the great name it has attained and to preserve its place at the head of the seaman's maritime library. It is enough for us to announce the appearance of this work in its new and well revised condition, in which the seaman may justly expect to find abundance of new matter. Nor will he be disappointed, the editor being at the fountain head of all our own new surveys and commanding all the information supplied by foreigners.

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**CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, in March, 1864.**

- Baltic Sea, Gottland Island, Swedish survey, 1858, (2s. 6d.)
- Mediterranean Sea, Malta and Gozo Islands, Captain Spratt, R.N., C.B., 1863, (2s. 6d.)
- North America, Labrador Coast, Hamilton Inlet, Captain Sir F. M'Clin-  
tock, R.N., 1860, (2s.)
- Pacific Ocean, Solomon Islands, plans of ports in the, Captain Denham,  
R.N., F.R.S., 1824-63, (2s. 6d.)

EDWARD DUNSTERVILLE, *Commander R.N.*  
*Hydrographic Office, Admiralty, March 21st, 1864.*

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**TO CORRESPONDENTS.**

Received: the Bottle Paper from St. Thomas; the Moulmein paper; Lawson's Geography of the British Empire.

THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle.

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MAY, 1864.

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**FOG SIGNALS FOR NAVIGATION:—*Smith's Steam Whistle.***

Something has been said lately on the establishment of a board for the consideration and disposal of nautical inventions,—that is, of those matters which are applicable and intended for the use of ships at sea. But whether it is the revival of a very old proposal or a veritable *de facto* measure it is not yet our good fortune to have ascertained; and, whichever it may be of these two categories, there can be no doubt that such an institution would be a valuable boon to society. It would set at rest the crude speculations of uninformed persons, who fancy they know what they do not. These persons would be saved much anxiety, suspense, and even expense; while another class of inventors, with modest pretensions far less in proportion than their scientific merits, would be encouraged when their inventions were steps in the right direction, and would thus persevere in completing the object they had in view. Such a board as this, it is to be feared, we do not possess; but it is the very one to which the invention we are about to allude to would be addressed,—its merits fairly weighed and sifted, and eventually reported on by it.

In the month of September, 1860, the following passage occurred in a letter from Captain Shortland to the author of these lines, relating to fog signals. We may premise, firstly, that Captain Shortland is an officer of considerable experience in all matters of this nature, having been employed on the shores of the Bay of Fundy and on the coasts of Nova Scotia during the last twenty years, a part of the world which every seaman knows has something more than

its share of fogs, strong tides, heavy seas, and foul weather, and therefore affording an amount of experience to an officer so long employed there that entitles his opinion to attention; and especially so when it is considered that the passage which we shall quote was incidentally mentioned in a private letter, without any reference to its being taken up either for the purpose of private gain or public good; it came, we say, free from any such taint, and on that account, besides the officer's known veracity, does not deserve to be slighted. The passage to which we have been alluding is the following:—

“In order to warn vessels of danger when approaching Partridge Island, near St. John, in the Bay of Fundy, a steam-whistle has been fitted at the lighthouse on that island. The shrill sound of this whistle once a minute having been heard from a position eight miles to windward of it, has proved the efficiency and utility of this addition.”

The foregoing information of the addition of the steam-whistle to the lighthouse on Partridge Island was considered so important, that it was published by command of the Lords Commissioners of the Admiralty, by their Hydrographer, on the 6th of September, 1860, among the usual lighthouse notices. Thus a valuable piece of information was given to the world under the stamp of the Lords of the Admiralty and the signature of their Hydrographer, in the usual official channel; and there it has lain among those notices, not unseen nor yet unknown, but what shall we say?—we can say nothing less but unheeded, neglected, and, as we shall presently show, despised,—the word of an officer of twenty years' experience and of the highest professional character lying valueless.

Such, however, has not been the fate of the invention which, we may now briefly observe, is the production of a colonial engineer—Mr. Vernon Smith. It persevered in doing its work well. Not only was it the admiration of navigators who were obliged to frequent the dangerous shores of the Bay of Fundy, exciting their universal esteem, but it was the occasion of a meeting of the masters of the principal vessels that navigated the coast, to express their united approval of it in a certificate to the inventor, containing the following:—

*St. John, N.B., August 1st, 1860.*

We, the undersigned, masters and pilots of vessels coming into the harbour of St. John, New Brunswick, hereby testify to the efficiency of the steam fog whistle, designed by T. T. Vernon Smith, and placed during the present season upon Partridge Island. We believe this to be the only really successful fog alarm that has yet been introduced, as, by its means, a vessel from sea may enter the harbour during fogs, and under circumstances that without it would render the navigation extremely dangerous and uncertain. Any improvement tending to diminish marine risks is of the utmost importance, not only for the preservation of property, but also for the security of life, we have therefore great pleasure in testifying to the success of this invention, and at the same time would urge upon the governments of

the United States and the colonies interested in the safe navigation of the Bay of Fundy and the coasts of the United States, the necessity of extending the benefits of these fog signals, by placing them upon the portions of the coasts where, during foggy weather, their existence would greatly benefit the navigation of these waters. The undersigned consider that in many positions a steam fog signal that could be heard the distance of the one at Partridge Island, say ten miles, would be far more useful to navigation than the best devised and most expensively constructed lighthouse, which could not be erected and maintained for double the cost of the whistle. When lighthouses on prominent positions, such as at Partridge Island, are necessary during foggy weather, these signals are equally so, and can be maintained at a trifling additional expense, and we are of opinion that bells, as an efficient fog alarm, are a failure in most of these situations.

E. B. WINCHESTER, *Master, steamer Eastern City.*

SIMON H. PIKE, *Pilot, steamer Eastern City.*

H. M. CHISHOLM, *Master, steamer Emperor.*

F. LEAVITT, *Surveyor of the Society of Underwriters at this Port.*

D. HATFIELD, *Harbour-Master.*

J. H. McLARREN, *Master, steamer Admiral.*

JOSEPH CLARKE, *Pilot, Admiral.*

ALBERT BETTS, *Master, steamer Relief.*

JOHN BELMORE, *Master, steamer Princess Royal.*

As if such information as the foregoing were not sufficient to establish beyond all question the efficiency of this valuable invention, we have also in the following letter, dated September 1st, 1860, the opinions of the Commissioners of Lighthouses for New Brunswick in its favour.

*St. John, N.B., September 1st, 1860.*

We, the undersigned, Commissioners of Lighthouses for the Bay of Fundy, hereby testify to the efficiency and perfect action of the steam fog whistle recently erected by Mr. Vernon Smith upon Partridge Island, at the entrance of this harbour. It has now been in operation for some months, and its utility has been fully tested during the recent foggy weather; and we are of opinion that of the numerous experiments that have been tried to produce an efficient alarm to guide vessels in navigating into this harbour, this is the only one that fulfils the conditions or answers the purpose intended.

JOHN WARD, } *Commissioners of Lighthouses*  
J. WOODWARD, } *for N.B.*

It may be as well to observe that the entrance of the harbour of St. John has difficulties in the way of the navigator of no ordinary kind. We have already alluded to strong tides, heavy gales, and thick fogs, and when, in addition to these, we have a narrow entrance beset with rocks, the conditions of the harbour of St. John prove

pretty clearly that the only signal that fulfils them or answers the purpose intended must be a good one; in fact, those who know the harbour of St. John must know also that if this signal answers for that harbour, it would answer for any other place that could be found for it in any part of the world.

Thus was given to the world the first notice of the success of the steam whistle signal in fogs; and which notice was passed through the official channel by the author of these lines, and has been followed up by the second abovementioned.

Doubtless there is a way of doing everything—how to do it and how not to do it. The ingenious inventor may be acquainted with the latter method better than the former; and most probably he is so, because, notwithstanding his happy hit, he is but a colonial civil engineer—a man of repute in the circle in which he moves and author of some ingenious papers in the journal of the scientific society at St. John. But this would not effect his purpose for him of making it known. Had he been another Sir William Armstrong he might have carried the trial of his invention, even in this part of the world, against all opposition; but, as we shall perceive, this was not the case. He perseveres on the spot and in the following year obtains another certificate from the Superintendent of the Bay of Fundy Lights, dated 31st July, 1861.

My Dear Sir,—In reply to your note of this date, asking information as to the utility of the steam whistle put up under your direction at the Partridge Island lighthouse station at the entrance of this harbour, I have much pleasure in stating that the continued employment of it as a guide to vessels approaching this harbour in thick and foggy weather is invaluable, and the only efficient signal, after many attempts with bells and gongs, that has yet been introduced for the purpose. Passenger steam-vessels, whose position can be more confidently determined, run their time up in the full faith that they will be warned in time to prevent any danger; in proof of which I can state that since the whistle has been in operation off this port, in no case have they been obliged to remain outside all night, to the great inconvenience and discomfort of the passengers and disappointment of the masters by being thrown out of their regular time, which was formerly frequently the case, notwithstanding the efforts made with bells, &c.

The signal could not now be dispensed with, it has become a necessity, and no longer a question of cost; the lighthouse could be better spared, however important, as it is in this station, than the steam whistle. In strong breezes blowing on the shore, the captains and pilots of the steamers have told me that they generally hear it from four to six miles; but under more favourable circumstances, in calm or light winds from the whistle towards the vessels, it has been heard from twelve to fifteen miles.

I hand you a return of the time it was going this month, an unusually foggy one; but from the scarcity of fresh water, and using

salt water and burning soft coal, the tubes of the boiler became choked up, and prevented the working of the whistle for two short periods. To remedy which additional wells have been dug, and I have suggested that it will be only prudent to have duplicate apparatus, as it is liable to derangement by working consecutively for so many hours as it was this month, and thus any delay or disappointment would be avoided. I hope that as the benefits of this signal are better known and appreciated, your ingenuity and exertions in planning the machinery for working it may be productive of reward and profit to yourself, in extending their use to places similar to our coast in the respect of fog.

Believe me, &c.,

J. WOODWARD, *Superintendent, Bay of Fundy  
Lights in New Brunswick.*

*T. T. Vernon Smith, Esq.*

Armed with these testimonials, which would appear to carry conviction to the minds of any number of sane people, Mr. Smith comes to England, in the hope of his fog signal being sufficiently important to be taken up in earnest by some one of the manifold branches of its government. A novice in such matters would consider that such a proposal, with the enormous advantages alluded to in Mr. Woodward's letter above quoted, would be immediately adopted in this maritime country of ours. But, alas! how little does the novice know of the whys and the wherefores, the pros and cons about the success or not of his modest proposals. The virtue of them is clear enough to him, but it is another thing to make it so to other people, and especially to those people who are in office, charged with the protection of its coasts.

The inventor comes to the Admiralty, but what has the Admiralty to do with the protection of our coasts by signal, and especially in a fog? On which the inventor betakes himself to the Trinity House, where he is received with a polite attention and where he makes known the advantages of his fog signal. But even here he is met by disappointment, and all he obtains is permission to erect the apparatus of his fog signal by the side of one of our lighthouses on the low shores of Suffolk or Sussex: Dungeness or the Spurn Point, from the frequency of their fogs, were considered to be the most eligible places for the trial of his plan, as if that had not been thoroughly established in the Bay of Fundy.

Time was, and that not very long ago, when lighthouses were the property of private individuals; and thus the assistance which they gave to the mariner in the shape of safety from the storm was the means of accumulating large sums of money in the pockets of those individuals who were fortunate enough to have inherited these private lighthouses as heirlooms in their families. No such prospect had Mr. Smith in erecting his steam whistle, and he naturally turns round for protection from loss. He can have no promise from the Trinity House of being paid his expenses. The ship that pays a tax for the



very light which she cannot see on account of the fog, will pay him nothing for his whistle, although she benefits by it; and therefore why was Mr. Smith to throw his money to the winds or expend it in whistling ships clear of the danger, which the lighthouse could not do?

Instead, therefore, of venturing alone in the tempestuous sea to save ships by his own whistle, he endeavours to form a company to share with him the honours of doing so. Here, again, the novice is at fault: companies want something more tangible in the way of business than large dividends of honour will afford them. We fear that Mr. Smith was herein disappointed, for notwithstanding all his exertions and those of his friends, the company appears to have made no progress; they were fully at liberty to do what they pleased, but the wherewithal on which to proceed was not forthcoming, doubtless from the simple answer to the question—What are to be the dividends?

The Stock Exchange is no doubt a very sensible place, but people go to it although certain of risking loss or gain in their transactions there. How could Mr. Smith take his invention there when he could show no prospects of gain whatever? Meanwhile, Mr. Smith collects all the testimony he can in favour of his invention, and the author of these lines receives from Captain Shortland another letter, from which the following is an extract, reiterating the good opinion entertained of the invention up to January, 1862.

The steam whistle on Partridge Island is considered very useful by the masters of vessels frequenting this port. Since receiving yours, I have asked the opinion of one who commands a steamer which in the summer months makes this harbour once or twice a week. He tells me that he has heard the whistle when seven or eight miles distant, and feels sure, under the most unfavourable circumstances, of hearing it at a distance of three or four miles.

For myself I can only say that I live in the winter about three miles from the whistle, and hear it distinctly whenever it is in operation. As we come here very seldom, I have had no opportunity of testing it from seaward, but Mr. (I trust by this time Commander) Scott tells me that he heard it distinctly from the *Ripple* when off Cape Spencer in thick weather, about seven or eight miles distant, and found it very useful in making the harbour. The masters of the Boston steamers say they hear it after passing Split Rock, at about nine miles distant.

From this we may safely conclude that the steam whistle is a very useful guide in thick weather, and adds much to the safety of navigation. I should be glad to see steam whistles distributed all along these coasts. By a simple arrangement they might be made to indicate the name of the light, and also to make and answer signals.

FREDERICK SHORTLAND, *Captain, R.N.*

Such was Captain Shortland's opinion, as well as that of his officers, of the great importance of Mr. Smith's steam whistle,—a shriek, in

fact it is, and of that piercing kind, that persons who know the effects of the common steam whistle of our railways would rather be at a respectful distance from, than to have it in their immediate vicinity.

Now we read in the prospectus of the proposed company that it was intended to erect one of these signals, in the first instance, at some lighthouse station on the English coast, and by bringing it immediately under the notice of the Trinity Board, hoped at once to derive a large profit from the royalty chargeable upon their use. Application has been already made for this purpose, and Orfordness, on the coast of Suffolk, is the point selected for the first trial. On the approval of this experiment, for it is unlikely that worse results will be attained than in the imperfect model so satisfactorily working in America, no additional outlay of capital will be necessary on the part of the company for ensuring its use in British lighthouses, a royalty only being payable by the government for each signal erected. For its introduction to the notice of the railway companies, with a view to its general adoption on their several lines of road, a similar arrangement will in all probability be carried out.

But, from the causes above mentioned, the project fell to the ground, and the year 1862 passed by with the perpetuation of a crying evil, causing the destruction of our shipping and loss of life, but the certain remedy for which could find no real friends. And it is most remarkable, as we shall see in the sequel, that while wise heads in this country were investigating the subject of fog signals, some were actually ignorant of the above facts establishing the efficiency of the steam whistle, while others were pleased to pass it by as hardly worthy of their notice. Such are the obscuring difficulties by which really good things are surrounded, and the best fog signal yet invented lay obscured in the fog of adversity.

The following year was productive of an event which proved the want of the fog signal. One of those commonplace things, coolly termed, by way of keen satire, "shipping casualties," occurred in a part of the world as celebrated for fogs as the Bay of Fundy is. A mere casualty, even such a circumstance as would carry off the lives of some 200 or 300 persons at one blow, occasions perhaps a sensation for a few days, passes off, and things remain just as they were, all ready for the next. That to which we allude was the loss of the ill-fated *Anglo-Saxon*,—lost on Cape Race on the 27th of April, in a dense fog, while running at the rate of twelve miles an hour.

In our June number of last year we preserved a full account of this *casualty*, and in our August number are some trite remarks from Captain Orlebar, R.N., on the circumstances of this wreck, by which nearly three hundred lives found an untimely end. From these remarks it appears that—

"There is every probability that if fog signals had been instituted at Cape Race, *especially a steam whistle*, the *Anglo-Saxon* would have heard them in time to alter her course more to the southward. From all accounts the wind was not strong, nor the water very rough,

but a heavy swell set in upon the shore, and made landing, except at a few sheltered spots, impossible."

And it is further added that—"The conviction of all on board the *Anglo-Saxon* was that a gun or any other efficient alarm at Cape Race would have saved the ship and the lives of the many now mourned in desolate homes."

There was no doubt neglect on board of the *Anglo-Saxon*, which, with the fog, occasioned her loss. But what we are now dealing with is the means of prevention of such losses. It is the expressed opinion of all on board of that unfortunate ship that "a gun" or any other efficient alarm would have saved the ship; and as it has long been known that guns cannot be heard so far as desirable in fogs, and we know from the Bay of Fundy testimony, above recorded, that Smith's steam shriek or whistle can be heard at a distance of from seven to nine miles in the wind's eye. What could be more proper than forthwith to have one of these placed on Cape Race? And yet, true to his perverse character, in knowing as he does so well how not to do the right thing, John Bull generally manages either to do the wrong one or nothing at all.

As we have observed, this little shipping casualty of the loss of these poor emigrants, women, children, and others, who met their end, created a kind of sensation, which of course reached the United States, where a Mr. Daboll was practising on the subject of fog signals, and this same gentleman found means to have his invention inserted in this journal. There it stands in our May number. Of course we were naturally anxious that Mr. Daboll's signal trumpet should be tried. But had we been aware that the trumpet was not acted on by steam we should not have taken that course, as we had been too well schooled to expect that a common blast of air, let it be produced how it might, could ever vie with the force of steam in producing a shriek.

This was an additional misfortune to the really valuable invention of Mr. Smith, for it took the precedence of his and even shed over it a taint of its bad repute. Mr. Daboll's invention was a dead failure: there was always an absence of the distance at which it could be heard, and it came out that about two miles, in favourable circumstances, was the furthest distance at which it could be heard. And yet we believe that Mr. Daboll's invention was purchased by the Trinity House, merely to be laid aside. Here, again, was an instance shown of how not to do the right thing.

There is something to be learned in parliamentary proceedings sometimes, and therefore we may introduce the following question and answer, which took place in the House of Commons last summer on the subject of the wreck of the *Anglo-Saxon*.

Mr. Dawson asked the President of the Board of Trade whether any detailed report had been made to his department of the loss of the *Anglo-Saxon* steamship, from Londonderry to Quebec, on the 27th April, and whether the circumstances of that lamentable event

were correctly stated in the public press; also, whether the government had ever refused permission for the use of Daboll's fog trumpet upon Cape Race in Newfoundland; and, if so, what were the grounds for such refusal. He said that having seen several shipwrecks on the coast of Newfoundland, he was anxious to know whether any steps had been taken to establish a fog signal.

Mr. M. Gibson replied that no detailed statement or report of the wreck of the *Anglo-Saxon* had as yet been made to the Board of Trade, nor would any further particulars be known until the arrival of the next mail. With regard to the second question, as to whether government had refused permission to erect Daboll's fog trumpet on Cape Race, he had to state that last year the Associated Press of New York had made a proposal to erect the trumpet, but it was not thought desirable by the colonial government that a foreign company should occupy a site within British territory. The Board of Trade had, however, urged upon the steamship owners the necessity of erecting some adequate fog signal on so important a point as Cape Race, and had also called the attention of the whole shipping interest of the country to its importance. Government had the power of erecting fog signals and of imposing a toll for their support, but the steamship owners had said that although they should like to have such a signal erected they should not like to have to bear the expense, and the habit of the government was to waive the right and consult the wishes of the parties principally concerned. With regard to the particular fog signal in question, it was not certain that it was of a good description, and it was most important that if a signal were put up it should be of a kind that could be relied on. A bad one would only have the effect of tempting ships to go too near the land when it might not be possible to hear the signal, and the result would be their going on shore. Very lately a steamship was lost at Holyhead during a fog although a gun was constantly fired as a signal from the mountain. It was thought that a gun was the best fog signal, and it was a gun the government thought of using. Mr. Daboll's invention was under consideration, and they had asked for a report from the United States Lighthouse Board respecting it. That board had reported that it promised well, and was worth a trial; but did not go the length of saying that it had been sufficiently proved to be used on so important a point as Cape Race.

Mr. Dawson hoped that an investigation would take place into the circumstances of the wreck of the *Anglo-Saxon*.

Mr. M. Gibson had very little doubt but that an inquiry would take place. He could not, however, say anything positive until he was in possession of all the facts.

Now we learn two facts from the foregoing little extract. The first is that although the Board of Trade had urged on the steamship owners, and indeed, the whole shipping interest of the country "the necessity of erecting some adequate fog signal on so important a point as Cape Race," yet, that the said "steamship owners, and the whole shipping interest of the country" turned their backs upon it—oh yes

they would like to have it—but then the expense—the bill! and who will say they were wrong? Who imagines that they care for fog signals?—Are their vessels lost for want of them? Yes, here is one among the many—seven the Canadian Company are said to have lost! and, why not? there is the insurance office to make it all right! Besides this the insurance office cares just as little about these safeguards to navigation. The greater the risk, the greater the policy, the profit. Fog signals indeed, what do we want with fog signals to pay for, to take from our profits, says one party; and the other with an askant look and a side laugh, a safeguard against our risks, eh? oh, my dear fellow, the more risk the better—you are come to the wrong office, it is our business to raise them, not to lower them. And this it is pretty well known they do to some one's cost! True, too true it is, that all this bears on the loss of life to Her Majesty's liege subjects.

The next fact we learn from the above is that government has the power of erecting a fog signal and imposing a toll for its support! Would that the government could see the importance of establishing Smith's steam whistle at Cape Race, and sufficient reason not only in the efficiency of it that we have advanced on purely national grounds to compel these niggardly steam shipping companies whose ships would be saved to them by it to pay a toll for its support. Such would be the measure of a paternal government, which would thus extend protection to the helpless passengers and crews of these vessels, whose owners take good care only to look after themselves! Perhaps even the passengers and crews might feel the tax, for doubtless the companies would find the means of warding off the tax from their own pockets.

Mr. Gibson in his reply to the enquiry of Mr. Dawson above quoted, alludes to the fog signal at Holyhead. He says—"very lately a steam ship was lost at Holyhead during a fog, although a gun was constantly fired as a signal from the mountain." This confirms our opinion that a gun, which is nothing more than a solitary concussion of the atmosphere, never can be so likely to be heard as the long piercing shriek of a steam whistle, its continuity of sound lasting, say, for half-minute intervals; this even gives it more chance of being heard; while the momentary report of a gun may not only be lost in some local grinding noise in the motion of the ship, but cannot as a momentary sound penetrate like a continuous shriek.

There is a remarkable arrangement in the fog bell at Holyhead, which to our amazement we learn from a paper on the subject with which we have been favoured by Mr. Alexander Cunningham, Secretary to the Commissioners for Northern Lights. "It appears in an official report on the steamer *Telegraph* striking on the rocks at Holyhead and is this: "The court, however, think it their duty to call your lordships' attention to the extraordinary manner in which the fog bell on the South Stack is *hung* (we should rather have said *fixed*), *with its mouth upwards*, thus causing the sound to ascend into the air, instead of descending to convey a warning to the ship below." This appears to be the most unphilosophical mode which could have been

adopted in using a bell. We have always been led to believe that on the bell being struck, it is the vibrating surface of it that produces the sound, and if the bell be hung as bells usually are hung, it has a chance of doing so. But if it be reversed the different parts of the bell which then must rest on those next beneath them, of course the bell being fixed there can be no vibration, and it must be rendered next to useless, for what amount of sound can it send into the air above it.

It is astonishing, certainly, how little the subject of fog signals seems to have been attended to. However it appears that the Belfast Chamber of Commerce, with some leading merchants of that city, applied to the British Association, and this body considered the momentous bearings of such an inquiry on the preservation of property and still more of life, as being one of national importance, and that as such it was a fit subject for investigation by the government. But the Association appointed a committee to report on it, and with a copy of that report we have been favoured by the Chairman.

We regret to say that disappointment is to be found in every line of it. Every means of making a noise appears to be considered by this committee as worthy of trial. There are guns, bells, gongs, drums, steam whistles, organ pipes above water, Holme's or Daboll's trumpets, organ pipes under water, sirens, while the means of producing a shriek that would transcend all these together was simply passed over thus. "The steam whistle is the best known of them, and is stated to act well. It is said that one used in the Bay of Fundy had been heard eight miles *against* the wind (the velocity of which is not given). One witness thinks that in rough weather it is heard further than a gun. It is possible that some loss of sound may take place with it where the steam comes into contact with the air." The meaning of this last sentence is not quite clear to our perceptions, but it is perfectly clear that the committee contented themselves with "*one witness*," and that his solitary testimony was not sufficient to extricate Mr. Smith's steam whistle from the queer company of noisy machines into which it had been degraded and left by them. The report to our mind is most unsatisfactory, one on which nobody could act. Had they ever run before a gale in a thick fog in the Bay of Fundy, they would have known how to appreciate the fog signal on Partridge Island, and thought less than they appear to have done of their sirens, or organ pipes under water. We can imagine an old salt steam captain with his ear at one end of a tube in a gale of wind, the other end of it in the wash of the sea alongside, listening for the sound of the siren or organ pipe below water. What's that the skipper is doing would ask a seaman? Oh, replies another he is listening to ocean secrets among the fishes. So much for nautical subjects with landmen. But the answer to the memorial from the Board of Trade was that "their lordships are in communication with the Trinity House of London on the subject."—The Trinity House were engaged with Professor Faraday, and we believe that the simple result has been already stated, that they found Mr Daboll's invention not worthy of being adopted.

Another paper to which we have alluded from Mr. Alexander Cunningham, from the proceedings of the 'Royal Scottish Society of Arts,' agrees in observing how little is known on the subject of fog signals, and recommends experiments, in showing the fallacy of guns, and all this while the efficiency of Smith's steam whistle had been satisfactorily proved to the gentlemen whose opinion we have given above.

Now we hold that those opinions, along with those of Captain Shortland, Captain Orlebar, and Commander Scott, above referred to, with those of the commanders of steamers navigating the Bay of Fundy, are sufficient to set aside the experiments recommended by the above Committee, even of the British Association for the Advancement of Science; and that enough evidence is adduced by these gentlemen, officers of H.M. navy, to justify the establishment of Mr. Smith's steam whistle at Cape Race.

This gentleman most considerately came forward at a time when his experience of North American winters was most valuable, and gave most important information to the late Hydrographer to the Admiralty, for which thanks were his only reward. We are not aware of his whereabouts at present, but we do consider his fog signal as the only one the efficiency of which in the worst of weathers we have direct proof of; and we also consider that while we have an acknowledged most serious evil to navigation, the means of overcoming which he has undoubtedly invented, that it would be a becoming act of the government of a leading maritime nation to take up his plan for preventing the fatal recurrence of such distressing events as that of the *Anglo-Saxon*, and to establish on Cape Race itself his fog signal, with an acknowledgment to him of some suitable reward. The invention of Sir William Snow Harris was advocated over and over again in these pages to its establishment in the royal navy—where the effects of lightning are now unknown. Surely the fog signal, as the means of preventing another evil about as destructive of life as that was will be remedied, and we shall rejoice in having been its friend for the public good in the pages of the *Nautical Magazine*.

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Since the foregoing was on paper we have met with the following notice of the subject in the *Daily News*, and although we do not vouch for the accuracy of the particulars it affords, yet it is an interesting contrast to the character given of Smith's fog signal at Partridge Island, in the Bay of Fundy. Verily they manage these things better in our colonies than we do ourselves.

It appears from a parliamentary return just issued, that the Board of Trade sanctions the purchase of one of Daboll's 32-in. fog trumpets for the sum of £950, for the Gulf of St. Lawrence. A horn of a smaller size is now at Dungeness. It seems from the trials which have already been made, that the effective power of the trumpet is

very seriously diminished when passing away from the line of the axis or mouth; so much so that whereas it was distinctly heard at a distance of two and a half miles, when the Trinity House steamer was in the favourable position, it was necessary to approach within one third of a mile when the vessel was at right angles to the axis of the trumpet. This, says the secretary of the Marine Department of the Board of Trade, "is a serious defect; for, whilst the trumpet with its axis directed out to sea might be heard distinctly by passing vessels, others might approach it on either side, and run ashore in the adjacent bights of the coast without receiving any warning. But probably this defect could be remedied, and it might be possible to contrive that the trumpet should revolve in an arc, so as to throw its whole or maximum sound seaward round the horizon."

**A GLANCE AT THE POLITICAL AND COMMERCIAL IMPORTANCE OF CENTRAL BRITISH AMERICA.—By H. Y. Hind, M.A., F.R.G.S. Communicated to the Canadian Institute.**

(Concluded from page 178.)

It now remains to glance at the intrinsic worth of the southern part of Central British America in its agricultural aspects and its mineral wealth as far as known.

The area of cultivable land of the first quality is estimated to be not less than 80,000 square miles, extending from the Lake of the Woods to near the head waters of the Athabasca, and in a narrow strip on the East flank of the rocky mountains as far South as the fiftieth parallel of latitude. The length of this fertile belt is about 800 miles, the mean breadth 100 miles, and it is susceptible of cultivation or depasturage throughout. It is capable of sustaining an agricultural population equal to that of the kingdom of Prussia. The basin of Lake Winnipeg alone, is capable of sustaining an equally numerous population. It contains several million more acres of arable land than the province of Canada.\*

\* The agricultural capabilities of the basin of Lake Winnipeg may be summed up as follows:—

	<i>Acres.</i>
On the route from Fort William, Lake Superior, to the Lake of the Woods, including the Valley of Rainy River . . .	200,000
The fertile belt, stretching from the Lake of the Woods to the flanks of the Rocky Mountains, and as far North as the 54th parallel, on the Athabaska, West of McLeod's River, (80,000 square miles) . . . . .	51,200,000
Isolated areas in the Prairie Plateau, South of the Assiniboine	2,000,000
Isolated areas in the Great Plain Plateau, the extension Northwards of the Great American Desert, and in the valleys of the rivers flowing through it . . . . .	1,000,000



Winter wheat has recently been tried at Red River settlement with complete success, and all vegetables which will grow in Canada East succeed well at Red River. The mineral wealth of this vast central region is but partially known. Already the existence of extensive beds of lignite coal on the upper Saskatchewan and its tributaries have been determined\*

Total area of land available for agricultural purposes . . .	54,400,000
Approximate area suitable for grazing purposes . . .	30,000,000
Total approximate area fitted for the abode of civilized man . . .	84,400,000
Approximate area of the basin of Lake Winnipeg, within British territory . . . . .	199,680,000
Area fitted for the abode of civilized man . . . . .	84,400,000
Desert area unsuitable for the permanent abode of man . . .	115,280,000

Comparing this extent of surface with Canada, we arrive at the following results:—

	<i>Acres.</i>
Area of the province of Canada (340,000 square miles) . . .	217,600,000
Area occupied by the Senimentary Rocks (80,000 square miles) . . .	51,200,000
Area occupied by the Crystalline Rocks . . . . .	166,400,000
If we suppose that one-sixth of the area occupied by the Crystalline Rocks is capable of cultivation, as regards soil and climate (an estimate probably in excess), the total amount of land in Canada available for the purpose of settlement, will be approximately . . . . .	78,900,000
Showing an excess of land fitted for the permanent abode of man, in favor of the basin of Lake Winnipeg over the province of Canada, of . . . . .	5,500,000

In Upper Canada, with a population of 1,396,091, there are 13,354,907 acres held by proprietors, of which only 6,051,619 acres are under cultivation, cropped or in pasture. If the whole quantity of land fit for cultivation were occupied in the same proportion, the population of Canada would exceed eighteen millions. At the same ratio of inhabitants to cultivable and grazing land, the basin of Lake Winnipeg would sustain a population exceeding 19,000,000, or leaving out of consideration the land suitable to grazing purposes, its capabilities would be adapted to support 12,000,000 people. If European countries such as France and Great Britain were taken as the standard of comparison, or even many of the States of the American Union, the number would be vastly greater.

The arid region of the great American desert, which places an uncultivable and uninhabitable wilderness between the present North-Westerly settlements in Nebraska and the Rocky Mountains extends into British America only in the form of the apex of the cone shaped figure it has on the map, with its base in the high lands of Texas and Mexico.

\* A large part of the region drained by the North and South branches of the Saskatchewan is underlaid by a variety of coal or lignite. On the North Saskatchewan coal occurs below Edmonton in workable seams.

A section of the river bank in that neighbourhood shows in a vertical space of sixty feet three seams of lignite, the first one foot thick, the second two feet, and the third six feet thick. Dr. Hector, who made the section, states that the six foot seam is pure and compact. Fifteen miles below the Brazeau River, a large tributary to the North Saskatchewan from the West, the lignite bearing strata again come into view, and from this point they were traced to the foot of the Rocky Mountains. On the Red Deer River the lignite formation was

With the lignite coal are also found vast deposits of clay iron-stone. These extend much further East than the lignite layers, which have been removed by denudation, and form a very peculiar and important feature in the rocks West and South of the Assiniboine after it makes its North-Westerly bend.\*

Salt is widely distributed, and the rocks yielding this material have been traced from the boundary line beyond the Saskatchewan towards Lake Athabaska†

Gold is known to exist throughout the Drift on both the branches of the Saskatchewan and its tributaries. Gold has also been found on the Assiniboine, and on some of the tributaries leading into the Qu'appelle or Calling River. Hence, reasoning from known facts respecting the source and direction of the Drift which covers the country within 150 miles of the Rocky Mountains, there is the best ground for the belief that the source of the Assiniboine gold lies on the East side of the basin of Lake Winnipeg, and will be found in altered Silurian rocks (already recognized) reposing on the Laurentian strata which form the East shore of Lake Winnipeg, and stretch thence towards Lake Athabaska.

The extensive bituminous deposits which occur on Clear Water

observed at various points. It forms beds of great thickness; one group of seams measured twenty feet, "of which twelve feet consisted of pure compact coal," (Dr. Hector.) These coal beds were traced for ten miles on Red Deer River. A great lignite formation of cretaceous age containing valuable beds of coal has a very extensive development on the upper waters of the North and South Saskatchewan, the Missouri, and far to the North in the valley of the Mackenzie. Col. Lefroy observed this lignite on Peace River, and Dr. Hector recognized it on Smoking River, a tributary of Peace River, also on the Athabaska, McLeod River, and Pembina River, all to the North of the Saskatchewan, "thus proving the range of this formation over a slope rising from 500 to 2,300 feet above the sea, and yet preserving on the whole the same characters, and showing no evidence of recent local disturbance beyond the gentle uplift which has effected this inclination."

\* The vast deposits of iron ore belonging to the cretaceous series of the basin of Lake Winnipeg acquire especial importance in consequence of their being associated with equally widely distributed deposits of lignite, and are found not very remote from apparently inexhaustible stores of bitumen and petroleum (on Clear Water River,) which as a fuel adapted to raising elevated temperatures in a regenerating furnace has no equal.

† This important material is distributed throughout a large part of the valley of Red River, the basin of Lakes Manitobah and Winnepegosis, and thence North-Westerly towards the Arctic Sea; the Brine Springs occur at the junction of the Silurian and Devonian rocks of the Winnipeg basin, and have already yielded salt of excellent quality in several localities. Many years ago (1823) salt was manufactured at Pembina, and more recently at the salt works, Manitobah Lake, by Red River natives, and at Swan River by the Hudson's Bay Company. Springs rich in brine are known to exist in upwards of twenty different places along a stretch of country extending from the boundary line to the Saskatchewan. In the valley of La Rivière Sale, about twenty-six miles from Fort Garry, salt springs are numerous and the ground in their vicinity is frequently covered with a thick incrustation.

River belonging to the Athabaska\* Valley, deserve mention, as valuable deposits in store for future use.

In contemplating the future of Central British America one important feature appears to be neglected, if not entirely overlooked; while Lake Winnipeg is 2,500 miles from the seaboard of the Gulf of St. Lawrence, and lies exactly in the centre of the American Continent under the 51st parallel, its Northern extremity is only 380 miles from the tide waters of Hudson's Bay.

The mouth of the Saskatchewan is as near to the open sea as Fort Garry is to the Western extremity of Lake Superior. The passage from Norway House, at the Northern extremity of Lake Winnipeg, to Hudson's Bay is made in nine days with loaded boats. It is not unreasonable to suppose that by the introduction of tramways over the portages, the journey may be made in four days, thus bringing Lake Winnipeg within four days of the sea, yet the nature of the communication now followed is such that it would not admit of vessels much larger than freighter's boats being employed. The navigation of Hudson's Bay for sailing vessels is safe for a period not exceeding six weeks—for steamers it may be double that time. Hitherto the mode of communication adopted by the fur traders between Norway House and Hudson's Bay has been sufficient for the exigencies of the fur trade; it is not at all improbable that more easy means of communication with the seaboard exists than those which are now pursued. Under any circumstances it is a fact of the highest importance that Lake Winnipeg is actually within a week's journey of the ocean, over a natural road by which troops have already entered and departed from Central British America. It is more than probable that whenever the necessity arises, the communication between Lake Winnipeg and Hudson's Bay, and thence to the Atlantic, by the aid of steamers, will be made easy and speedy for at least three months in the year.

The outlet by which the waters of the Saskatchewan and Lake Winnipeg reach the sea, is Nelson River. The chief reason which induces the Hudson's Bay Company to send their cargoes of furs to York Factory by Hayes River, is stated to be the difficulties and dangers of the tracking ground on the banks of Nelson River, arising from impending masses of ice on the precipitous banks. The head of

\* Although the Athabaska district, as a whole, may be remote from the line of settlements which will be first established across the continent, yet it is a vast territory in reserve, and one which as time rolls on will become peopled with a pastoral race, and eventually exercise an important influence upon the more fertile and arable districts of the North Saskatchewan. As a great grazing country it will early attract attention; and its vast stores of bitumen will be a source of great utility where portable fuel and means of creating artificial light must command a remunerative price, when the increase of population calls into existence those necessities which belong to civilized communities. The Athabaska district should by no means be shut out of view in contemplating the future of the basin of Lake Winnipeg. Its proximity to the auriferous valleys of the West and East flanks of the Rocky Mountains will soon secure for it a conspicuous position in the future of the North-West.

tide-water in Nelson River may yet become the seat of the Archangel of Central British America, and the great and ancient Russian Northern port—at one time the sole outlet of that vast empire—find its parallel in Hudson's Bay.

It has been shown that the natural resources of Central British America are amply sufficient to sustain a large population. The existence of gold over wide areas in the drift which covers the country, will ensure a rapidly increasing immigrant population, which, from the nature of their occupation, will necessarily be consumers of agricultural and manufactured products, so that there will be, for some years to come, a home market for whatever the soil can produce, which will soon extend to home manufactures of the coarser description.

Meanwhile communication with British Columbia under the projects contemplated by the new Hudson's Bay Company will rapidly progress, and also with Canada *viâ* Lake Superior, and the United States *viâ* Red River and St. Paul.

Apprehensions may arise that the present easy access which the navigation of Red River offers to immigrants from the States, will, in view of various circumstances gradually developing themselves, introduce a population to the fertile valley of the Saskatchewan, hostile to British Institutions and British connection.

The grounds for these apprehensions are as follows :

First: The limit which the American desert establishes to the Westward progress of settlement in the States. This limit is about one degree of longitude West of Fort Garry\* and beyond it, South of the boundary line, large agricultural settlements cannot extend in Minnesota or Nebraska, or further South than these states; nor North, even in Central British America, until the limits of the "Fertile Belt" are reached.

Second: The necessity for a new line of Pacific Railway other than that near the 32nd parallel, adopted by the United States Government, which lies within the country claimed by the Southern States.

Third: The incomparable superiority of the country in Central British America for a railroad or postal route to the Pacific to any part of the United States North of the 32nd parallel. This superiority consists in the line of route passing through rich arable land to the foot of the Rocky Mountains, in contradistinction to an uninhabitable desert through which a railroad or common road would have to pass in any part of the United States; and also to the low altitude of the pass in the Rocky Mountains.

Fourth: The existence of gold widely distributed, and in quantities according to the latest intelligence, amply sufficient to prove remunerative to the industrious miner, not only on the East flank of the Rocky Mountains but also in the drift, near the Western shores of Lake

\* The longitude of Fort Garry, 95° 52' 27", latitude 49° 52' 6". Pembina Mountain which marks the limit of the good land in the State of Minnesota, West of Red River, is on an average about thirty miles distant from the River. Beyond the 101st degree of longitude in the United States, agricultural settlements on a large scale are not possible on account of aridity.

Winnipeg, with the probability of its matrix being found both in the Rocky Mountains and also near the Western flanks of the Laurentian Range.

As opposed to these apprehensions we have :—

First : The comprehensive scheme of settlement proposed by the new Hudson's Bay Company, which will tend to people the valley of Red River and the Saskatchewan with settlers possessing British sympathies, and the strongest attachment to British rule.

Second : The fact that the best lands in Canada are now sold, and immigrants will prefer to go farther West in search of cheap available *prairie* land of the best description in Central British America, to settling on the comparatively poor *timbered* lands which yet remain in Canada at the disposal of the government.

Third : The manifest eagerness with which the people of Canada look forward to the opening of an easy and rapid communication between Lake Superior and Red River, and the unanimous determination which exists amongst all classes to uphold British rule on British soil.

Fourth : The material assistance (50,000 dollars per annum) which the Canadian government, and the government of British Columbia (50,000 dollars per annum), propose to render the Hudson's Bay Company in providing a rapid and easy means of communication across the continent through British territory, and in the construction of a telegraph, already commenced, to connect the Pacific with the Atlantic Ocean, also through British America. The electric telegraph annihilates distance, and will, when completed, unite all parts of this vast dominion, and, in effect, bring it within reach of the central or governing power.

Fifth : The prospect of not only regaining, on a vastly enlarged scale, extending to China and Japan, the lucrative transit trade which in the time of "The Nor'-West Company" enriched so many of our merchants, but also that prospective trade which must necessarily spring up with a country abounding in all things suitable for the maintenance of a large population, and whose course towards the ocean lies naturally through the St. Lawrence, and in its most direct line seaward, exclusively through British America.

Sixth : The consciousness that the physical difficulties which oppose the direction of that trade in the desired channel, are of such a character as the means now at the disposal of those who have already taken the matter in hand can successfully and easily overcome.

And lastly : The growing conviction among the people of British America, and of many in England, that the maintenance of British rule over that portion of the American continent is in a great measure dependent upon united action on the part of the different Colonial Governments, which must ultimately, and perhaps soon, lead to a closer union between them, in the form of a Federation and Vice-Royalty, under the protection of, and in intimate alliance with, the British Crown.

A necessary preliminary step in the establishment of a Federation of

the British American Provinces, would probably be the legislative union of Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland. These provinces have an aggregate population of 822,000 souls,\* and an area of 84,353 square miles. The value of their fisheries alone is 15,000,000 dollars per annum; and they have immense available supplies of timber, iron, and coal, together with more than one thousand miles of sea coast, provided with excellent harbours. The total population of British America at the present moment approaches four millions, and the quantity of land available for agricultural purposes, is approximately 267,000 square miles—or more

\* The population of Newfoundland, in 1851, was 101,600; in 1857, it was 122,638; at the present time it is probably 140,000. Of New Brunswick, the population, in 1840, was 154,000; in 1851, 193,800. Its present population is estimated at 234,000 souls. The population of Nova Scotia, in 1851, was 276,000; in 1861, 330,857—its rate of increase being in the last ten years within a fraction of 20 per cent.; and at the commencement of 1864, its population may, at the same rate of increase, be estimated at 352,000. The population of Prince Edward Island, in 1851, was 55,000; in 1861, it was 80,856; and it now probably exceed 95,000 souls.

	<i>Area in sq. miles.</i>	<i>Estimated pop. Jan., 1864.</i>
New Brunswick . . . . .	27,620	235,000
Nova Scotia and the Island of Cape Breton	18,600	352,000
Newfoundland . . . . .	36,000	140,000
Prince Edward Island . . . . .	2,133	95,000
Total area . . . . .	84,353	822,000
Estimated area available for agricultural purposes, 52,000 . . . . .	—	—
Upper Canada . . . . .	140,000	1,520,000
Lower Canada . . . . .	200,000	1,200,000
Estimated area of the province available for agricultural settlement, 90,000	—	—
Basin of Lake Winnipeg and valley of the River Athabaska, . . . . .	400,000	15,000
(Exclusive of Indian population, 40,000)		
Estimated area available for agricultural settlement, 95,000 . . . . .	—	—
British Columbia and Vancouver's Island (Exclusive of Indian population, 60,000)	210,000	50,000
Assumed area suitable for agricultural purposes, 30,000 . . . . .	—	—
Total area . . . . .	1,034,353	3,607,800
Estimated area available for agricultural purposes, 267,000 . . . . .	—	—

Or about nine times the area of Great Britain and Ireland. But throwing out what may be called the inferior and desert portion of this immense territory, we find the area of the agricultural portion to be approximately 267,000 square miles, or as large as France, Holland, and Denmark put together, with an aggregate population approaching four millions.

than twice the area of the United Kingdom of Great Britain and Ireland; and equal to France (including Corsica), Belgium, Holland, and Portugal combined.

This portion of the British empire contains within itself all those elements of material wealth which assist in creating populous and powerful nations; and besides these advantages, it possesses unsurpassed facilities for becoming the great commercial highway between the Pacific and the Atlantic. With such resources and possible future, it is neither vain nor premature to consider the expediency of consolidating the interests of the different and virtually independent Governments into which it is now divided, and of securing the speedy occupation and future allegiance of the key-stone of the arch, Central British America, upon which their prospective political and commercial position, as a great Federation, will be mainly dependent.

**FURTHER OBSERVATIONS ON A GOVERNMENT SCHOOL OF NAVAL ARCHITECTURE,—By Sir W. Snow Harris, F.R.S., &c.**

6, Windsor Villas, Plymouth, April 20th, 1864.

Sir,—You will, I trust, allow me the privilege of a few additional observations relative to the proposed School of Naval Architecture, at Kensington, referred to in my paper honored by a place in your last number.

Without presuming to hazard an opinion, more especially of a dogmatical kind, relative to the practical results of the proposed school, I beg to call attention to the actual state of this important question, and the circumstances present to us, so that we may clearly understand what it is we seek to discuss.

The following may be considered as the leading facts of the case.

The want of professional naval architects of a high class; of administrative capacity, and of attainments; to carry out the shipbuilding of the royal navy, has been of late years much felt by our naval administrations. The gentlemen educated at the late Portsmouth School of Naval Architecture of 1812, broken up in 1832, being either dead, retired, or about to retire from the public service; a new School of Naval Architecture adequate to reproduce such men is, as observed in my last letter, not only admitted to be of singular importance to the interests of the navy; but, imperiously demanded.

Looking at the question in all its generality, we find two principal elements of consideration:—First, as regards the Admiralty and the navy simply; second, as regards not only the navy, but the whole marine of the country.

The latter professes to be the object of the proposed new establishment at Kensington.

The former of these, however, naturally claims priority of attention

as embodying the substance of what is immediately and directly required for the public service. I pointed out in my paper above alluded to, how, all that could be possibly required, for supplying the Board of Admiralty with men of high attainments in naval architecture, might be arrived at, and that too, by economical, simple, and efficacious means. I desire therefore, first to call attention to this point without venturing to discuss the merits of an hypothetical, elaborate, and omnigenous scheme of education, professing to train up naval architects for the maritime interests of the whole country. There is an old proverb, "Charity begins at home." I submit, therefore, whether it might not be better policy, and more prudent, whatever may be eventually determined on respecting an educational establishment at Kensington, to immediately supply the country with what it actually stands in need of,—an adequate number of professional naval architects of administrative capacity, whose education, based upon a sound philosophy, sanctioned by the experience of past days, would do honour to the navy and the science of the country,—rather than indulge in chimerical views of an ideal school of education, based upon no evidence from experience whatever.

I have shown in my former paper that both in the Portsmouth and Devonport Dockyards, we have the nucleus of schools, calculated to produce such men as I have just alluded to, and that we only require to carry out the same principles and practice resorted to in the Portsmouth school of 1812. It is demonstrable,—if the philosophy of induction, observation, and experience be worth anything,—that the Portsmouth school of 1812 was a perfect success. Let us for an instant, refer to a few examples of the class of men that institution turned out, and the works they produced; since the claims of a similar system of education to public confidence, would be necessarily associated with an enquiry of this kind.

We have here to observe in the first place that the Board of Admiralty of 1842, called upon three pupils of the Portsmouth school; Messrs. Read, Chatfield, and Creuze, to prepare in committee at Chatham, designs for three ships of war; a brig, a frigate, and a line of battle ship, accompanied by a record of their proceedings and investigations.

The required reports and designs were furnished, and deposited in the records of the Admiralty, evincing no ordinary powers of philosophical research.

The three ships being built and sent to sea proved fine sea boats, and admirable specimens of naval architecture.

The reports contained tables of practical data, essential to naval construction, and were such as the government had never before possessed. They comprised data relating to every element of a ship's equipment, in which the weight of a unit of every article, is by immense labour systematically arranged; including everything relating to the dockyard, ordnance, and victualling departments; for example, masts, yards, sails, rigging, anchors, cables, sea stores, guns,



powder, shot, shell, water, provisions, medical stores, tanks, casks, &c. ; in fact the whole construction of the navy is reduced to a system of practical science of a marvellously precise character. The volume comprises no less than 250 folio pages. These reports met the full approbation of the Board of Admiralty, and about 100 copies were printed.

Chatfield, besides his share in these reports, invented and published in November, 1834, a most ingenious system of masts and sails, by which the masts and sails of ships of the navy were all convertible so as to be substituted one for the other in different classes of ships. This system was carried out about four years afterwards, under the authority of another person. In addition to this, we find by the same author a valuable "Essay on Naval Gunnery," for which, the Board of Ordnance awarded him the sum of 100 guineas.

Creuze wrote the comprehensive article, "Shipbuilding," in the *Encyclopædia Britannica*, and in conjunction with Morgan, another pupil of the school, edited the celebrated periodical termed "Papers on Naval Architecture," the only scientific work of the kind ever produced in this country up to that time, and which created remarkable interest on the continent.

Parsons, another distinguished member of the school, remarkable for his learning and ability, published in 1831, a most magnificent work on tonnage, in double folio, according to a system of his own invention, containing scales of the displacement of the areas of the horizontal and vertical sections of the several classes of ships composing the British navy, with a view to facilitate their construction, building, and equipment. This work printed at his own expense, by Norie & Co., Leadenhall Street, London, is two feet long by nineteen inches wide, and contains fifteen finely executed plates. Upon this work was founded the system of tonnage, afterwards resorted to by the Government.

Ritherdon, another of the school, was selected eventually as the chief constructor and surveyor of the Indian Navy, and built for the Indian service the finest ships at that time, afloat; including two large steam ships of 1,450 tons each; and a celebrated sailing and steam ship called the "*Queen*," considered so fine a specimen of naval architecture, that draughtsmen were actually sent down by the Admiralty from Somerset House to copy her construction drawing.

James Peake, another member of the school, at present the master shipwright of the Devonport Yard, invented and published a concise method of calculating the light, and load displacement of a ship from her construction drawing, so as to determine with great facility, the relative value of each transverse section immersed. He furnished also valuable designs for life-boats, subsequently ordered by foreign governments to be copied and built in the Thames; from whence they were exported to France, Spain, Portugal, Brazil, Cape of Good Hope, and other parts.

Looking to others of the school who remained in the service, we

find nearly all of them eventually in high and commanding positions. Everyone of them became either master shipwrights or chief constructors of the navy. Amongst them may be mentioned, J. Watts, C.B., who produced the *Warrior*, *Black Prince*, and numerous others of our ships of war. T. Lloyd, the chief engineer of the Admiralty, to whose clear-sightedness and perseverance we are indebted for the introduction of the screw propeller into the navy. Since, then, it is obvious that such men as these can be produced, by means of a systematic education actually at our command, what can we possibly require more, so far as our naval construction and the maritime interests of the country are concerned.

I have quoted these instances of the practical results of a systematic scientific education, such as I propose to be carried out in one of our naval arsenals; purely with a view of demonstrating how greatly the public service would be benefitted by a similar system, and which I have shown may be resorted to by the Government without any new drain upon the public exchequer; the educational machinery requisite for the purpose, being already in its hands. I believe it is admitted to be a sound and substantial philosophy, to guide our future steps in any department of knowledge by a careful analysis of the past.

Seeing, therefore, what has been the results of a given course of education in past times, is it not obvious that a similar course would in all probability, if pursued in the present day, produce the same or similar results; and hence give to the country what it so immediately requires, professional naval architects of a high order, competent to carry out the shipbuilding of the country, and do honor to the science of the nation.

This, after all, is the great question to be considered. Should we not therefore do wisely in securing what is immediately within our reach, and what we actually require, rather than seek to possess ourselves of an ideal something of which we have no substantial evidence whatever.

The proposition now advocated by the Board of Admiralty, either upon its own authority or upon the authority of others, in no way recognises the solid basis of all learning and knowledge, that is to say knowledge from observation and experience; but would resort to a chimerical and untried system of education, which for aught the proposers know to the contrary, might be found totally inadequate to the purposes for which it is designed; it being proposed to institute a sort of half school of naval architecture, as part of the science and art department at Kensington, far removed from every immediate source of maritime experience. This school is to embrace all classes of persons, whether to be educated for the government service, the merchant navy, or in fact any other mercantile interest which may arise in the country. The government students and private pupils to be jumbled as it were together; and their education to be divided between the Kensington schools and the royal dockyards, one half of their time, viz:—Six months of the year to be spent at Kensington, and the

remaining six months in the royal dockyards, which are to be thrown open to the pupils generally, if the Admiralty can possibly tolerate so great an interference with the public service.

Government pupils to be provided with board and lodging. Pupils for the merchant navy to be admitted upon the payment of certain fees. No definite or specified arrangement for the accommodation of the pupils generally as yet determined on. This scheme might in a short time possibly fall in pieces, through the jar of its own heterogeneous elements, and like

“An unsubstantial pageant faded  
Leave not a rack behind.”

I am, &c.,

W. SNOW HARRIS.

*To the Editor of the Nautical Magazine.*

#### THE WESTERN DIVISION OF THE MEDITERRANEAN.—*Winds.*

(Continued from page 130.)

The temperature of the atmosphere in the Levant, as the eastern basin of the Mediterranean is termed, Admiral Smyth tells us is more variable than that of most other parts of the Mediterranean, for it alters with every change of wind. And yet along these eastern shores, in common with the neighbouring regions, the *imbatto*, or regular land and sea breeze prevails in the absence of stronger winds. But at some distance from the land these periodical breezes are felt only within a small compass, and, as before observed, it is not uncommon for vessels to sail by each other in different atmospheric currents. The Admiral has himself passed within hail of a ship on the opposite course, and yet both were going before the wind. This sea—as, indeed, in a degree, are all others—is the grand means of softening the temperature of the air; whence every cold and raw gale becomes much milder by passing over it, and hot breezes are reduced to a refreshing temperature. About Cyprus the *imbatto* sets in from the N.W., a sea breeze, and, freshening towards noon, lasts till about three p.m. in the summer time. Sometimes it continues till about sunset and then dies away. An almost dead calm then ensues, when a light air springs up from the land, which continues to about an hour after sunrise. September and October appear to be remarkable for heat. The whole island of Cyprus is considered by the Admiral as affording an epitome of the usual Levantine weather, for here the action of the breezes is confined to a comparatively circumscribed space.

The coast of Syria has a fine climate, not without certain disadvantages; for the mountainous districts have a tempestuous and gloomy

winter, and the summer of the plain is oppressively hot. Throughout the year the winds are considerably influenced at different seasons by the lofty summits of the Taurus and Lebanon, by which they are varied in force and direction. Under the Lebanon and about Alexandria sudden gusts must be expected down from the mountains when these are capped with clouds. These gusts are called *rageas* and are excessively violent, although transient and but little felt in the offing, where the true wind prevails. The North winds are mostly dry and salubrious, but cold and strong, while those from the South are mild and moist, accompanied by rain. Those from the East are misty, and the western, although often stormy, bring clear skies and exhilarating effects. It must be observed, however, that these winds differ much according to where the ship is on the coast.

Thunder seems to be confined to the winter months, November to March. The land winds, which in summer are very light, extend only to a short distance from the shore, commencing towards sunset and lasting till sunrise; afterwards the sea breeze commences, and subsides more or less about an hour before sunset, sometimes failing entirely. But occasionally the sea winds blow most furiously, and this harbourless coast becomes a dead and perilous lee shore.

Commander Mansell, who has just completed a most interesting and elaborate survey of this coast, makes the following remarks on its winds and currents:—

The coast of Syria, trending North and South, is in general lofty and precipitous as far to the southward as Bairút; after which the mountains decline in height and recede from the coast as you approach the Ladder of Tyre and Mount Carmel, whence the land is comparatively low to the confines of Egypt. The whole extent is singularly devoid of natural harbours, Ayas, in the Gulf of Iskanderún, being the only really sheltered anchorage for large ships on the coast; Beirút, however, affords an excellent roadstead for nine months out of the twelve, and with due precaution for the whole year round, as the winds seldom blow home.

*Winds and Weather.*—In the spring the winds are variable, as summer advances they veer from S.E. to S.W., gradually increasing as the heat becomes greater, they are however, seldom more than a double reefed topsail breeze. Towards autumn, they range to W.N.W., clouds gradually collect, and near the period of the equinox, a little before or a little after, a strong breeze or a moderate gale may be expected. The first break of the summer season is generally well marked, and gives plenty of warning: the wind usually begins at S.E. accompanied with rain, thunder, and lightning, veers gradually to S.W., and blows hard for two days, after which fine weather usually sets in till December. The sea breeze now ceases to blow with its accustomed regularity, and the winds become variable. In January and February strong gales are frequent, and more violent than at any other season; these gales commence at S.E. with a falling barometer; the mountains become enveloped in clouds, rain soon begins to fall, accompanied by

vivid lightning ; after twelve hours the wind veers gradually to South and S.W. with heavy squalls. Should it be observed to veer to the Northward of West, particularly between midnight and 2h. a.m. or noon and 2h. p.m. (the time changes generally take place), the captain of a vessel should then decide whether he will put to sea, or ride it out, for a few hours delay may prove hazardous, as the wind will most probably change to the N.W., to which point of the compass, every anchorage along the coast is exposed.

In the event of a vessel having to run for shelter, the Bay of Ayas and Roadstead of Alexandretta, in the Gulf of Iskanderun, at the North-East angle of the Levant Basin, are the safest ; when the communication with Europe, by means of the French, Austrian, and Russian mail steamers can be maintained.

Another anchorage to run for is that of Larnaca, in the Island of Cyprus, at about 100 miles from the Syrian coast, which offers many advantages. It is sheltered from all winds, except those from South to East, which seldom blow for any length of time. The holding ground is excellent ; and if the report of the inhabitants can be relied on, shipwreck is of rare occurrence, and provisions are plentiful and cheap.

Not having experienced a winter on the coast of Syria, the few remarks on that season have been collected from trustworthy residents ; but the captain of a ship can seldom err, if he watches closely, and is guided by his barometer, which rarely fails to give timely notice of an approaching change.

*Currents.*—During the summer months the currents generally set to the Northward from one to one and a half miles an hour along the coast of Syria, and to the Eastward along the coast of Egypt ; but during the winter they are much influenced by the winds, and frequently set as strong to the southward along the coast of Syria, and to the westward along the shores of Egypt.

( *To be continued.* )

WANDERINGS ABOUT JAPAN.—*The Island of Yezo—the Ainoes—Hakodadi—Nippon.*

The Island Yezo was a conquest by the Japanese from a people tolerably numerous and powerful, but singularly fallen away in these days. It is separated on the North from the great Island of Nippon, by the Strait of Tsugar, forming an irregular triangle and occupying a mountainous surface of about 30,000 square miles. It does not reckon more than a hundred thousand Japanese and fifty thousand natives called Ainoes. The Tycoon, the chief executive power in Japan, possesses a very small portion of territory in Yezo ; but in it the large city of Hakodadi is situated. The most powerful feudal lord of Yezo

is the Prince of Mats-mai, who is himself a vassal of the Tycoon. His lands occupy a large portion of the island to the N.W., and form a principality, the capital of which is Mats-mai, at one of the extremities of the Straits of Tsugar containing from ten to fifteen thousand inhabitants.

This town not having been included among the ports open to Europeans, is only known to them by name. A foreign merchant, led by the love of trade and adventure, had penetrated to Mats-mai and been detained prisoner there for some days. He informed me that this town, like other Japanese cities, was well regulated, and that it contained besides the buildings of the prince and his suite, a great number of temples.

The rest of Yezo, that is what does belong either to the Tycoon or the Prince of Mats-mai, is divided into nearly equal portions among the seven great princes of the North of Nippon; they undertaking to defray among themselves the expense of defending the whole island with a body of 8,000 soldiers, who occupy military stations spread round the coasts.

The Japanese population of Yezo occupies these two towns of Hako-dadi and Mats-mai, as well as other places of less importance, principally in the southern part of the island. Without neglecting commerce and agriculture, this population is principally occupied in the fishery; from which a considerable revenue is obtained, for fish is so abundant in these parts that a large flotilla of boats is constantly employed during the whole year in transporting them to the ports of the Island of Nippon.

In the interior of Yezo the native Ainoes are found; and without the testimony of history, looking at them in their present condition, it would be impossible to recognize in them the ancient masters of the island. They live at a distance from the shores in large towns, and do not show themselves except in the spring and in the autumn, to exchange their furs and fish on the coasts for rice and cloth. Their habits, their faces, and speech, all bespeak them as descending from a particular race entirely different from the Japanese, and the origin of which, unknown to this day, appears to have belonged to some family of the Asiatic continent. They are generally small and thick set, badly made but very powerful. Their forehead is wide and prominent, their eyes black, and soft and straight like those of Europeans. They are white, although tawny; but one characteristic which contributes to give them a savage aspect is the extraordinary length of their hair. This they have in thick abundance, as well as the beard, and often the whole body is covered.

These are good and agreeable people, and on looking at them closely the expression of their character is easily discovered under their extraordinary figure. The women, to whom nature has not been over kind, seem to take pleasure in making themselves more ugly by adopting the fashion common among the Japanese of blacking their teeth. A portion of their face completely round the mouth is painted blue.

Thus the custom of the Ainoes differs but little from that of the lower

class of people in Japan. The men are dressed in wide pantaloons with an ample vesture secured by a girdle, and the women with one or more long robes according to the season. But these habiliments are made after the most grotesque of fashions, and in some cases secured round the waist by a band of straw or even seaweed.

The young children have a lively and intelligent appearance, which goes off in proportion as they advance in years. While they are unable to walk they are carried resting across the hips, and if the journey should be long and fatiguing a band of something serves to sustain them behind, the two ends being secured together across the forehead.

The language of the Ainoes, as far as is yet ascertained, has never yet been the object of particular attention in Europe, and is not even approached by any known tongue. It is, moreover, exceedingly difficult to fix the conditions on which to start in it; for what they speak they can neither read nor write, and as for any written document they have absolutely nothing; nevertheless they have preserved the traditional memory of some long poems noted down by the Japanese, and in which they frequently celebrate their battles with large bears and fishes. A translation of these poems is preparing by M. the Abbé Mermet. The bear and the fish, that is the chase and the fishery, occupy the whole life of the Ainoes, and re-appear in the absurd religious ideas which they entertain. Their principal divinity is a huge bear.

The Japanese conquest was the means of introducing among them the elements of Buddhism, but these are so mixed up with the Ainoe idolatry that the trace of them is difficult to find. Of their ceremonies one of the most curious is that which is observed at the dissection of a bear killed in the chase. It is prefaced by the most profound and extraordinary genuflexions and prayers to the departed divinity. The head of the animal they consider as sacred, and instead of eating it they suspend it from the threshold of their door as a charm against the influence of evil spirits.

Thus the Ainoes in the midst of the 19th century present to us the spectacle of a people not even raised from the earliest infancy of humanity. They live in groups of ten or twelve families, and allow themselves to be governed by their own chiefs, whose power is hereditary, but very limited; for to the strongest only among them remains the exercise of this office. Their dwellings contain nothing more than implements of the chase, fishing, and cooking. Their manners are certainly kind, hospitable, benevolent, and even confident, and contrast strangely with the dangerous pursuits of their lives. The single kind of life that they appeared to follow at the time of their independence seems to have disappeared among Japanese customs, for now every Ainoe has a right to as many wives as he is able to maintain. Their marriage ceremonial differs but little from that of the Japanese. The gift of affiancing consists of articles used in the chase or the fishery; or, in a large or small quantity of dried fish and furs, which constitute the principal riches of the Ainoes.

In the history of these fallen people there appears to be no certain

epoch. They know nothing themselves of their own past, but they do remember that their ancestors have originally been the masters of Japan, and that to them they owe an absurd legend of their origin, which is not without some resemblance to the general history of the creation found among the people of the West. This has been communicated to me by the Abbé Mermet, who received it himself from the Ainoes, and who has found allusions to the fable in certain historical books of Japan. Their story runs thus,—

“As soon as the world was released from the waters a woman came to live in one of the most beautiful islands of the Ainoes. She arrived in a ship which the winds and waves wafted from West to East, and she brought with her bows and arrows, lances, knives, and lines; in fact, all the requirements for hunting the animals which roamed in the forest, and for obtaining the fish which abounded in their rivers and seas. For a long number of years this woman lived alone and happy in a garden which still exists, but the situation of which no one living can tell. One day she returned from hunting very tired, and to refresh her weariness she went and bathed in a river which separated her dominions from the rest of the world. Suddenly a dog appeared, which she discovered was swimming towards her rapidly. Being frightened, she rushed out of the water and hid herself behind a tree. The animal followed her there and asked her why she had run away from him? to which she replied that she was afraid. Let me stay with you, then, said the dog, I will be your companion and protector and you will have nothing to fear. She consented, and the union of the two creatures produced the Ainoes,—that is to say, the men.”

To this story are added many others, all tending to show that the Ainoes which now people the archipelago of the Kurile Isles, of which Yezo is the southernmost, all came from the West. It is very likely that on the Asiatic continent, and perhaps in the interior of the country, that their origin may be found; but it is certain that they do not resemble any of their neighbours,—the Guilakes, the Tongouses, the Mantchous, and other tribes at present scattered in the North of Asia.

But this race, so thoroughly isolated as it is, is fast failing. Borne down under the pitiless yoke of the Japanese, kept in a state of misery and servitude, which in itself is sufficient to stifle all instinct about them, these people are rapidly hastening to the tomb of the departed, where they will lie very soon by the side of their companions in sorrow and suffering,—the Kamtschadales and the Indians of North America.

They have in former days very probably been conquerors. In far remote times, six centuries perhaps before the time of our Saviour, the Ainoes were masters of the northern provinces of Nippon, and under the reign of the first Mikado, Sin-Mou, the Japanese treated them as their equals, if not as their masters. But their number has retrograded since their dealings with the Japanese. Gradually they



lost territory, power, and influence, and, forced to recross the strait of Tsugar, they fell back on their ancient possessions, the Kurile Islands. The Japanese continued to pursue them in this archipelago. One of their generals sustained a long campaign against them and conquered the imperial government, about the end of the fourteenth century. But from that time they have never attempted to extricate themselves from the Japanese, who despise them. They dare not approach their masters but with the signs of the most profound respect, and they pay a considerable tribute of dried fish and peltries to the Tycoon and the Prince of Mats-mai, the two principal persons in the isle of Yezo.

Formerly every spring a deputation from the Ainoes went to Yedo to do homage and to pay the tribute to the Tycoon. Now the performance of this duty is doubled at Hakodadi in presence of the governor (*o-boungo*). On presenting itself the deputation repeats a certain formula of the convention. Each member of the deputation (generally consisting of four or five) receives a cup of saki, which he empties after drinking to his deity and the temporal sovereign of Yezo. The payment of the tribute is regulated by inferior Japanese officers.

But if one desires to know these strange people, it is necessary to seek them in the interior of the island, in their homes, and away from the eye of the master. The Ainoes are fond of strangers, they offer them all they have, and they are made perfectly happy if in return they receive a present of tobacco and a flask of brandy. At Hakodadi, where they are very seldom found, they are ill at ease and wildly timid, so that there is scarcely any possibility of approaching them.

The roadstead of Hakodadi is considered one of the most beautiful and safest of the whole world. It is in the South of Yezo, nearly in the middle of the strait of Tsugar, five miles deep and four miles across at its entrance. It is surrounded by a semicircle of mountains, which, seen from the interior, appear to enclose it in the form of a large lake. The highest of these mountains is to the northward, and has obtained the name of the Saddle, from its double peak. It is 3,169 feet above the sea in the midst of the chain, of which the mean height is about 2,500 feet. A little further the fumes of a volcanic crater are seen in action. In the interior part of this chain are seen on all sides the huts and villages of fishermen, the most populous of which are Arekana, Tomaniawna, and Mohadsi. Seven small rivers fall into the roads; one only of which, the Kamida, is worthy of notice.

The mercantile port of Hakodadi is in the S.E. part of the roadstead. It is formed by the prolongation of a low peninsula, very sandy, connected with the shore. This peninsula of Hakodadi is five and a half miles in circumference, and its configuration presents a mass of rocks, the highest of which is 1,131 feet above the sea. For about half the year this is covered with snow.

The town of Hakodadi, standing below the peak of the mountain which bears its name, has a miserable appearance, notwithstanding its picturesque position and being embellished with several large and

handsome temples. The inhabitants, amounting to about 20,000 to 25,000 of people, are employed in commercial pursuits as well as in the fishery. The streets are well laid out and kept in very good order. The principal one, which is a continuation of the Tokaido from the West, lies parallel to the shore. It is wide and lined with low houses, the plastered roofs of which are covered with large stones, in order to protect them from being lifted by the severe gusts of wind common to these parts. This street is more than a mile long. Nearly all the houses are converted into cellars; and whatever is exposed to sale consists only of what will tempt Japanese purchasers, and these are articles of necessity and of a very middling quality. In the midst of the town on the slope of the mountain are seen the flags of Great Britain and France over a temple, which, according to treaty, has become the seat of the consulate of the two countries. Close by it is that of the American. As to the Russian, in accordance with the character of that people for being isolated, they have chosen a locality, tolerably considerable, at the extremity of the town, in some European houses, that serve for a consul-general, a medical officer, and a pope, as well as for naval officers in charge of temporary missions of a very enigmatical character. The Russians have also founded an hospital for their own use in the village of Kamida.

Hakodadi, like every other Japanese town, has a particular portion of it assigned to tea-houses. After sunset it is not considered prudent to expose oneself there without arms, for it is a place as ill famed as it is dangerous; and brawls incessantly occur there whether among foreign seamen or among the people themselves. It is not common for these to occur from the Japanese, for they are a polished people and of a pacific disposition; but it is not so with sailors. In spite of the sympathy which they generally inspire, and perhaps deserve, they cannot be advanced as the veritable specimens of European society. Along with their turbulent and quarrelsome character they are the last of men adapted to civilize peaceably a distant colony. The day after my arrival in Hakodadi I met a dozen sailors in the street in a state of complete drunkenness. They formed the whole crew of an American whaler, which had come to refit at Hakodadi after a long and successful voyage. The men had not even seen land for many months; they had of course given themselves over to all kind of indulgence, and had money enough to launch into any excesses. Of course, they had commenced with brandy, and then sallied forth on their cruise, and ransacked the town for some amusement or other. A quarrel for them was a piece of good fortune. But it may be said, without any exaggeration, that out of every hundred of these mishaps which occur at Hakodadi ninety of them have the sailors on one side or the other, and very often on both.

The population of Hakodadi is much mingled. It is composed largely of adventurers, who have left Japan and sought refuge in Yezo, who are tolerated there without being inconveniently questioned on the subject of their antecedents. Therefore the foreign residents

are obliged to live in the midst of a community of suspicious characters, and frequently take the precaution to surround themselves with attendants whom they have brought from Shanghai. The Chinese boys are excellent domestics, and when one is accustomed to their habits, they are even better than Europeans. It is true that in point of work they are not equal to them; but they are punctual, zealous, and not noisy in doing what is required of them. They are boys who have passed ten or twenty years in the service of foreigners, and are persons in whom the utmost confidence may be placed. A good Chinese domestic knows also the value of his character, and never permits his master to abuse his authority. If he be badly treated or insulted he demands his discharge the next day under the common pretext of a father or mother having died. He takes himself off without any passion or resentment, but nothing will ever induce him to change his mind,—he is gone.

The number of strangers at Hakodadi is by no means numerous; not more perhaps than thirty persons, exclusive of the crews of vessels occasionally there. But their life there is neither agreeable nor varied, notwithstanding the Russian officers who arrive from their military colonies in Manchuria, and who find at Hakodadi even numerous society, as well as free, in comparison with that which they have left at Vladivostock or Olga Bay. The Russian officers find themselves very comfortable at a Japanese village, which to their views leaves but little to desire. The dead solitude in which they are accustomed to pass their time, renders them very easily satisfied. Their companions in exile, French, English, and American, do not profit by their example, and full often complain of the monotonous existence to which they are condemned.

But the climate of Hakodadi is little better. In summer there is an unhealthy heat, and in winter a long and severe frost; for according to Dr. Albrecht's meteorological observations (the Director of the Russian hospital) the mean annual temperature of Hakodadi is 46° Fahr. In 1859 this savant states that there were 111 days of rain, 43 days of snow, 6 of earthquake, 7 of hurricane, and one of volcanic eruption.

European news is rare and very irregular at Hakodadi; the town, as well as its environs, having no attraction whatever. The attraction of gain in commercial pursuits keeps merchants at the place, for their duties, as well as those of their functionaries, compel them to reside there some time; but all hope and look forward to leaving it on the first chance, and those of them who know Nagasaki and Yokohama speak of Hakodadi only in terms of its being the third place and the least important of Japanese ports open to foreigners. We left it on the 9th of December without taking with us a single good remembrance of it, saving that of the hospitality to strangers as we had experienced it.

The next object of our voyage was Yokohama. Nothing remarkable happened on our way there. We passed the strait of Tsugar

easily, and after running for three days along the eastern shore of the great isle of Nippon, in the dead of the night of the 13th of December, we entered the bay of Yedo, at the head of which Yokohama is seated, as well as Kanagawa and Yedo, the principal places of political and commercial relations from the West with the empire of Japan.

(To be continued.)

#### THE ROYAL NAVAL RESERVE.—*Regulations.*

*Number, Class, and Rank.*—The Officers of the Royal Naval Reserve on the Active List shall not exceed the total number of 700, and shall consist of four classes, viz. :—

1. "Lieutenants" of the Royal Naval Reserve, whose number shall not exceed 130, and who will, as to seniority and command, rank with, but after, Lieutenants and Masters of the Royal Navy.

2. "Sub-Lieutenants" of the Royal Naval Reserve, whose number shall not exceed 270, and who will, as to seniority and command, rank with, but after, Sub-Lieutenants and Second Masters of the Royal Navy.

3. "Engineers" of the Royal Naval Reserve, whose number shall not exceed 100, and who will rank with, but after, Engineers of the Royal Navy.

4. First Class "Assistant Engineers" of the Royal Naval Reserve, whose number shall not exceed 100, and Second Class "Assistant Engineers," of the Royal Naval Reserve, whose number shall not exceed 100. First Class Assistant Engineers will rank with, but after, First Class Assistant Engineers, of the Royal Navy; and Second Class Assistant Engineers will rank with, but after, Second Class Assistant Engineers of the Royal Navy.

*Appointments.*—The whole of these Officers shall be appointed by the Lords Commissioners of the Admiralty; but their applications for appointment shall be made through the Board of Trade, Whitehall, London.

*Qualification.*—The following Officers shall be eligible for commissions as Lieutenants of the Royal Naval Reserve, viz. :—

1. Masters of British Merchant ships or of other British ships not belonging to her Majesty, under 45 years of age, who hold certificates of competency under the "Mercantile Marine Act, 1850," or the "Merchant Shipping Act, 1854," and who have commanded vessels of not less than 500 tons gross burthen for not less than two years, and who are actually afloat and in command at the time of making their application for a commission.

2. Officers under 45 years of age, who have attained the rank of Master, or a higher rank, in the Indian Naval Force of her Majesty, or in the Naval Force of the East India Company.

The following Officers shall be eligible for commissions as Sub-Lieutenants of the Royal Naval Reserve, viz :—

1. Chief Mates of British Merchant ships, or of other ships not belonging to her Majesty, under 35 years of age, who hold Masters' or Chief Mates' certificate of competency under "The Mercantile Marine Act, 1850," or the Merchant Shipping Act, 1854," and who have sailed as Masters or as Chief Mates in vessels of not less than 500 tons gross burthen for not less than two years, and who are actually afloat as Masters or Chief Mates at the time of making their application for a commission.

2. Officers under 40 years of age, who have attained the rank of Second Master, or a higher rank in the Indian Naval Force of her Majesty, or the Naval Force of the East India Company.

The following Officers shall be eligible for commissions as Engineers of the Royal Naval Reserve :—

1. Engineers of British Merchant ships, or of other British ships not belonging to her Majesty, who hold First Class Engineers' certificates of competency under "The Merchant Shipping Act Amendment Act, 1862," whose age does not exceed 40 years, and who at the time of making their applications are actually afloat in charge of engines of upwards of 100 nominal horse power.

2. Engineers who have attained the rank of Engineer, or a higher rank, in the Indian Naval Force of her Majesty, or in the service of the East India Company, and whose age does not exceed 40 years.

The following Officers shall be eligible for commissions or appointments as Assistant Engineers of the Royal Naval Reserve, viz. :—

(1.) For First Class Assistants of the Royal Naval Reserve :—

(a.) Engineers of British Merchant ships, or of other British ships not belonging to her Majesty, who hold First or Second Class Engineers' certificates of competency under "The Merchant Shipping Act Amendment Act, 1862," whose age does not exceed 40 years, who have served as First Engineers of home trade passenger steamships with engines of 100 nominal horse-power or upwards for not less than three years, or as Second Engineers of foreign-going steamships, with engines of 100 nominal horse-power, or upwards for not less than three years, and who, at the time of making their application, are actually afloat.

(b.) Engineers who have attained the rank of Engineer or First Class Assistant Engineer, or a higher rank, in the Indian Naval Force of her Majesty, or in the service of the East India Company, whose age does not exceed 40 years.

(2.) For the "Second Class Assistant" Engineers of the Royal Naval Reserve :—

(a.) Engineers having similar qualifications to those required of a First Class Assistant Engineer, excepting that they need not have served afloat for a period of three years.

Engineers and Assistant Engineers of the Reserve will not be required to undergo drill.

In selecting applicants for commissions, preference will be given to

those possessing extra certificates of competency, provided their merits appear to be equal in other respects.

Qualifications for a Lieutenant's commission will be a qualification for a Sub-Lieutenant's commission, and qualification for an Engineer's commission will be a qualification for an Assistant Engineer's commission.

After the 1st of January, 1865, no person will be eligible for a commission as Lieutenant on the Active List in the Royal Naval Reserve until he has held a commission as Sub-Lieutenant on the Active List of the Reserve for one year or upwards. And after the same date no person will be eligible for a commission as Engineer in the Royal Naval Reserve until he has held a commission or appointment as Assistant Engineer of the Reserve for one year or upwards.

*Honorary Commanders, Chief Engineers, Lieutenants, and Sub-Lieutenants.*—In addition to the Officers of the Reserve on the Active List there shall be a class of Honorary Officers of the Reserve not exceeding in the whole 160 in number, and of the ranks named below, viz:—

(a.) Honorary Commanders of the Reserve not exceeding 30 in number, and consisting of Officers of the Reserve who have held Lieutenants' commissions for not less than five years, and who are not less than 50 years of age. Honorary Commanders of the Reserve will rank with, but after, Staff Commanders of the Royal Navy.

(b.) Honorary Chief Engineers of the Reserve not exceeding 30 in number, and consisting of Officers of the Reserve who have held commissions as Engineers of the Reserve for not less than 10 years, and who are not less than 50 years of age. They will rank with, but after, Chief Engineers of the Royal Navy.

(c.) Honorary Lieutenants and Sub-Lieutenants of the Reserve not to exceed 100 in number, and consisting of—

(1.) For Honorary Lieutenants; Masters of vessels actually afloat and in command, and possessing qualifications similar to the qualifications of the Lieutenants on the Active List, except that they must be above 45 years of age, and need not be in possession of certificates of competency; and

(2.) For Honorary Lieutenants; Owners of sea-going pleasure yachts of 50 tons register or upwards, who command and act as Masters of their own yachts; and

(3.) For Honorary Lieutenants; Superintendents of Mercantile Marine Offices who have served as Masters in the Merchant Service; and

(4.) For Honorary Sub-Lieutenants; Deputy Superintendents of Mercantile Marine Officers who have served as Chief Mates, or who have attained a higher rank in the Merchant Service.

Honorary Lieutenants of the Reserve will rank with, but after, Lieutenants and Masters of the Royal Navy, and Honorary Sub-Lieutenants of the Reserve will rank with, but after, Sub-Lieutenants and Second Masters of the Royal Navy.

The Officers on the Honorary List will not be required to undergo

drill, nor will they be liable to be called out for active service, except in cases of emergency, and not then, unless they have been at any time on the Active List.

*Promotion.*—Officers of the lower rank in the Active List will, if qualified, be eligible for promotion to the higher rank on that list, at the discretion of the Lords Commissioners of the Admiralty.

Officers who, when in actual service, may, by the character or length of their service, obtain the special approbation of the Lords Commissioners of the Admiralty, will be eligible to receive commissions as Officers in the Royal Navy, of the same grade as that with which they may rank at the time. They will then be considered in all respects as Officers on the permanent strength of the Navy.

Officers who, whilst on actual service, shall have distinguished themselves in action with the enemy, or by the character and length of their services, will be eligible, at the conclusion of their service in the Navy, for promotion to the higher honorary ranks of Commander and Captain of the Naval Reserve, at the discretion of the Lords Commissioners of the Admiralty.

Officers of the Reserve who shall have displayed zeal in promoting the efficiency of the Reserve will be favourably considered for promotion, at the discretion of the Lords Commissioners of the Admiralty.

*Retirement.*—Officers who wish to retire from the Active List may do so at the discretion of the Lords Commissioners of the Admiralty on consideration of their services; either

- (1.) Without rank; or
- (2.) On the Honorary List, with the rank they may hold at the time of their retirement; or
- (3.) On the Honorary List at a higher rank.

*Uniform.*—Officers to wear the same uniform as Officers of corresponding rank in the Royal Navy, with the following exceptions, viz:—

Commanders, Chief Engineers, Lieutenants, Sub-Lieutenants, and Engineers.—Instead of each stripe of half-inch lace round the sleeves of the coats there is to be a stripe formed of two waved lines of quarter inch gold braid, intersecting each other, so as to form bands half an inch wide, the blue cloth to show between the curves.

The Engineers' Department are to be distinguished by purple velvet stripes, quarter inch wide, between the gold braid waved lines round the sleeves of the coat.

Engineers who are only entitled to one waved line, the velvet stripe is to be worn below the gold braid on the sleeves of the coat.

Assistant Engineers, one waved stripe of purple velvet, quarter inch wide, round the sleeves of the coat above the cuff, without any gold braid.

The buttons to be of the Royal Navy pattern, with the letters "R. N. R.," in Old English character, surmounted by a crown.

Instead of the anchor on the epaulettes and shoulder straps respectively, there is to be a badge consisting of a silver anchor in the centre, surrounded with the words "Royal Naval Reserve" embroidered in gold.

Instead of the bullion loop on the cocked hats, the loop to be formed of two gold braids, twisted the same as for coat sleeves.

The badge for the caps to consist of a device similar to that on the epaulettes, embroidered on blue cloth and surmounted by a crown.

The plate for the sword-belt to be the same as for Officers of the Royal Navy, substituting the letters "R.N.R." for the anchor in the centre.

*Drill.*—Lieutenants and Sub-Lieutenants on the Active List of the Royal Naval Reserve will be required to undergo in each year a course of 28 days' drill and gunnery instruction on board one of the district drill ships, or if absent from England above a year and unable to take their drill on board a drill ship, they may perform it on board one of her Majesty's ships abroad having a gunnery lieutenant.

But on special report being made to the Lords Commissioners of the Admiralty by the Commander of such drill or gunnery ship in the United Kingdom, or by the Captain of such ship abroad, to the effect that a Lieutenant or Sub-Lieutenant of the Reserve is competent to instruct and drill men of the Reserve, then such Lieutenant or Sub-Lieutenant will be required to undergo seven days' test drill each year, and if such test drill is performed to the satisfaction of the officer superintending the drill, the further 21 days will be dispensed with; but if the seven days' test drill is not satisfactory, the further 21 days' drill must be performed.

*Messing.*—Officers, whilst on drill, will live on shore, and receive the following subsistence allowance, viz:—

Lieutenants, 10s. a day; Sub-Lieutenants, 7s. a day.

All officers called out for service will mess with Officers of their respective ranks in the Royal Navy.

*Discipline.*—Officers will be subject to Naval discipline when attending drill, and when called out for actual service; and will also, at any time whilst belonging to the Reserve, be liable to lose their commissions for conduct unbecoming the character of her Majesty's service, at the discretion of the Lords Commissioners of the Admiralty. They are expected to provide themselves with a copy of the Queen's Regulations and Admiralty Instructions.

*Service Afloat.*—Officers of the Royal Naval Reserve will be called out for actual service by Royal Proclamation; and they will be liable to serve during the continuance of any national emergency, or until they may be regularly discharged by the direction of the Lords Commissioners of the Admiralty.

*Pay and Allowances, and Pensions to Widows.*—Officers will, whilst called out for actual service, receive the pay of their corresponding ranks in the Royal Navy.

Officers who may receive hurts or wounds whilst on active service in the Royal Navy, or whilst undergoing drill, will receive the same pensions and allowances to which Officers in the Navy would be entitled under similar circumstances.

Widows of Officers who, whilst on actual service, may be killed in action, or die from accident resulting from the performance of their



duty, will receive the same pensions as the widows of Naval Officers of corresponding rank would be entitled to under similar circumstances.

*Repeal.*—All rules, orders, and regulations made in pursuance of the Act 24th and 25th Victoria, chapter 129, shall be repealed from the date when these regulations come into operation; but this repeal shall not affect the validity of anything already done, or any right, title, obligation, or liability already accrued thereunder.

Dated March 1st, 1864.

### CHANGES IN COAST LINES,—By S. M. Saxby, Esq., R.N.

(Continued from page 195.)

“They the Welch mountains?—Nonsense!—Can’t be!—Are they though? Why, they are only hills a hundred or two feet high!”

Such were the words of a fellow traveller a few years since, in a railway train on our journey northwards, as the blue western limit of the horizon revealed itself with increasing rapidity, when I announced the first glimpse of distant Wales. And this is typical of a too prevalent freedom of exclamation when truths under a crude form first present themselves to untrained minds. Start an idea which at all seems to clash with the preconceived notions of those about you, and, as in the above case, you excite surprise, ridicule, flat contradiction, doubt, or unwarrantable assumption, and perhaps all these together.

Now, they *were* the Welch mountains, and another hour’s rattle by the train took us among them, or into their immediate neighbourhood; and a moment’s consistency in my fellow traveller would have saved him some little annoyance, for we seldom commit ourselves by indiscreet assumptions without subsequent vexation.

In a preceding chapter I proposed to demonstrate that a higher sea level than that which now exists must have been in operation upon the cliff faces of our southern coast;—an opinion at variance with popular belief, and perhaps on reading my announcement the usual “Nonsense,” “Can’t be,” &c., have by some been already uttered in disapproval. Be it so. It is for me again to “rattle” onward, and, as in the above case, bring my fellow travellers to a nearer inspection of my “mountains.”

It is somewhat remarkable that the ruggedness of the sea cliffs of the English Channel to which I have referred is not noticeable in the eastern parts higher than, say, Selsea Bill, on the English side, and Dieppe, on the French. It has been shown that the force of the Gulf Stream would have struck rather on the French coast than the English, while perhaps equal devastation has been registered on either. A very long period may have elapsed during which the lagoon was extending so far as the site of the Straits of Dover.

The present mid-channel shoals called the Varne and Ridge (to

which interesting locality our special attention will be given in a succeeding chapter) seem from their direction to suggest some connecting link between the strata which connect the vicinity of Beachy Head with that of Dover. If such be the case, the barrier which gave place to the present straits must appear to have long offered considerable resistance to the encroachment of the waves; and *it must have been during this long period that the sea was working away the coast line at a much higher level than that which now is the average high water line; and for the following reasons.*

If we look to the Bristol Channel we see a gulf or arm of the sea of the nature of that which was once the early stage of the English Channel; and, indeed, the former is similarly situated with regard to the direction of the flood tide as once accelerated by the Gulf Stream: but, from want of a northern outlet, the waters of the Bristol Channel become so much *heaped up* above the highest natural spring tide-marks, as to amount to an excess of twenty-five vertical feet, and this in a length of about eighty miles!

If we take another illustration from the Bay of Fundy, we there find that in a length of about one hundred miles the tide heaps up towards the bight of the bay to the height of about forty feet.

Now, to say little about the force of the "tide wave" in these localities, which has probably a velocity of one hundred miles an hour, and is well named the "bore," we have here a power (which is not an unusual phenomena in narrow tidal estuaries) that, applied on a larger scale, *must* produce stupendous effects. Those of the present generation who have witnessed the "bore" of the Severn as it rolls up its howling head of water,—ten, fifteen, twenty feet high, can readily appreciate the enormous consequences of such huge movements of water against obstructing headlands and shores. It is nothing uncommon, near Chepstow, between Lydney and Barkley Pill, to see vessels lying high and dry aground, the crews leaving them for a short distance for cockle digging; but the instant the distant roar announces the in-coming tide a sudden rush is made for the vessels, and in an incredibly short time (merely a few seconds) the vessels are again afloat and riding at their anchors.

Turning now to the consideration of the former great English lagoon or gulf of nearly 300 miles in length, and comparing what passes daily before our eyes with what may have been the state of such lagoon before the perforation of the Straits of Dover, who will grudge me the indulgence of speculating in a former vertical rise above the present sea tide level in the upper part of the English Channel of, say, *fifty feet.*

In giving due weight to this supposition, let us think upon what, at the present day, is the consequence of an extra rise of tide to the extent of even a few feet—a mere foot or two. I have before me (as an example) a letter, dated 11th March, 1864, from a naval friend, who, writing from Portsmouth about weather just after my "lunar period" of 7th to 10th March last, said—with reference to the fulfilment of my prediction of a high tide on the 10th,—“and the boatmen

on the Hard stated that had the wind been S.S.W. instead of N.W., the whole of Southsea and Portsea would have been under water." I do not hesitate to declare that at the dreaded period of 10th to 13th December last, against which—in the *Nautical* for the previous March—I warned the whole world, so serious might have been not only the rise of another foot or two at Sheerness, but had there been, as it was, any wind from a northerly direction instead of a dead calm, the whole of Sheerness Dockyard would have been submerged, and the town and surrounding marshes to a considerable extent would have presented a scene of devastation with regard to property of which the present residents have scarcely power to form an estimate. The tide register at the dockyard showed a higher tide by ten inches than had occurred since 1847—sixteen years! And yet we are coolly speculating on a former rise of fifty feet occurring twice a day in the former channel "lagoon!"

Before proceeding we should fairly comprehend the consequences of changes of sea level by extending our reasonable surmises. Imagine, in our days, a rise of tide above the average of only ten feet. So great would be the results that the whole eastern coast of England would be changed in outline. In this locality we should, for instance, lose a great part of Sheppey, Sheerness, Greenwich, Deptford, the Isle of Dogs, Plumstead Marshes, together with those of the Essex shore, would be annihilated. Chatham, Rochester, and many important places would be nearly destroyed as seaports. What would become of the Fens of Lincolnshire,—the Weald of Kent,—the Kentish Stour Valley even up to Canterbury itself? Think again of Portsmouth, Southampton, Liverpool, &c.! But add *another ten feet*, and you still more greatly alter the face of England in its outline.

Vast, then, must have been the daily action of the sea upon cliff faces when, with a heaping up of the waters at spring tides to the height of fifty feet, as impelled by strong westerly winds, they lashed the exposed headlands, and left us the splendid ruins which now attract our attention. And immense, indeed, must have been the effects produced on the low lying surfaces of the adjoining lands by waves *advancing and retreating twice in each twenty-four hours* over areas of many hundreds of square miles, both on the English and French coasts; which since the boring through of the Straits of Dover have been dry land, the sites of our pleasant water-side towns and retreats, and the nurseries for that prowess and sinew which, in furnishing a navy, have placed our beloved country at the head of the civilized world.

I think our ablest geologists will admit that I in reality interfere with no stated opinions. Much has been said of "raised" sea beaches upon parts of our coast. How much of these may have been due to the causes I have suggested, and how much to extraordinary tide water levels, is for further research. I shall, however, shortly give a few examples.

At page 72 in the *Nautical* for February last it was shown that at

the mouth of the English Channel there is found a depth of above three miles, and Europe has been spoken of as a *plateau* probably raised to that height above the eastern bed of the Atlantic; while eminent geologists tell us of subsidences and elevations in far remote geological periods, as evidenced by existing remains of sea shells at great heights above the present sea surface. But we need no further mention of this as at all essential to our consideration, for I propose to have shown that our present coast lines are *alone* due to that which I have called (for want of a better term) undavorology.

It may, however, be well to remark as curious that a comparatively small change of sea level as compared with the three miles of altitude of the *plateau* of Europe—say even to the extent of 200 yards out of the 5,280,—would so change the area of England as to produce the following:—

Drawing a straight line from Portland Bill to Scarborough, the whole of the land to the south-eastward of it, excepting a few chalk hill tops in Kent, at the back of the Wight, and a few patches of various kinds in Buckinghamshire, &c., would be submerged; and the western parts of the kingdom would appear as an archipelago, of which Wales would be the mainland. Indeed, where now runs the waters of the Dee would be a channel separating the Welch group from that extending to the Frith of Forth and the Clyde; thus depriving the kingdom of more than two-thirds of its area.

But our business is rather with what may have been than with what might be, and yet we despise not trifles which serve for illustration. A very simple departure from the pursuit we are engaged in, nay, a single step off the beaten path, may reveal novelties, *if we use our eyes* and exercise our understandings. Changes and improvements are produced at times, as in the above case, by such apparent trifles, that it is refreshing to turn from the contemplation of Nature's grander works and look to those which bear upon our personal experience.

It must be above thirty years since, when some schoolboys of the better class were playing at some game in a neighbouring village, through which I was passing, when the eager gestures of an urchin among them attracted my attention; various distortions of face and limbs, and a loud shout, indicated some special source of joy in him. I think it was a successful hit at "marbles." Having scarcely quitted my 'teens, I had, perhaps, in those days retained a relish for, and remembrance of school pastimes larger than is an attribute of this sedate generation. I remember hearing among these boys a loud "Halloo! what's that?" and soon saw that a stone had been accidentally kicked aside and split against a larger one, and the beauty of its colour had surprised the boy into the sudden loud inquiry; which was soon again repeated to me with some eagerness as "Please, Sir, what's this?" I at once, with considerable interest, said it was a *jasper*. A few sentences muttered among themselves led to a second question, of "Jasper, what's that?" followed by the remark, "Jasper by the road side!"

Truly, many things lie as it were by the "roadside," only waiting for us to *crack them up* and reveal their beauty or attributes. Many a roadside discovery has agitated the world in the thirty years since the above incident occurred. What speculative enterprise—what personal risks—what changes of fortune, whether in California, the Antipodes, Nova Scotia, Ireland, or in dear old England itself, have not been originated in, as it were, mere roadside discoveries!

Simple and commonplace as the above may appear, subsequent occasional questions from the same boys, as opportunities offered, manifested a development of thought in them which had, to my knowledge, great influence in forming those points of character which are essential to the careful observer. Nor am I ashamed to confess that the identical jasper referred to was the very "nest egg" of our now splendid family collection; and I am not without hope that the hard, stony subject on which we are, in these chapters, trying "our teeth," may in its final *cracking up* have a like beneficial effect on some of us, and reveal something to permanently interest.

I am glad to find that the ever vigilant Hydrographic Department have determined on a re-survey of the important estuary of the Thames, as appears by the following, from the *United Service Gazette*, of March 26th:—

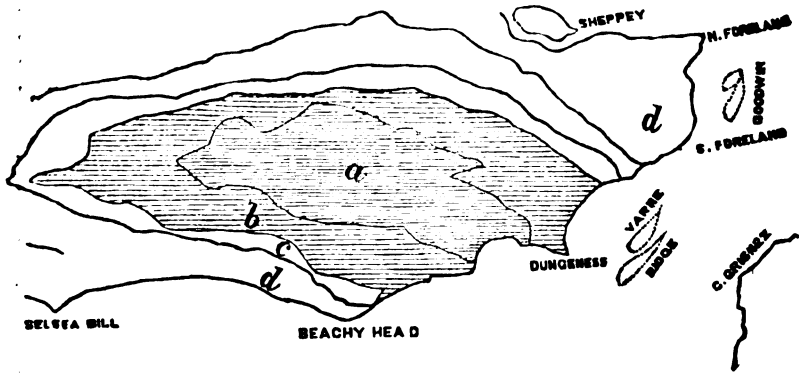
*Re-Survey of the Thames Estuary.*—The *Porcupine*, which vessel is now refitting at Sheerness, is about to be employed in re-examining the sands laid down in the Thames Estuary sheet. The alterations since the last survey are believed to be very extensive, and Staff-Commander Calver, of the *Porcupine*, will have to trace these variations to the north-eastward until they disappear. After executing this service, the same experienced surveyor will re-survey Lowestoft and Yarmouth Roads, the outlying sands of which have very much changed of late years.

The science of undavorology is, therefore, likely to become much assisted and illustrated by the results of such ably conducted labour.

Supposing the reader to have concurred in the suggestions as to the former "lagoon," the extension of which eastward finally separated France from England, one remark in a previous page must be explained, viz.,—that no remarkable ruggedness of cliff or shore occurs eastward of Selsea Bill and Dieppe. I think the following will clearly give the probable cause. Reference to the *Nautical* for February last will show that in the sectional diagram of strata a remarkable upheaval occurred where it is marked "Hastings;" indeed, so remarkable, that in our course eastward we find that after passing Hastings the order of position of certain beds becomes, apparently, reversed.

If, now, we show a ground plan of this part of the kingdom, a singular circumstance presents itself to our notice when we remember what is the order of position referred to, viz., that chalk overlies the green sands and Wealden clay, the latter being the lowest; and yet

they are here found at the same level, and this must be the consequence of an upheaval of the lowest.



Let, therefore, *a*, in the above plan, represent the present exposed Hastings sand (the lower part of the Wealden), let *b* be the Wealden, *c* the green sands, and *d* the chalk. It requires but little to convince us that the encircling of the Wealden, &c., by the chalk was once unbroken. The mid-channel shoals known as the Varne and Ridge will be either ruins of green sand or chalk; while the latter must have been once connected with Cape Grisnez, and, in conformity to the opposite coast, is accordingly succeeded by lower formations at Boulogne, &c.; after which the chalk extends to near Hâvre de Grace.

To render more plain the cause of the peculiarity of beds of different depths appearing, as in the above plan, at the same surface level, imagine the end of a boiled egg to represent the upheaval referred to—the “white” of the egg being the chalk and the yolk the Wealden, &c.—and then cutting off a horizontal slice through both, we see, as in the above, the Wealden surrounded by the chalk.

But the main consideration with us is that this upheaval of strata in Kent and Sussex had, previous to what may be called the “lagoon” period, most probably *so violently disrupted the solid chalk “rim” of this inverted basin of Kent and Sussex, and to such an extent as to have immensely facilitated the rapid penetration of the sea, and thus formed the Straits of Dover.* Of course this having been once effected, the heaping up of the tide would proportionably diminish; so that the gigantic ruins visible on our coasts and on that of France were formed before the said perforation, as we shall further illustrate.

Having, however, found an outlet eastward for the Channel flood and Gulf Stream, we have so far cleared the ground of our argument that it will be highly interesting to detect, if possible, the progress of events which led to our present coast line.

Although it will be well to leave for a new chapter the very pleasant investigations connected with certain peculiar features on our

coast, I must confess to some unwillingness in turning aside therefrom. Perhaps, in this respect I am not unlike an old sportsman, disinclined to finish his day's sport. Reader, did *you* never feel the difficulty of making your "last shot" after some hours' exciting work with the gun? Has never a longing eye been cast over *another* "turnip piece," an undrawn copse, or an adjoining sedge, which might have suggested the adding of just another "bird" or "cock" or two to the bag?

Or, in that most pleasant of all recreations—flyfishing,—did you never, while dismantling your rod for the day, estimate the value of just one more "cast?" "See, by the powers, another and another rise," you exclaim, as, almost mechanically, you replace your fly and stretch your links with all the delight of enjoyment for another throw,—"just under that willow. Hooked!—I have him!—Hold on good line!—Jé-rusalem! how he fights!—Now for mischief!—Off he goes up stream!—No!—Reel up!—Give it him again!—Gone! as I'm a Dutchman!—No!—All right!—He is mastered—subdued, and now I have him. I would not have lost so fine a fish for all the day's sport!"

Well, the best often lies at the bottom, as the reward of perseverance; but pleasure must, in my present case, be deferred to future chapters. It is a peculiarity of science that our enjoyment increases with the steadiness of our pursuit of it. But "how about" all these digressions? Am I really digressing? Considering that I have a roving commission, and am, by kind permission, sailing "full and large, do I really swerve from my course? But stop—

See you that ship in full sail bearing down upon us? How she "yaws!"—more than a point or two. Surely there is either a lubber at her helm or she "steers badly" (not an unfair inference in general). But, wait a bit,—give me the glass. See you that black open muzzle run out of her bow port? There! I told you so,—a bang and lots of smoke. Tha-ats what she was yawing for. There was neither bad steering nor bad steerage. She only wants to attract our attention,—may as well hear what she has to say. She evidently *had a reasonable object* in "yawing,"—*and so have I.*

(To be continued.)

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EVENINGS AT HOME AT THE NAUTICAL CLUB.—*The Annual Meeting of the Royal National Lifeboat Institution: Speech of Sir J. Pakington—The Preservation of Ships' Bottoms—Dartmouth or Falmouth versus Southampton as a Station for Mail Packets.*

The Chairman expressed his satisfaction to learn that the observations on the "Lifeboat and its Work" in the last number of the *Nau-*

*tical Magazine* had been perused with considerable interest. He thought it would be an appropriate addenda to that article to publish the following interesting speech of Sir John Pakington, Bart., M.P., who presided at the Annual Meeting of the National Lifeboat Institution on the 15th March last. The right hon. gentleman—who, on presenting himself was greeted with loud applause—addressed the meeting as follows:—

Gentlemen,—I presume I shall be only fulfilling the duty which devolves upon me as the chairman of the day if I open the proceedings by offering some few observations suggested by the draft report which the secretary has been so obliging as to place in my hands. Let me, in the first place, assure you of the very great pleasure I had in complying with the request preferred to me that I should occupy the chair on this occasion; but, at the same time, I cannot forget that it is only three or four years since I enjoyed the same privilege, and therefore I cannot help feeling that the interests of this institution would have been better promoted by turning to one of the very many persons who are accessible for the purpose, and whose influence would be greater than I can hope mine can be.

Still, I assure you, with the utmost sincerity, that I accepted the duty with the greatest possible satisfaction. There are many here who must feel that amidst the pains and shams of political life, it is most refreshing and delightful to partake of a duty of a different kind, and one in the discharge of which Whig and Tory, Churchmen and Dissenters, men of all classes and of all creeds, can, if they are only human beings, come together with hopefulness for the future and heartfelt gratitude for the past.

I am happy to find that the success which has followed the progress of this institution is of the most gratifying character. The points to which I would allude, and which must constitute the most useful part of any observations which I may make, are set down in the report before me. First, then, there is a reference to the large number of noble gifts in the shape of the entire cost of new lifeboats by "philanthropic individuals." The committee allude to "the splendid gift of £2,000 given by Messrs. Cama and Co., Parsee merchants, London, for the purpose of providing the whole cost, and the future maintenance of a lifeboat establishment on the coast of the United Kingdom, in acknowledgment of the success which had attended their business transactions during eight years' residence in this metropolis, and in testimony of the courtesy and kindness which they had invariably received from its inhabitants." This fact is a most gratifying and delightful one, and it is honourable to these Parsee merchants that they thus express their sense of the advantages which they have derived from their residence in this country, and it is also honourable to the country itself, which has conferred these advantages, and I know of no better way in which these noble-minded merchants could have better testified their gratitude, than by this princely gift to the Royal National Lifeboat Institution.



I am glad to find from the report that the Admiralty are taking steps to provide every ship of war with an efficient lifeboat. But the great point at which this institution aims, and which has been crowned with success, is the saving of human life. I find that during the past year, the lifeboats of this society were the means of saving 417, and that in addition, there were 4,565 shipwrecked persons, who were saved, not exactly by lifeboats belonging to this institution, but by lifeboats, by the rocket apparatus, and by shore boats, manned by crews with all that bravery which characterizes the British sailor in the hour of danger, in order that he may save life at all risks. The report gives a schedule of the number of lives saved, either by the lifeboats of this institution or by special exertions for which it has granted rewards, during each year, for the period of the forty years during which this society has been in existence, and the total is no less than 13,568; and a reference to this schedule establishes the fact that, with the exception of 1852, the number of lives saved last year was larger than on any other occasion. I also found the fact that not less than 120 of these lives were saved by the Ramsgate lifeboat alone, and forty-eight by the Holyhead lifeboat.

However, these are only the details of a gratifying whole; upwards of 700 lives having been saved through the instrumentality of the society's lifeboats during the past year. You know that during October and December there were gales of tremendous power, and that shipwrecks were very numerous on our coasts. The loss of property was immeasurable, but the loss of life was much mitigated by this institution and the lifeboats connected with it.

There is a question which has occupied the attention of Parliament for years—I allude to the formation of harbours of refuge,—but the expense attendant on their construction is a heavy one, and nothing has been done. There is, however, a motion on the notice paper of the House, with the view of raising the question whether the difficulty cannot be overcome by some system of passing tolls. I hope that ere long harbours of refuge will be established; but while I am sure that both institutions would work hand in hand together, I am equally sure that harbours of refuge can never supersede the valuable action of this society. Harbours of refuge would conduce to save property, and in proportion to save human life; but whatever benefit harbours of refuge would confer—and I admit it would be very great—still, looking at the commercial marine of England, and knowing that vessels cannot always find refuge from the storm and tempest in a harbour, I hope there will be a long continuance of those gratifying accounts which this society has hitherto been able to give of its operations, and that it will long insure an enormous saving of human life.

I am not using the language of exaggeration when I say that this society deserves perhaps even more support than any of the noble charities which exist in this metropolis. Some aim at extending education; others aim at rescuing fellow-creatures from distress; others again at arresting disease; but this society aims at the saving

of human life, at the saving the lives of thousands of the brave men who form the marine of this country, and in saving a large proportion of the lives of such men from an untimely end, we rescue their wives and their children from becoming widows and orphans. A charity such as this, therefore, is, and deserves to be, most popular with the public, and it receives a noble support. I trust it may long continue so to receive public support, and that those who follow me in this chair, which, through your favour, I now occupy, will be always able to use the same heartfelt congratulation which I beg to offer you on the increasing success of this most valuable institution.

The Chairman said he felt sure that every one at the Club would heartily re-echo the sentiments of Sir John Pakington, in regard to the great and national work so successfully carried on by the Lifeboat Institution. He then called upon the Secretary to read the report of the last monthly meeting of the society, when Thomas Chapman, Esq., F.R.S., V.P., occupied the chair. The report stated that—

A reward of £23 was voted to the crew of the Redcar lifeboat of the institution, for saving the crew of seven men of the schooner *Brothers*, of Whitby, which, during a storm on the night of the 17th February, was wrecked on some rocks off Redcar. The lifeboat, which is the oldest in the kingdom, was stove in on the occasion, and was afterwards found to be affected with dry rot. Messrs. John Crossley and Sons, of Halifax, have liberally promised to the institution to pay the cost of a new lifeboat for this station.

A reward of £9 was also voted to the crew of the institution's lifeboat at Dungeness, for saving thirteen persons from the ship *Golden Age*, of Liverpool, which was wrecked off Dungeness during a snowstorm on the 19th February. Some of the crew and passengers were also saved by a pilot cutter.

A reward of £6 10s. was likewise granted to the crew of the Holyhead lifeboat of the institution, for having, on the 13th February, brought to a place of safety the brigantine *Bona Nova*, of Oporto, and her crew of nine men. As the lifeboat was returning to the shore the schooner *Britannia* was observed in a dangerous position, and she was also safely brought to a sheltered refuge. The New Brighton (tubular) lifeboat, belonging to the institution, also rendered important services to the ship *Contest*, of Liverpool, whose crew were found by the lifeboat off the Mersey completely exhausted.

A reward of £9 was likewise voted to the crew of the Cambeltown lifeboat of the institution, for putting off during a very heavy gale of wind, and bringing ashore, at their earnest entreaty, the master and crew of twelve men from the Norwegian bark *Iris*, of Stavanger, which was observed in a perilous position, with signals of distress flying, in Machrihanish Bay, near the Mull of Cantyre, on the 13th of February last. Fortunately the vessel held by her anchors through

the following night, and the next morning the crew were again put on board their vessel by the lifeboat, which remained by her day and night, and which afterwards assisted to get the ship out of her dangerous position.

A reward of £5 10s. was also granted to the crew of the institution's lifeboat stationed at Castletown, Isle of Man, for going off in reply to signals of distress, and rescuing the crew of four men from the schooner *Water Lily*, of Pwllheli, which had struck and afterwards became totally wrecked off Fort Island, Isle of Man, during a heavy gale of wind, on the 11th of February. This same lifeboat had gone off again on the night of the 26th of February, with the view of saving the crew of the schooner *Vixen*, of Peel, Isle of Man: but this time the vessel had foundered, and the master, his wife, and crew of four men had unhappily perished before the arrival of the lifeboat. The institution also granted a reward of £11 to the crew of the lifeboat for their services on this latter occasion.

The thanks of the institution, inscribed on vellum, were also voted to H. C. Gill, for going off in this lifeboat on the two occasions in question.

James Barrett, chief officer of the coast guard, and Mark Devereux, pilot, were also thanked for putting off in the Carnsore and Rosslare lifeboats of the institution.

A reward of £10 was likewise voted to the crew of the lifeboat of the society at Lossiemouth, for going off and saving the crew of three men from the sloop *Barbara*, of Burghead, which was totally wrecked during a heavy gale of wind off Lossiemouth, on the 11th of February.

A reward of £6 was also voted to the crew of the lifeboat belonging to the institution at Scarborough, for going off and saving one man from the smack *Howard*, of Grimsby, which was totally wrecked off Scarborough, on the 27th of February.

Rewards were likewise granted to the crews of ten lifeboats of the institution, and of that of Scratby, for going off in replies to signals of distress with the view of rendering assistance to vessels which did not, however, ultimately require the services of the lifeboats.

A reward of £10 was also voted to the crew of the Sheringham (Norfolk) lifeboat, for putting off and saving the crew of five men from the French lugger *Chasseur*, which had struck on some rocks near the village of Sheringham during stormy weather on the 7th of February.

Rewards amounting to £72 15s. were likewise granted to the crews of various shore and fishing boats, for going off and saving the following shipwrecked crews on different parts of the coasts of the United Kingdom:—Ship *Royal Victoria*, of Liverpool, fifteen; ship *Anna Maria*, of Crönstadt, eight; fishing boat of Port Stewart, four; and fishing boats of Straithes, six; schooner *Britannia*, of New Quay, two men saved; fishing boat of Shetland, two; sloop *Shamrock*, of Wicklow, two; pilot boat in distress off Lerwick, seven; smack *Mary Ann*, of Portlaleene, seven; brig *Palladium*, of Shields, seven; brig

*Undaunted*, of London, seven; fishing boat in distress off Hilton, Ireland, five; brig *Alice*, of Newcastle, nine; total, eighty-one lives saved.

The silver medal of the institution was voted to Mr. W. C. Buck, R.N., chief officer of the coast guard at Winchelsea, Sussex, and £1 each to five of his men, for putting off in a coast guard boat and saving, at much risk of life, a poor fellow from the fishing cutter *Thetis*, of Jersey. His crew had abandoned him at Dieppe, and he had crossed the Channel alone in the smack. On returning to the shore one of the coast guard men, named George Terry, was unfortunately washed out of the boat and perished. The institution voted £10 in aid of a local subscription for his widow.

The Rev. C. Erle, brother of Chief Justice Erle, had forwarded to the institution a donation of one hundred guineas. The Chief Justice had previously presented to it a liberal contribution.

The institution had received during the past month legacies from the executors of the following persons:—The late Milborne Williams, of Whitechurch, £45; W. Websdale, £79 16s.; and Samuel Clarke, of Huddersfield, £14 10s. Legacies of £50 each had also been left to the institution by the late Newman Smith and Mrs. Mary Ann Duroare.

It was reported that the Lincolnshire Shipwrecked Association had decided to place its four lifeboat stations under the management of the National Institution, which had decided on completely renovating the same.

It was reported that the institution had new lifeboats ready to be sent to Berwick-on-Tweed, to the Land's End, and to Redcar, Yorkshire. Benevolent individuals had promised to pay the cost of the three boats.

It was also reported that Captain Tryon, R.N., had raised at Bristol nearly the cost, amounting to about £550, of a lifeboat station to be named after that city, and to be established on the shores of the Bristol Channel.

A report was read from Captain Ward, R.N., the inspector of lifeboats of the institution, on his recent visit of inspection of its lifeboats on the Norfolk and Suffolk coasts, all of which he found in excellent order.

The institution had now 132 lifeboats under its management; and during the last fifteen months some of them, together with some fishing and shore boats, to whose crews the institution had granted rewards, had saved 928 persons from different shipwrecks.

The Royal Thames Yacht Club have just forwarded their ninth annual contribution of £10 to the National Lifeboat Institution. We feel assured that with a little extra exertion every yacht club in the United Kingdom might easily contribute every year to that valuable institution.

Payments amounting to £480 having been made on various lifeboat establishments, the proceedings terminated.

The Rev. E. Hewlett, of St. Paul's, Manchester, and R. Whitworth  
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having collected nearly the cost of four lifeboats, which are to be placed under the management of the National Lifeboat Institution, an application was made by Mr. Hewlett to H.R.H. the Prince of Wales that one of the lifeboats, which was to be sent to Berwick-on-Tweed, might be named after the infant prince, the *Albert Victor*. To that application the following reply has been received:—

*Sandringham, King's Lynn, April 2nd.*

Sir,—I am desired by the Prince of Wales to inform you that his royal highness is much gratified by the proposal of the South Manchester Branch of the Royal National Lifeboat Institution, that their new boat should be associated in name with the infant prince, and that he wishes her all success.

I have, &c.,

HERBERT FISHER.

*The Rev. E. Hewlett.*

With the special permission of the late Prince Consort, the Padstow lifeboat of the institution was named the *Albert Edward*, after the Prince of Wales, who is also Duke of Cornwall. By a singular and happy coincidence that lifeboat was the means of saving four poor creatures from an inevitable death on the very day that the Prince attained his majority.

Turning to other matters, continued the Chairman, there is abundance to occupy the attention of his friends. He did not allude to the departure of the illustrious foreigner Garibaldi, or the failure said to have taken place in the celebration of the memory of Shakespeare, or of that disgraceful aggressive war by Prussians and Austrians that was plundering Denmark of its sea shores and territories;—there was enough besides all this in the way of ships and schools of naval architecture, the principal of which is to be established in London on the suggestion of the Institution of Naval Architects, at least so tells us Sir John Pakington, the progress of wood and iron, of one or both in our future ships of war, and the hundred and one things connected with the whole question of nautical matters. And without further observation he would at once refer to the subject of their preservation from weed. He had heard it said that our iron ships were to be preserved by a copper sheathing with an intervening one of wood; but whether the outer material were iron or copper it would still require protection. Now there could be no doubt that in this subject Peacock was ahead of all others, and here is another proof of his superiority in preserving either the one or the other.

The naval world is much interested in the question of what is the best coating for our ironclads and *Warriors*. The *Megara* troopship, which was coated with copper oxide, has been recently docked at Devonport, when, after *seven* months' work only, she presented the appearance of a rock at half tide,—so covered was she with barnacles, coral, weed, and other *impedimenta* of the seas; whereas the *Huma-*

*layn* troop-ship, on being docked at Keyham, was found, after nine months' work, to have merely a few minute barnacles and slime,—nothing whatever to impede her way, and this, too, after a voyage round the world. We hear great complaints from nautical men, of the destructive action of some of the copper compounds used on the bottoms of our iron-sides. The subject is of the utmost importance, and we doubt not that it will sooner or later receive due attention in the proper quarter. We are glad to hear that the composition of Messrs. Peacock and Buchan, which has been so successfully used in the case of H.M. troop-ship *Himalaya*, is so extensively patronized by the great steam navigation companies and divers foreign governments. That it is proved to be a thorough good thing for the purpose of keeping an iron ship's bottom from fouling, and from the destructive effects of galvanic action, there is no doubt, after the repeated successful trials that have been made. There may be still better compositions as yet undiscovered; but till they are brought to light, it would be as well to keep the *copper* oxide for *wooden* bottoms, and apply to the iron-sides the stuff that really does answer the object.

The question of the best packet port for West India and Southern mails is exciting attention, said Albert. It appears that Dartmouth and Falmouth are moving in earnest on the subject in the way of deputations to the government, as will be seen by the following:—

A large and influential deputation attended on the Postmaster-General with reference to the question which is again being agitated as to expediting the delivery of letters by the ocean mail packets. Among the deputation were John Hardy, Esq., M.P., W. S. Lindsay, Esq., M.P., John Pender, Esq., M.P., Alfred Seymour, Esq., M.P., Sir Henry Paul Seale, Bart., C. Seale Hayne, Esq., chairman of the Dartmouth Railway, G. E. Bidder, Esq., chairman of the Dartmouth Harbour Board; Captain Sheringham, R.N., Captain Arkwright, R.N., Captain Bulley, &c.

Mr. Hardy introduced the subject by referring to the two government reports of 1840, whereby, after referring in detail to the inquiries the commissioners had made as to the best port in the West of England for the arrival and departure of the mail packets, they unanimously reported on both occasions in favour of Dartmouth.

Attention was drawn to the important fact that the railway would be completed in July down to the harbour at deep water, with very commodious wharfage and piers, so that the steamers might go alongside at any time of the tide, day or night, and the other facilities were fully entered into in detail. Mr. Lindsay mentioned the practical experience he had had during the time his line of vessels had carried the mails between England and Calcutta, and explained the advantages which he considered Dartmouth possessed over all other western ports. Captain Sheringham, who was for many years in the government survey department, and had surveyed all the western harbours, gave a very clear statement of facts in support of the advantage of Dartmouth over all other western ports. A detailed statement was handed

in showing the great saving in time to the merchants of London, and especially to those at Liverpool and Manchester, and all northern towns, by a western port being fixed. It was urged on the Postmaster-General that the government ought to assist in this important point by inquiring into these facts, and when satisfied as to which port gave the greatest facilities, requiring the packets to call at that port. His lordship promised to give every attention to the statement of the deputation, and that the matter should be fully considered before the next tenders for the mail service were called for.

And Falmouth thus puts forth its claim.

A deputation had an interview with her Majesty's Postmaster-General, Lord Stanley of Alderley, on the 19th of April, at the House of Lords, on the subject of making Falmouth the port of call for the West India mail steamers.

The following noblemen and gentlemen were members of the deputation:—The Earl of St. Germans, Lord Wodehouse, Mr. G. J. Goschen, M.P.; Mr. Robert Dalgleish, M.P.; Mr. W. Buchanan, M.P.; Mr. H. E. Crum Ewing, M.P., President of the Glasgow West India Association; Mr. A. Black, M.P.; Colonel Sykes, M.P.; Mr. A. M. Dunlop, M.P.; Sir T. E. Colebrooke, Bart., M.P.; Sir M. Shaw Stewart, Bart., M.P.; Mr. E. H. J. Craufurd, Jun., M.P.; Mr. E. Potter, M.P.; Mr. H. Pease, M.P.; Hon. A. Egerton, M.P.; Mr. Bramley Moore, M.P.; Mr. J. Pilkinton, M.P.; Mr. G. S. Beecroft, M.P.; Mr. H. R. Grenfell, M.P.; Sir A. Hood, Bart., M.P.; Mr. L. L. Dillwyn, M.P.; Mr. J. W. Buller, M.P., Chairman of the Bristol and Exeter Railway Company; Mr. T. J. A. Robartes, M.P.; Mr. Nicholas Kendall, M.P.; Mr. Richard Davey, M.P.; Mr. John St. Aubyn, M.P.; Mr. T. G. Baring, M.P.; Mr. M. E. Smith, M.P.; Mr. H. Paull, M.P.; Hon. F. L. Gower, M.P.; Mr. Grainger, President of the Liverpool Chamber of Commerce; Mr. Fleming, Secretary Manchester Chamber of Commerce; Mr. Potter, Chairman of the Great Western Railway Company; Mr. Bruce and Mr. Meade King, Directors Bristol and Exeter Railway Company; Mr. Robert Tweedy, Chairman Cornwall Railway Company; Mr. Alfred Fox, Chairman Falmouth Docks Company, and others.

The deputation was introduced by the Earl of St. Germans. Mr. Goschen having presented a memorial, signed by a large number of merchants, bankers, and others of the City of London, in favour of the object of the deputation, Mr. Dalgleish, Mr. Crum Ewing, and other members from the North, set before his lordship the great inconvenience sustained by the northern commercial interests from the short time at present allowed for the replies to letters, and the advantage of having an earlier delivery by landing the mails at Falmouth, from which at least twenty-four hours would be gained by the public. Mr. Grainger, President of the Liverpool Chamber, stated the strong interest felt at that port on the subject, and asked his lordship what additional subsidy was required by the Royal Mail Company for landing and embarking the mails at Falmouth. His lordship replied, about

£3,500, and made some remarks on the time occupied between Falmouth and Plymouth, and between Falmouth and London, by the present mail service. Mr. Potter, Chairman of the Great Western Railway Company, stated that a special mail service from Falmouth to London might be performed in from eight to nine hours. Mr. Bramley Moore, Mr. St. Aubyn, Mr. Goschen, Mr. Abernethy, and others, having addressed his lordship, his lordship stated that he was not at present prepared to recommend the government to incur the additional expence which the alteration would involve, but that the whole subject was now under consideration.

Now there is much for consideration between these two places, said Albert. The snug deep water estuary of Dartmouth beats Falmouth in many respects. What can be compared with the advantage of having the steamboat at her pier as soon as she is inside, and that close to the rail which was but six hours to London. Falmouth has its former prestige as a packet station, but is ten and a half hours to London, express, by Bradshaw.

[We could find no room for further discussion.—Ed.]

## Nautical Notices.

### PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 217.)

Name.	Place.	Position.	F. or R.	Ht. in Feet.	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
13. Richibucto Head	Gulf of St. Lawrence	46° 39' 7" N., 64° 42' 5" W.	F.	70	14	Est. Spring, 1864.
14. Calais Pier	France, N. coast	Eastern	F.	30	9	Est. 1st May, 1864. (a.)
15. Cape Kiti	Cyprus S. coast	84° 40' N., 33° 30' 9" E.	F.	92	6	Est. 18th March, 1864.
Mersina	Karmania coast	36° 45' 8" N., 34° 40' 7" E.	F.	49	5	Est. 30th March, 1864. (b.)
Tripoli	Syria	34° 30' N., 34° 45' E.	F.	56	5	Est. 25th March, 1864. (c.)
16. S. Ciprian	Spain, North coast	48° 48' N., 7° 28' 5" W.	F.	121	9	Est. 30th May, 1864.
Conejera Isl.	Spain, Barquera	43° 45' 0" N., 7° 40' 8" W.	F.	273	9	
17. Cartagena	Spain, Esbrera Isl.	37° 53' 5" N., 6° 37' 9" W.	F.	223	4	Red light.

F. Fixed. FR. Fixed and Flashing. R. Revolving. I. Intermittent. Est. Established.

(a.) 14.—The light will be shown when there are eight feet water at the entrance of the channel. The small green light will be discontinued. The tidal light hitherto exhibited from Fort Rouge will also be discontinued.

(b.) 15.—The lights are *fixed red* lights, placed vertically; the upper light is forty-nine feet above the mean level of the sea, and should be seen at a distance of five miles.



(c.) 15.—The light is a *fixed red* light, at an elevation of fifty-six feet above the mean level of the sea. It is seen all round the horizon, and visible from a distance of five miles. The tower stands on the highest part of Ramkine Islet, at the outer extremity of the chain of islets and rocks forming Tripoli Roadstead.

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#### REVOLVING LIGHT ON THE WEST HINDAR.

The Belgian Government has given notice that a light has been placed on the West Hindar Bank to assist vessels making the Belgian coast, lat.  $51^{\circ} 22' 8''$  N. and long.  $2^{\circ} 26' 4''$  E.

The light appears once in every half minute; every *third* appearance of it being *red*, the two preceding and the two following being of the *natural colour*.

The vessel lies in seventeen fathoms at low water, and rather more than half a mile from the South part of the bank, with the following bearings:—Newport light, S.  $20^{\circ}$  E., 17.9 miles; Dunkerque light, S.  $27^{\circ}$  W., 19.8 miles; Dyk red buoy, S.  $47\frac{1}{2}^{\circ}$  E., 3.5 miles; South Foreland lights, S.  $89\frac{1}{2}^{\circ}$  W., 42.7 miles; Galloper light, S.  $22^{\circ}$  W., 29.8 miles; North Hindar, N.  $38^{\circ}$  E., 15.2 miles; Ostende light, S.  $47^{\circ}$  E., 20.2 miles: magnetic bearings.

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#### MILNE BANK,—*Atlantic Ocean. Report of Admiral Sir Alexander Milne, K.C.B.*

“When the Atlantic Ocean is thoroughly examined,” said Lieutenant Sainthill, in our volume for 1859, “I expect the ‘lofty lump’ on my mountain will be found ‘somewhere thereabouts.’” Now, this “thereabouts” is the position in which that officer had reported a deep cast of 100 fathoms in 1832. A deeper cast of some 3,000 fathoms had been made by Commander Dayman, and so near to Lieutenant Sainthill’s 100, as to induce that officer to doubt the Lieutenant’s accuracy.

The subject was examined in 1859, and we then concluded that while the superior accuracy of the government means with which Commander Dayman was supplied rendered his result conclusive, there was still no reason whatever to doubt the correctness of Lieutenant Sainthill’s report,—not strictly in the position assigned to his 100 fathoms, but that such a depth was “thereabouts,”—and the justness of our views has lately received the most ample confirmation. Before the “Atlantic has been thoroughly examined,” the attention of Admiral Milne having been attracted by the peculiar colour of the water on his passage home, he dropped his lead, and we have the good fortune to receive the following report from him, addressed to the Lords Commissioners of the Admiralty:—

“On the 28th March, in lat.  $43^{\circ} 35'$ , long.  $38^{\circ} 50'$  W., during the passage from Bermuda to England, the sea assumed a dark, dull, lead colour, and soundings were obtained in 92 and 81 fathoms, and twelve miles E.N.E., 100 fathoms, fine sand and ooze.

"I am inclined to think that a bank of some considerable extent exists in this locality, as the water for many hours previous to sounding was of the same peculiar tint, indicating soundings, and this appearance continued to the E.N.E. until the night of the 29th inst. This morning we regained blue water, and with reference to notices on the chart of 100 fathoms water (Sainthill), 35 (1851), it strikes me as probable that this bank extends from long. 42° W. to 35° W., and between the lats. of 42° and 45° N."

Here, then, after an interval of thirty-two years, we have the satisfaction of seeing Lieutenant Sainthill's cast of 100 fathoms amply confirmed. Indeed, Sir A. Milne is of opinion that a bank of soundings extends E.N.E. and W.S.W., true, between the meridians and parallels which he has named. There appears to be ample grounds for this conclusion, and there is quite sufficient authority for a further examination of this bank, on which even less depths than Admiral Sir A. Milne's 81 fathoms may be found. Indeed, there is a suspicious cast of not more than 35 fathoms, with the date of 1851 against it, the authority for which we have not been able as yet to ascertain.

But assuming Admiral Sir A. Milne's position to be correct, we shall preserve the true bearings and distances of (1) Lieutenant Sainthill's 100, (2) the 35 fathoms of 1851, and (3) the  $\overline{35}$  no bottom of Commander Dayman, as follows:—

1. bears N. 68° W., 105 miles.
2. " S. 67° W., 145 "
3. " S. 54° W., 145 "

We look on Admiral Milne's sounding as a most important contribution to the chart, for it not only comes as unassailable in veracity from his high authority, but is also a confirmation of Lieutenant Sainthill's peak on what may with great propriety be called the Milne Bank.

We consider this bank as well deserving further examination, if a thorough examination of the Atlantic is really only to be gained step by step, or if we are really unable to further the cause of submarine telegraphy by instituting such a voyage as that of which our American friends set us so good an example in the voyage of their little vessel the *Dolphin*.

The Hydrographer of the Admiralty has named the bank here alluded to the Milne Bank.

#### DAVID AND VINE HORSE-SHOE REEFS,—*East Coast of Australia.*

The assigned position of these dangers, given in the *Australia Directory*, vol. ii., p. 277, were passed over and sounded on by H.M.S. *Herald*, in 1859, but nothing was seen, and consequently they were expunged from the charts. Information has lately been received at the Admiralty that the ship *Warsfell*, Mr. Hugh Brodie, Master, bound to Port Denison from England with emigrants, sighted two reefs, one

in lat.  $19^{\circ} 20' S.$ , long.  $152^{\circ} E.$ , the other in lat.  $20^{\circ} 5' S.$ , long.  $151^{\circ} 5' E.$ , which latter is probably a portion of the edge of the Great Barrier Reef. The former reef is described to be of an oval shape, N.W. and S.E., and about five or six miles in circumference; the latter to be about ten miles in circumference, of a horse-shoes shape, and open to the N.N.E.

*Caution.*—The mariner is again reminded that the Curtis and Capricorn Channels are the only entrances into the Inner Route from the South-eastward, and that nothing would justify him in attempting a passage through the Great Barrier Reefs, the outer edge of which, between the Swain Reefs and Cape Grafton, has never been traced. The *Warsfell* succeeded in passing through the Great Barrier, but it must have been at great risk of life and property.

### A DANGEROUS ROCK IN GASPAR STRAITS.

*Liverpool, March 4th, 1864.*

Sir,—I notice, in your publication of the 29th Feb., an account of the loss of the ship *Lammermuir* in Gaspar Strait, and, from the bearings there given, I am convinced it must have been the same rock on which I struck in 1849, homeward-bound from China. In working through the strait with a fresh southerly breeze, the ship all at once ran herself three feet out of the water forward. On sounding from the ship we had no less than twelve fathoms from the taffrail to the bowsprit end, but could touch the rock from the bow with an oar, just under the foremast, where there were only twelve feet, and perfectly conical. We hung four hours on it, using every endeavour to heave her off. Having lost all our small anchors, we were in the act of getting out the launch to run out a bower, when the tide turned, canted her round, and she dropped off, losing forward length of false keel.

My son having all my books and charts with him at sea, I am unable to give the exact bearings, but, if memory serves me right, my impression is this rock lies about W.b.S.  $\frac{1}{4}$  S. of little Pulo Leat  $1\frac{1}{2}$  miles, the most southerly visible point of the large island E.b.S.  $\frac{1}{2}$  S. from it. I remarked at the time I must have gone between it and the island many times, both night and day. I reported this rock from Anjer to Batavia, but as that was my last voyage to sea, I was not in the way of noticing whether it had been surveyed subsequently, and correctly laid down. It is a most dangerous rock, next to impossible to find, its surface being so small there is never sea enough to cause a ripple on it. In the absence of either books or charts I may be a little in error, but if you think these remarks worth inserting you are quite welcome to them.

Yours truly,

BENJAMIN SPROULE.

*To the Editor of the Shipping and Mercantile Gazette.*

THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle.

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JUNE, 1864.

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WHICH IS THE MOST PROPER PORT OF CALL IN THE CHANNEL FOR  
OUR FOREIGN MAIL STEAMERS ?

The notices of two deputations to the Government on this subject a few days ago has suggested the foregoing question. And as it is one of those that partakes very much of a nautical character, it may be fairly considered within the province of this journal to look at it in all its bearings—to sift out facts, and separating them from all private interests—to ascertain which is the most proper port for the Indian mails in order to secure those advantages to the public which they have a right to expect. “The right man in the right place” is an aphorism, the realization of which is generally appreciated, and we hold that “right things in their right places” is another no less valuable in order to get out of them that perfect system of work which the former requires.

Free from all prejudice and ignoring all interests in considering this subject, our only object here is to arrive at the true and proper answer to the above question, viz.:—Which is the most proper port of call—because the most advantageous in point of distance, which is time, and convenience, which is another species of time—for the arrival and departure of the foreign mails.

The competing western ports may be considered as Falmouth, Plymouth, Dartmouth, and Southampton, although the latter cannot be considered a *western* port.

It will be convenient to assume a position at the entrance of the Channel, through which all the foreign mail steamers would pass, as

servng as a point from which distances can be measured to any one of the four ports; and the most convenient position appears to be about fifty nautical miles N.W. true from Ushant. We will assume and call this point, A; the course to Southampton, however, lies nearer to Ushant than the one adopted. As time is equivalent to distance, we will measure the former by the latter and allow a rate of 10 knots to the hour for that purpose.

Taking the several ports which we have selected—Falmouth, Plymouth, Dartmouth, and Southampton—in their due order, we begin with the first.

At Falmouth the steam packet, it must be presumed, would lie in Carrick Road, distant about a mile from the railway terminus; for although we hear of docks at that place, it does not appear that a vessel can approach them without crossing the shoal bank which masks their entrance. It is said that a channel is to be dredged through this bank; but as the tide runs directly over it both ways, it must be something more than a mere cut that must be dredged away to allow for the action of that tide, and prevent it from silting up. As these docks and rail are inaccessible to the vessel from want of water, recourse must be had to boats or a small steamer.

Then from our position at A to Falmouth, being 75 miles, the case will stand thus in respect of time:—

A to Falmouth .. .. .	6h. 0m.
Anchorage to landing and rail: boat or small steamer	1 0
Express to London* .. .. .	10 35
<b>A to London by Falmouth .. .. .</b>	<b>17 35</b>

We now turn to Plymouth. The steamer must here also arrive in the Sound while the tide is up, or she cannot go to Mill Bay, where her landing pier is situated. Her anchorage in the Sound, moreover, is about a mile and a half from Mill Bay, whither her mails and passengers must be carried, as at Falmouth. But, admitting that the tide will allow her to run at once to her pier, there is the spit of Drakes Island to be passed, on a rather tortuous course, in a dangerous navigation during a dark night. As the distance from A to Plymouth Sound is 109 miles, the summary of this route would be as follows:—

A to Plymouth .. .. .	9½h.
Delay of anchorage to landing and rail: boat .. .. .	1
Express to London .. .. .	7
<b>A to London by Plymouth .. .. .</b>	<b>17½</b>

Here, again, as at Falmouth, there is a delay, arising from the same causes, the open character of the roadstead, where the mail steamer would frequently have to remain for tide time, together with considerable difficulties of approach to her landing jetty.

Now, what do we find at Dartmouth? First, abundance of water;

\* These times are all from Bradshaw.

secondly, the immediate proximity of perfect shelter: thirdly, an ample depth of water at low water of the lowest tides, sufficient to admit the mail steamer herself at once to run to her jetty, which jetty, it may be also observed, is not a mile from sea.

These, indeed, are first-rate advantages—those which constitute the very essence of qualification for a port of call for a mail steamer. Here all boating is dispensed with. The passengers, instead of enduring the miseries of a tedious middle passage, exposed occasionally to the inclemency of weather and sprays of the sea, have merely to step on to the jetty, and about fifty yards takes them to the rail. Thus time and comfort are secured without inconvenience or risk.

One objection to Dartmouth has been its contracted space? Let us look to this. The mouth of Dartmouth Harbour is above a cable's length across from one headland to the other. With leading lights, so that whatever may be the kind of weather outside, the steamer can enter by means of these, at any state of the tide; and as the breadth increases inside and continues up to the steamer's pier, there is no difficulty for her to contend with, nor need she do more than give a moderate berth to a point, where a turn may be necessary, until she slows her engines to take up her berth. No shoals are in her way or ought to avoid; neither is there here that open exposed navigation that must be encountered at Plymouth or Falmouth. The vessel is no sooner within the heads of the estuary than she is in a pool, landlocked; and in a word it may be truly said that here is the least amount of sea risk, and the easiest access at all times of tide or weather.

We have heard Dartmouth Harbour spoken of as being a blind harbour—a definition which does not come home to a seaman's mind. If by a blind harbour be meant one that is beset with shoals, then those who apply it to Dartmouth must be blind themselves to the facts of the case.

Dartmouth Harbour, then, has given abundant answer to all the queries for the requirements of a port of call for the mail steamers, and such answers that neither of the others can in our opinion return. Let us now turn to the question of time for the arrival of the mails in London. From the position at—

A to Dartmouth is .. .. .	10½h.
Delay of anchorage to landing and rail .. .. .	0
Express train to London .. .. .	6
	<hr/>
A to London by Dartmouth .. .. .	16½

Thus Dartmouth claims advantage in time over the two former ports.

But we have yet to look to Southampton, a place which, as already possessing the privilege of being the port of call for the mail steamer, should have advantages superior to any other. Southampton is far eastward, a long way up Channel, a fact which strikes us is certainly not in its favour, as so much time is lost in the delivery of the mail that would correspond to the difference between the rate of the vessel

and the rate on the rail. However, reverting to our code of questions we do not find that all of them can be answered affirmatively at Southampton. Here, again, we must depend on the condition of the tide as to approaching Southampton. No doubt there are good docks at Southampton, but a rise of tide is required to allow the steamer to get into them. There is also a good landing pier at Southampton, but it is in the same predicament—without the tide the steamer cannot get near it, and her anchorage, from which she must land the mail and passengers by small steamer, is often even further off that pier than at Falmouth or Plymouth.

Nor does Southampton enjoy an entire freedom from sea risk; the passage of the Needles and the Solent require something more than caution, occasioning an anxiety on some occasions of no ordinary kind; and yet we find Southampton the port of the mail steamers, —a preference which possibly may have arisen from the South-Western Railway between Southampton and London, being among the first that was completed in this country.

We cannot, therefore, in any common justice, award the palm to Southampton. Let us see how it stands in point of time with London.

A to Southampton in..	..	..	..	..	19h.	0m.
From anchorage by boat to land	..	..	..	..	1	0
Express to London	..	..	..	..	2	53
						53
A to London by Southampton	..	..	..	..	29	53

Then, to sum up, these times stand thus for the four ports :—From position A—

Falmouth mails would arrive in London in	..	17h.	35m.
Plymouth	..	17	15
Dartmouth	..	16	15
Southampton	..	22	53

Showing an advantage in favour of Dartmouth of 1h. 25m. over Falmouth, 1h. over Plymouth, and 5h. 38m. over Southampton.

We have allowed to the three ports to which Dartmouth is thus superior one hour each for the time which it would require to get the mail on the rail; but we believe that this frequently would be considerably exceeded in all of them. Dartmouth, having no such interruption as that to which the others are subject, has thus a superior claim, which would ensure the delivery of the mail in London from that port with the utmost regularity in sixteen hours and a quarter.

We had just arrived at this stage of our inquiry when we discovered that this very question had been discussed by a committee so long ago as in 1841; and it is satisfactory to find our own conclusions confirmed by the members of that committee, Admiral Sir James Gordon, the chairman, and Captain R. Drew, an Elder Brother of the Trinity House. The ports which they had selected for their consideration

were the four above mentioned, and our conclusions are identical. Indeed that conclusion is founded on so much seamanlike reasoning and deliberate consideration of the qualities which they consider a packet station should possess, that it should properly form part of any discussion on the subject.

We have never read a fairer or more dispassionate report than this, or one which meets every argument on this important question more completely, giving to each, whether for or against, its due consideration and weight in the scale; and since any partial extract from it might be supposed to be suggested as supporting our own conclusions, we shall introduce it here in its entire state, as confirming our own opinion in a most complete as well as unexpected manner. It appears to be a return to an order of the House of Commons, and is dated 10th of August, 1840, for a copy of the report of the committee appointed by the Lords Commissioners of the Admiralty to inquire as to the *comparative advantages* afforded by different ports in the Channel as ports for the arrival and departure of the West India Mails.

*Admiralty, Somerset House, 6th August, 1840.*

1. Sir,—In accordance with the desire of my Lords Commissioners of the Admiralty, signified in your letter of the 20th of May, 1840, to Rear-Admiral Sir James Gordon, and in fulfilment of the instructions contained therein, we, the undersigned, have prosecuted the desired examination, and inquired into the advantages respectively afforded by the ports in the British Channel for the efficient performance of the public service, undertaken by the Royal Mail Steam Packet Company.

2. The points to which their lordships have been pleased to direct our especial attention in the investigation of this important question are to require, in the first instance, the reasons on which the chairman of the said steam packet company had submitted that Southampton be fixed on as the port for embarking and landing the mails to and from the West Indies, and then to examine into the claims of the different ports in the British Channel; reporting to their lordships which port we might consider most eligible for the purpose, with regard to facility of access at all times, and with reference to the internal arrangements of the post-office for despatch in the transmission of the mails.

3. We now beg leave to report, for their lordships' information, that the directors of the Royal Mail Steam Packet Company having furnished the committee with a statement, setting forth the contemplated advantages which they considered would result to the public, and to the proprietors whom they represented, by the adoption of Southampton, we proceeded to the coast, and visited in the following order the ports of Southampton, Portsmouth, Dartmouth, Plymouth, and Devonport, and the waters connected therewith; also Falmouth and Mounts Bay.

4. From each of these places memorials had been presented to Her



Majesty's Government, and copies thereof had been furnished us for our guidance. The authorities of each port were previously apprized of our intended visit and examination, accompanied by a request that they would be prepared to adduce such evidence, either verbal or written, as they might consider essential in support of their respective memorials; and upon our arrival at each place we made further communication to the gentlemen deputed to conduct the case on the part of the memorialists of the objects we had in view, and our readiness to receive any evidence, however extensive, which they might consider desirable to produce.

5. Notwithstanding our previous practical acquaintance with these several ports and their localities, we, on this occasion, felt it our duty to examine most attentively their respective capabilities; and we endeavoured to elicit, by strict interrogatory of the witnesses, any points bearing upon the subject of our investigation which might have escaped our personal notice in past or present time.

6. Throughout the whole course of our proceedings a deep interest was invariably manifested by the parties to whom the task of representing the alleged advantages of each particular port had been assigned: nor can we withhold this expression of our sense of their zeal and intelligence.

7. The period of a week passed at Southampton, the same time at Portsmouth, four days at Dartmouth, ten days at Plymouth, including Devonport, and seven days at Falmouth—a large portion of which time was devoted to the reception of evidence—will, we trust, sufficiently testify to their lordships our anxious desire to obtain the fullest information upon every point connected with this investigation.

8. Their lordships were pleased to authorize us to examine into the advantages of selecting any other port in the English Channel than those which might come before us by memorial; but we have not judged it expedient to avail ourselves of this authority beyond a cursory survey of the harbour of Fowey, on our return to the eastward from Mounts Bay in Her Majesty's steamer *Meteor*; and this port does not call for remark with reference to the subject before us.

9. Upon our arrival in London, we addressed a letter to the chairman and directors of the Royal Mail Steam Packet Company, inviting them to lay before us any objections which they might have to offer against the selection of Portsmouth, Dartmouth, Plymouth, Devonport, or Falmouth, should it appear to us, on a review of the evidence produced, that one of those ports was eligible for the contemplated purpose of a packet station. We have received from that Company their reply, and we have given it our serious attention.

10. Before we advise their lordships of the result of our investigation, or state the reasons on which that result is founded, we beg to offer a few introductory observations.

11. We consider, that while in this country the locomotive engine and its important uses continue to occupy the attention of men of science, and a redundancy of capital encourages the spirit of energetic enterprise, it is not unreasonable to suppose that a railroad may at

some future period be prolonged to the S.W. Land's End of England, and a harbour constructed in that neighbourhood, where the mails may with facility be put on board and landed from the largest steam vessels ; and, provided such a railroad and harbour now existed, we should unhesitatingly recommend the latter for their lordships' adoption, assured as we are that expedition and security are more attainable by railroad conveyance than by steam navigation. The expression of this opinion will at once convey to their lordships that we consider a western port most desirable for embarking and landing the mails to and from the West Indies, and upon which we shall hereafter further observe.

12. We believe the requirements of a port for a packet station to be comprised, chiefly, in its adjacent headlands, as landfalls ; the light or lights exhibited thereon ; its comparative freedom from outlying dangers ; the depth of water in the entrance to and within the harbour, regardless of the state of tide ; the rise of tide, and strength of its stream ; and most especially the tranquility of its waters.

13. The advantages of a quiet and not much frequented harbour must be obvious ; and we think that many objections present themselves to the selection of a large naval port as a packet station, subject as it is, not only to the great national maritime operations, but, in some cases, to the influx of shipping seeking shelter therein, and which would necessarily occasion much obstruction to the departure or arrival of steam packets.

14. Their lordships may rely that no occasion has been allowed to escape us of insuring to the parties advocating the claims of the several ports the fullest opportunity of tendering unlimited evidence upon their respective merits ; and we have exercised a patient diligence in our inquiries into their capabilities, and into the localities of the towns immediately connected with them.

15. Having, therefore, given the fullest consideration to all that has been adduced in support of the claims of Southampton, Portsmouth, Dartmouth, Plymouth, Devonport, and Falmouth ; and having most anxiously and deliberately viewed the whole question in its various bearings, together with the concluding paragraph of their lordships' instructions :

16. We beg to state our opinion, that Dartmouth will be found the most eligible port wherein the mails to and from the West Indies may be embarked and landed.

17. In coming to this conclusion, it behoves us to state the reasons which have governed us in this selection ; and in the endeavour to set forth the advantages which we consider Dartmouth to possess for the contemplated service, as they apply to the packets, the Post-office, and the public generally, we shall abstain from bringing it into direct comparison with any other port further than to exhibit their respective distances by sea and land from a given point, and the probable time that would be occupied in the transmission of the mails to and from two great centres—viz., London and Birmingham ; the result of

which we find to be not unfavourable to Dartmouth, independent of the superior qualifications we deem that port to possess.

18. This comparison, in a tabular form, we append to our report ; but it is proper to premise, that, in the selection of a western port as a station for the delivery and reception of the West India mails, in preference to one that may be situated more to the eastward, we have taken into account the greater degree of uncertainty which is attached to the transport of mails by steam vessels compared with that in which a coach or a railroad becomes the medium of conveyance ; and, as respects the eastern port, it should be borne in mind that the correspondence for and from the western part of our shores would be subjected to a carriage, in both cases, by sea and land, very wide of their destinations.

19. That, as already adverted to, if we regard London and Birmingham as two great centres of communication, the former in connection with the south of England and the continent of Europe, together with its own vast importance, and the latter in reference to our great manufacturing districts, the north of England, with Scotland, and with Ireland, it becomes obvious that the conveyances from a western port towards those centres would have to pass through an extensive and populous country, and many towns of much consideration, which, independent of their individual importance, have for the most part "forward" post-offices, and are thereby constituted fresh centres for the distribution of correspondence in their own vicinity and the surrounding country.

20. In illustration of our opinion upon the requirements of a port for the present purpose, and upon the possession of these by the port of Dartmouth, we have to remark, that the bold headlands of the Start, a few miles S.W., and of Berry Head, a lesser distance N.E., render the approach to that port easy, and its precise situation readily distinguishable.

21. It is true that at a short distance without the Start Point the Pear Tree Rocks lie ; and at a space which forms a wide and sufficiently free passage between them the Skerries are situate ; but we do not regard these as presenting any important interruption to the navigation in this quarter, a bearing of the Start light being available for the purpose of clearing them by night ; and the least experienced pilot need not apprehend danger from them by day ; yet we know not any reason why steamers in their passage to Dartmouth from the westward should not pass outside the Skerries, and consequently the Pear Tree Rocks ; in which case little account need be taken of either.

22. As respects the Berry Head, it is well known to be so steep and abrupt in its feature that a vessel of large dimensions may lie alongside of it and be afloat.

23. In the entrance to Dartmouth from the westward, the Home Stone is in the way ; and, in approaching from the eastward, the Ledges must be avoided ; but upon these dangers we need only state

our conviction that, with no great amount of lighting and buoyage, the harbour may be rendered most easy of access to steam vessels by night and by day. Any other port which might have been chosen by us would have required the same assisting guides, and some to a much greater extent.

24. There is an abundant depth of water in the Channel to and within the harbour of Dartmouth; and, from the contracted state of the former, vessels, when at anchor in the latter, are, in the most comprehensive meaning of the expression, "landlocked." The rise of tide is ample, and the strength of its stream moderate.

25. Under all circumstances, the waters of Dartmouth cannot but be perfectly tranquil, so that in the most tempestuous weather the mail steam packets would not thereby be prevented from embarking and landing the mails, or from receiving coals from floating depots moored either above or abreast the town, or from wharves carried out from either shore; but for this latter purpose the west side appears most eligible.

26. At a short distance above the town, on the west side of the river, there is a capacious dry dock, together with an extensive ship-building yard.

27. These are now untenanted, and in a state of some dilapidation; they are, however, susceptible of reinstatement, and in their adaptation to the purposes of a dockyard may be rendered importantly useful.

28. Dartmouth Harbour, from its narrow entrance, and the frequent adverse direction and unequal force of the wind, occasioned by the surrounding high lands, offers difficulties of access in heavy weather to sailing vessels; and they are, therefore, prevented resorting to it as a place of refuge.

29. To steam vessels, however, these circumstances offer no impediment, and the absence of other vessels is of much importance to the uninterrupted execution of the mail steam packet service.

30. We have thus stated the considerations which induce our recommendation of Dartmouth as the most eligible mail steam packet station; and we now beg to draw their lordships' attention to the reasons upon which we have adopted a certain basis for calculations as to the departure from and the arrival of the packets at a port, and the transmission of the mails to their various destinations.

31. We apprehend that the power of the royal mail steam packets will enable them to be navigated, under ordinary circumstances, upon straight lines between the ports of departure and arrival, so that the line from the port outwards to Barbadoes will differ from that followed in the return passage from Samana to the port of arrival; and the direction of these lines will also be considerably affected by the situation of the packet station in the British Channel.

32. Referentially to a berth off Ushant, in passing that island either outwards or inwards, it is doubtful whether any two individuals would agree in the selection of such berth until the station in the English Channel shall have been determined.

33. The berth, therefore, from which we have deduced our calculations, namely, fifty miles N.b.W. (magnetic) from Ushant, may in some degree be regarded as imaginary.

34. We allow to the royal mail steam packets, on an average, speed of eight miles, to the mail coach ten miles, and to the railroad carriage twenty miles per hour : if any acceleration be conceded to the first-mentioned conveyance, the third must be allowed the like advantage, it being possible that the speed of these two may be increased ; but, if so, we think the excess of the increase will be in the railroad carriage.

35. The sorting the letters and making up the mails for shipment, and the sorting and preparation for transmission inland, will occupy the same space of time, whatever station may be selected ; and we trust that such arrangements will be made by the post-office, that no delay beyond the period necessary for sorting the letters shall occur in forwarding the mails, should their arrival take place at prescribed hours, either after or before the departure of the regular daily mail coaches.

36. We have it in evidence that the largest mails seldom, if ever, exceed the quantity which a mail coach can accommodate, with its accustomed number of passengers.

37. In the statement to which we have referred as an Appendix, we have taken railroad credit on two routes leading to London, viz., from Southampton to London, and from Bridgewater *via* Bristol to London ; and upon those lines, in connection with Liverpool, we take the Southampton route to London, and from thence to Liverpool, and with the before-mentioned road between Bridgewater and Bristol, we assume the line to be continuous from Gloucester to Liverpool ; but we are of opinion that the time will shortly arrive when the entire line between Exeter and Bristol will be complete and open to the public ; and at no very distant period the projected lines of railroad between Bristol and Gloucester may be effected ; in which case or cases the merits of a western port as a packet station will be considerably augmented.

The foregoing paragraphs, which we have numbered for reference, embody the whole report, but the appendix to it, relating to time, becomes unnecessary, since our own conclusions are referable to any chart. There is a letter, however, having reference to southern mails, which may be added, as we have included in our original question, both the Indies. We shall, therefore, add this, which runs as follows :—

*Admiralty, Somerset House, 11th August, 1840.*

Sir,—The instructions of my Lords Commissioners of the Admiralty, conveyed to us in your letter of the 1st June, 1840, directed us to inquire and report, for their lordships' information, as to the best port of arrival and departure for contract steam vessels of 300 to 400-horse power, employed in the conveyance of Her Majesty's mails between England, Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, with reference to any future contract which may be made for this service at the expiration of the existing one.

We now beg leave to report, for the information of their lordships, that the merits of the harbour of Dartmouth, as set forth in our reports of the 6th and 10th instants, have again influenced our decisions in this more recent examination; and we are thereby induced to recommend it as the best port in the English Channel for the departure and arrival of steam vessels employed in the conveyance of Her Majesty's mails between England, Vigo, Oporto, Lisbon, Cadiz, and Gibraltar.

We have the honour to be, Sir,

Your most obedient humble Servants,

JAMES A. GORDON,

*Rear-Admiral, Chairman.*

RICHARD DREW,

*Elder Brother of Trinity House.*

THOMAS LAWRENCE,

*Asst.-Sec. General Post Office.*

M. DIXON, *Commander R.N., Secretary.*

*R. More O'Ferrall, Esq., &c.*

And a subsequent letter of same date, from the same committee, adds:—

That we are unanimously of opinion that Dartmouth is the most desirable station for the departure and arrival of the steam packets intended to be employed in the conveyance of Her Majesty's mails to and from Alexandria.

The Committee then consider that Dartmouth would be the proper starting port, as this letter confirms, for mails to any part of the world that leaves the English Channel; but want of space obliges us to reserve our own concluding remarks on this subject for the next number.

#### WANDERINGS IN JAPAN.—*Japanese Character—Nagasaki and its Environs.*

The study of the Japanese language, surrounded as it is by difficulties, is, nevertheless, not difficult for the traveller to acquire—at least so much of it as will enable him to obtain common things of everyday use. The sound of it resembles very much that of the Italian. The vowels abound in it and sustain a harmonious sound where accent is always placed with good effect. The pronunciation is not difficult, and in a few weeks any one might attain, with a good memory, a sufficient number of names to communicate his wants without resorting to an interpreter. Every one who visits Japan and resides there for any time learns the language of the country, and some speak it fluently. As to the written language, and that concerning political matters, it is necessary before attaining it to go.

into a series of dry philological studies, which, up to the present time, the Missionaries only have the courage to undertake.

It was late in the evening when our vessel appeared in the narrow channel which separates the islands of Ivosima at the entrance of the bay of Nagasaki. Very soon she was up with Papenbourg, celebrated for a massacre of Christians towards the end of the 16th century, but before midnight we were on Japanese ground. We landed on the Oura jetty, which, it seems, is entirely appropriated to strangers. Although the night was far advanced, I had the good fortune to find the friends I had left here on my former visit seated in the verandah smoking as usual. We each of us related our stories. But who that has seen Japan does not wish to return to it, and yet I was not expected so soon. It is the most agreeable place in the whole world ; but the voyage of three months from Europe, at a cost of a thousand dollars : then, again, the passage from Shanghai, is anything but a pleasant one. But these are the drawbacks.

I was soon conducted where I was glad to find one of those enormous Ningpo beds, covered with fine mats and surrounded by a silk gauze curtain. Ningpo is celebrated for the manufacture of furniture. One may enjoy a quiet sleep in these hard, cool beds, protected from the multitudes of mosquitoes, the singing noise of which is heard as they are flying round the impenetrable barrier of the curtain against these gormandizers of human blood. The same domestic who had attended me on my former visit to Oura entered my chamber, knew me immediately, and was overjoyed to see me. "Sindate okin all ingato," were his first words, meaning—"Welcome to old friends," indicating the amiable character of the people among whom I had come. But this salute of welcome is common in Japan, and is always what they say on recognizing one a second time, whether after a long or short absence. They have always been pleasant in my ears. It is pleasant when the first recognition of one when returning from anywhere testifies the remembrance of favours done, and agreeable when the first words of recognition are those of gratitude. They dissipate that little questionable uneasiness which may proceed from past events, and set things right in the mind with that feeling uppermost. The ingratitude of the Chinese character certainly cannot be attributed to that of the Japanese. They remember for a long time any favour they may have received, although they do not readily pardon any ill that they may have sustained. Gratitude and resentment proceed but from one quality of the mind, and whoever possesses it is capable of devotion and hatred. It exists among the Japanese, and both their extreme patriotism and their love of revenge may be attributed to that quality alone.

If one desired to know the lively impression of curious novelty which Japan makes on the visitor, it would be better to go direct to it from Europe; then one would have before him a most interesting sight—then would everything appear most extraordinary and worthy of observation. But most of the foreigners who leave Nagasaki are old voyagers, who, for several years, at least, from their departure from

Europe, have been accustomed to a continual change of scene in men and things that they are insensible to the charm of novelty, and quite disposed to confound what is original and characteristic with everyday scenes and events. Mankind easily becomes familiar with circumstances and things very opposite to each other, and accommodates himself with a marvellous facility to the fashion and condition of things where he is obliged to live. The desert or the ocean, the mountain or the plain, variety or uniformity in anything whatever, all become familiar to him. The stranger who lands at Japan finds himself frequently in the same condition as the man who, seated before a magic lantern, may have seen during a long time a thousand queer objects passing before him; if he is not fatigued with this constant variety—if he does not turn from the sight, he becomes, at least, accustomed to surprises—his curiosity lessens, and the most extraordinary figures have no longer the power of exciting in him any extraordinary emotion.

At any rate, I have never known an European who, on first landing at Nagasaki, was not struck with the admirable situation of the town and the charming appearance of the whole panorama of the bay. The harbour is narrow, being three miles long and scarcely one wide. It is commanded by hills covered with the richest vegetation, surrounded by a well cultivated country, villages and towns, temples, and single houses, which, with their white walls and glittering tiles under a bright sun, throw accidental lights on the dark foliage here and there producing the most pleasing effects. If the country does not offer the magnificent and imposing views of certain well-known places, at least, it has no defect, and the whole effect combines to charm the eye. Far from being overcome by the grandeur of the view before him he experiences an elation of spirits; and, becoming happier with so pleasing a picture of nature before him and throwing criticism aside, all he wishes is to enjoy in peace the beauty and splendour of the scene.

The love of isolation and attachment to things as they are, which arises from certain narrow-minded views, the dislike of novelty and the horror of revolution, the different features of the Japanese character are all explained when one sees the region which has given rise to them. Happy, in the undisputed possession of the riches conferred on them by nature, no effort is required on the part of the Japanese to please their taste; their few wants are entirely in accordance with what their country supplies and their state of civilization demands. All the wonders of the Western world, European ingenuity and its hardy pioneers inspire them with astonishment.

Having guarded themselves against the troubles which the first Christians had occasioned them, they consider, not unreasonably, that what they may have to gain in commercial intercourse with foreigners may not be worth what they risk losing; and their governors—wise and intelligent men—often well informed, only show themselves to be the faithful interpreters of the nation's feeling in coldly receiving the advances which the representatives of foreign nations urge upon them. But this reserve has not sufficed to keep Japan from being invaded by strangers. From the time that the Americans and the



English determined on being the friends of Japan, it was not possible for her to escape the result of this questionable friendship. Nevertheless, we see relationship firmly established at the ports which are opened to foreign trade, and it is not likely that anything will remove their agents from them.

There is nothing but life and animation in all parts of the harbour of Nagasaki. On the little island of Papenbourg, at the entrance, there are two towns, the people of which are all either fishermen or agricultural labourers. On penetrating into the port on the right hand are seen the country and cottages perched on the tops of the hills. Then the town of Nagasaki extends like an amphitheatre, divided into three parts:—Nagasaki proper, Decima, the old Dutch town, and Oura, the resort of strangers. Nagasaki is situated in a beautiful valley of irregular form, descending from a chain of hills from 500 to 1,000 feet high. These hills leave between them the view of a most picturesque country, the summits of them being covered with dense forest, and their sides covered with cultivation and meadows attached to the houses and cottages. Lower down, in the vicinity of the town, about 200 feet below them, are seen temples surrounded by extensive gardens, where the living enjoy their walks and the dead repose in peace. In general, access to these temples is by magnificent stone steps. The cemeteries are all religiously preserved. The tombs of those who have died during the year are kept strewed with fresh flowers; and small vessels containing water are placed on them, as well as salt and rice, and on certain occasions they are lighted up with lanterns, in token of sorrow, and ashes burnt over them.

To the north of Nagasaki a large valley extends, through which there is a rivulet that falls into the bay, and its banks are inhabited by a numerous population. Often have I wandered alone in long walks over the country through which it runs; and never shall I forget the kind reception which I used to meet with from the people there. If I stopped to ask them to give me a light, in a moment the children would run for the brasero. Scarcely might I have entered their door when the father would ask me to sit down, and the mother, with all native simplicity, would offer me tea. The whole family would collect round me and examine me with a childish curiosity, with which I took care never to be offended. Perhaps the most venturesome would take and examine the cloth of which my coat was made—a little girl would take hold of my hair, and then run away ashamed of her impertinence. With a metallic button or two I could make the children happy. "Thank you," all would call out at once; and, dropping on their knees, would bend their little heads to the ground and laugh with a grace which I was surprised to find in this low state of society. When I went away they would accompany me to the roadside; and when I had taken my leave of them, I could still hear their voices with the words of "Welcome back to-morrow."

I now allude to the years 1859 and 1861, but I would not venture to say that the same words would be repeated to a stranger now. Since then our relations with the Japanese have gone through some

painful proofs, and at present we now find ourselves in a menacing attitude with, if not in, actual hostilities. At the moment in which I write, Yeddo is threatened by the British forces, because the Tycoon is unable to make the *amende* which the British Government require for the death of Mr. L. Richardson. The Japanese have been gradually brought to look on foreigners as dangerous men; and if these are treated by them with still greater politeness, it will be seen that it arises from the feeling of distrust.

To the west of the bay of Nagasaki stands the Russian establishment, near the native village of Inassa. The Russians have taken on them the custom of keeping themselves clear of all other foreigners at Japan. While the French, English, American, and Dutch functionaries, without exception, all reside on the eastern shore of the bay, in the midst of business matters, the Russians take themselves to Inassa, a little native village of fishermen and labourers. It is evident that their interests in this part are very different from those of the French or English. It is not commerce that occupies their attention. They have no representative at Yokohama, where such matters are treated on, and not a single Russian merchant is yet established in Japan. At Hakodadi—only a very industrious town, but without any foreign trade, and for which reason it is not occupied by the English or Americans, but proximating to the ports of Manchuria as it does, the Russians have always a small steam force there. And not only this, but they have a consul-general, a medical officer, and a priest established in the town. Here they have founded an hospital, have a building-yard, and have adopted various measures which show that their designs are for permanent duration. The Russian Government is like certain rich proprietors; it neglects nothing in extending its territory. The island of Yezzo, of which Hakodadi is the capital, will most probably complete its acquisitions in this part of the world; and there can be no doubt that on some future occasion, not very far off, Russia will find some pretext for adding to it her dominions.

Akonoura, another dependence of Nagasaki, near Inosima, is in a prospering condition. This little village, which is the property of a Japanese prince, is engaged in making iron for the construction of steam vessels; but for some years the Government of the Tycoon, having considered the property as its own, has obtained from Holland a party of engineers and mechanics, who have formed at Akonoura a practical establishment for naval construction. In the course of a few years it has produced some good pupils, and the Japanese are in a condition to build steamers which, although they may not be comparable with those of European and American construction, prove an aptitude in the Japanese character for imitating the productions of foreigners. This may be considered a characteristic trait of the Japanese, and one that establishes a line of demarcation between them and the Chinese. Further again, Akonoura, with its large buildings surmounted by high red brick chimneys, resembles one of our large manufacturing towns; and, saving the language and physi-

ognoy of the workmen, one might easily imagine himself transferred by some magic process to the works of Lancashire or one of those countries. The Japanese have made most laudable efforts to equal the productions of Europe. This seat of scientific labour, and the progress made there during the short interval in which our relations with Japan have been established, has excited our astonishment and well deserves our praise. During a long course of centuries these people have remained almost in an absolutely isolated condition, unknown and uncared for by the rest of the world, and persevering in seeing and learning nothing passing beyond the limits of their own country. While the Japanese shut themselves up and completed their own isolation, there could be no such thing as progress; science and art, industry and philosophy, and policy, in all its branches, would be stagnant and sterile. But it was only necessary for Japan to open her ports to prevent all this—to recover the country, in fact, from the apparent paralysis of her physical powers. This has been done. The presence of foreigners has warmed up her energies; and, in endeavouring to imitate them, she has succumbed to the laws of progress, the influence of which she has so long defied.

The Japanese are an intelligent race of people, lively and cheerful, and, above all, most patient; not content with what they see to admire in other people's houses, if they like it they set to work and produce another. In the course of four years they have formed a flotilla of vessels of war—they have re-organised their numerous troops, which are now to be armed and disciplined as European. They have established at Yeddo a college for the languages and sciences of the West and have sent to Holland for medical instructors, and have been assiduous in learning even the art of modern warfare. They have also learnt the art of navigation from the Dutch, an art most important to islanders like them; and, without any foreign assistance are able to navigate a steamer to the coast of America. Such rapid progress proves that there is an energy in the Japanese character that is not generally met with. To understand that character is but justice; it would be wrong to believe in a sentiment of insurmountable antipathy which prevents them, without any motive, from mixing with Europeans. But the European must admire their strength, their daring, and their intelligence; he has acknowledged their superiority—to a certain degree he has just sought their alliance, and he would desire to esteem them if they would but render this a little easier than it is.

The town of Nagasaki is in lat.  $32^{\circ} 44' N.$ , and long.  $129^{\circ} 56' E.$ , with a climate healthy and temperate. The thermometer seldom goes down to Zero, and the greatest heat in summer never rises over  $35^{\circ}$ . The mean temperature of the year at Nagasaki is nearly the same as that of Florence or Rome, while the spring and summer is that of France and, the winter much the same as that of Naples. In the months of June and July Nagasaki is inundated by torrents of rain. In general, it rains there much, and the little meteorological observatory established at Decima, in 1844, by M. Siebold, states that mean

number of rainy days for the year has been 108 yearly. Nagasaki contains 10,000 houses, and about 65,000 inhabitants. In reference to foreigners, the number of which is not above 100 or 120, they live outside of the town in places already to the south and west, called Decima and Oora.

Decima, the old Dutch factory, forms an islet separated from the town by a canal, which is crossed by a wooden bridge. The gate of this bridge is closed every evening; and the Dutch, treated thus in some measure like prisoners, have never to this day been able to enlarge the limits of their residence. But in all other respects they are entirely at liberty. The day is past for flattering compliments; and, in order to appreciate their present condition, it is only necessary to recall the past of the old Dutch residents. In Europe, the most false notions are entertained of the kind of life they lead in Japan. On this subject I would appeal to the Dutch commissary, M. D. Curtius, formerly chief of the factory at Decima, and who has left for himself the highest reputation in the East. Like many others he has never seen the Dutch submitting to indignities, trampling on the cross, and not approaching the high Japanese functionaries but with the most servile salutations. On the contrary, he has always been highly esteemed in Japan; no one has taken offence at his religious belief—his dealings with the governor of Nagasaki have always been on the grounds of equality, and his only restraint has been having a Japanese escort when walking beyond the limits of the factory.

Old Decima, the picturesque Decima of Kompfer, Thunberg and Siebold, has been destroyed by fire. The new Decima has lost all character—it is a very small affair, having about half-a-dozen good streets. The whitewashed houses look like barracks. There is nothing about them that is Japanese, and their builders seem to be desirous of erecting similar to what their inhabitants (European) have left at home. The Dutch factory is the residence of about thirty merchants and some official persons. This little community forms, even in the midst of the European colony, a kind of special society. Those who form it have their own special interests—they live to themselves, have their own affairs, and quarrel among themselves as they please. They are seldom seen at Oora, the other free quarter, and they look coldly on English and Americans landed but yesterday on a territory which they have inhabited for 200 years. But these care little about them or their isolation, and even treat them with disdain. The English, they say, have not yet taken in Japan a position such as they have held during two centuries. They speak, in ostentatious terms, of the extension which commerce with Japan has received from their occupation of the country; and they add, with envy, that the Anglo-Saxon race is the only one that understands the art of colonisation.

The new foreign quarter, Oora, presents a far more animated appearance. It is there that those persons reside who have been drawn to Japan from Europe and America by the opening of the ports. It is built to the southward of the city, in a very favourable

situation. Instead of being entirely isolated like Decima, it is diversified by undulating hill and dale, covered with country residences, over which, from sunrise to sunset, wave the flags of the consulates of England, France, the United States, and Portugal. The greater part of the houses at Oora are large and airy, and surrounded by a verandah on the first floor. This, indeed, is the pleasantest part of the house, and is a place of much enjoyment in the evenings—a place of never tiring conversation. It is here that old recollections are talked over by those who are compelled to be absent in the far East. I remember once, after dinner, when the cloth was removed, the master of the house, calling silence, gave the toast of absent friends. The toast met with enthusiasm. It was the heartfelt expression of sincere regret at absence from the country and the hospitality of the Anglo-Saxon race. "Absent friends" they know not, and never can know how much they are loved by those who are far from them in a distant part of the world. Those men who, with a cheerful countenance, appear to have no other object than to amass wealth, and who, in the pursuit of it, are condemned to a life of banishment and constant trial, preserve in their hearts the recollections of those who are dear to them, although far away. Thus, whoever comes to them from Europe, with a few lines from the hand of a friend, brings a souvenir from the loved country. I have often wondered at the kind attention with which men who are much occupied and worried by affairs of China and Japan have received travellers who have no other title to their favours than a letter of recommendation from a mutual friend. Such a message is as sacred as a letter of money; and the master of an establishment, on being satisfied that all is right, would no more refuse one than the other.

*(To be continued.)*

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#### ORIGIN AND PROGRESS OF THE SEAMEN'S HOSPITAL SOCIETY.

It has always been one of the first objects of this journal to be the advocate of good works—to assist all in its power in advancing the establishment of those beneficial institutions which tend to the protection of life, and especially the well-being of that class of our society whose "home is on the deep," and without which, what would become of England? We need not refer here to the numerous causes to which we have alluded, but merely turn to the subject of fog signals in our last number. Our only aim and object in discussing that question and stating facts was to show what was the right thing to be done. And if it be not done, at least we can say that this journal has done its duty, whether others have done so or not. The main object of that essay was to have a proper fog signal, such as was therein pointed out established on Cape Race for the important pur-

pose of saving life and property. We have just now received the following letter.

86, *King William Street, E.C.*

*May 10th, 1864.*

Sir,—The committee of the seamen's hospital (the *Dreadnought*, off Greenwich), desire me respectfully to solicit your sympathy in its behalf.

The expenditure of the hospital requires the collection of £4,500 annually from charitable offerings. During the last year there was a deficiency of receipts to the extent of £773.

An anniversary dinner in aid of the funds has usually been held at this period of the year, but the committee are advised by many valuable friends of the society to dispense with the dinner and endeavour to collect from public benevolence the amount usually received on such occasions.

They will be very grateful for any help you may feel disposed to render for the support of an institution which, without recommendation of any kind, receives sick and diseased seamen of all nations, supplying them with medical and surgical aid, lodging, support, and clothing until they are again fit to go to sea.

Your obedient Servant,

**KEMBALL COOK, Secretary.**

*To the Editor of the Nautical Magazine.*

Now, every Englishman who knows the *Dreadnought*, and the good work that is done by that ship, cannot but deeply regret the facts stated in this letter. Placed as she is and has been for many years in the high road by water to the first mercantile port of this land, she has always been the admiration of all who have seen her, and could read as they passed her that she was the receptacle for "sick and diseased seamen of all nations!"—the only ship in the world that can boast so benevolent a purpose—honourable to the country to which she belonged; and more than honourable, for she is in her station to fulfil the works of the true Christian—to exercise one of the first mandates of the Saviour of the world, to heal the sick and the maimed, and to relieve the seaman who is distressed by accidents or ill health, as if he were English, let him come from whatever part of the world he might. Such has been the good work of the *Dreadnought*, empowered, we may say, to perform that work by the voluntary aid of our countrymen. This work of benevolence has been advocated, year after year, by the friends of the *Dreadnought*, and right well have they succeeded until the last annual meeting, when we are apprised by the foregoing letter that a change for the worse has taken place. The return of voluntary collections falls far short of former years—so short, in fact, that an appeal must be made to the whole country to come forward and extricate the institution of this admirable charity from the fangs of dissolution. And when an appeal of this important magnitude is made, and with all its excellent doings is brought home to Englishmen, we are satisfied it will not be made in vain. The

shipwrecked mariner finds an ample number of benevolent friends to supply the society in the *Adelphi* (admirably managed as it is) with the means of obtaining lifeboats, and we are happy in being one among the humble means of making known the good works of that society. And are not the works of the *Dreadnought* of the same caste as those of the lifeboat—are they not both instituted for the purpose of saving life, and shall the *Dreadnought* be neglected? Will those who contribute to one be content without contributing to the other? Looking to the pursuits of the seamen who are saved by the lifeboat society, they are, no doubt, for the most part, employed in the service of merchants. And are not the seamen who are cared for on board the *Dreadnought* those employed by the merchant also? They are, peculiarly so. The state looks after her own seamen, and naturally leaves the merchant to look after his. But here is a brief statement of the origin and progress of the “Seamen’s Hospital Society,” from their own words:—

The “Seamen’s Hospital Society” owes its origin to the committee appointed to manage the fund subscribed in the winter of 1817—18, for the temporary relief of distressed seamen, who were at that time to be found in great numbers in the streets of the metropolis. The committee having ascertained that there were in the course of the year many hundred seamen in the port of London destitute of medical or surgical aid, convened a public meeting, on the 8th of March, 1821, at the City of London Tavern, at which it was determined that a permanent floating hospital should be established on the River Thames, for the use of sick and diseased seamen only; to be supported by voluntary subscriptions, under the management of a committee; and the present hospital was accordingly established on board the *Grampus* (a 50-gun ship), moored off Greenwich. But the committee finding, in 1830, that the *Grampus* was not large enough to accommodate the numerous applicants for admission, His late Majesty’s Government exchanged her for the *Dreadnought* (104-gun ship), which the committee fitted up for that purpose in 1831. This vessel in 1857 was replaced by H.M.S. *Caledonia*, 120 guns, and her name altered to *Dreadnought*.

The munificent bequest of the late John Lydekker, Esq., in 1832, induced the committee to apply to Parliament, the following year, for an Act of Incorporation, which they obtained; this Act empowers the committee either to build an hospital on shore, or to continue their establishment afloat.

The establishment on board the *Dreadnought*, is placed precisely on the footing of other hospitals: with a superintendent, surgeons, assistant surgeon, visiting physioians, assistant physician, apothecary, chaplain, &c., &c.

The ship is moored off Greenwich, being the most central and eligible situation that could be found, contiguous to the bulk of the shipping in the docks and in the stream, where accidents of every description are continually happening; it is the only place provided

for the reception of sick seamen arriving from abroad, or to whom accidents may happen to on the water, between the mouth of the river and London Bridge. The Royal Humane Society has presented a complete apparatus for the recovery of suspended animation, which is kept in constant readiness.

Sick seamen, *of every nation*, on presenting themselves alongside, are immediately received, *without the necessity of any recommendatory letters*, their own apparent condition being sufficient to obtain their admission. This peculiar facility of reception is in itself productive of greater benefit than may be imagined by the public in general as the cases are immediately attended to; the consequence of which is, that the patients are effectually relieved in a much shorter period than would otherwise have been practicable.

The following observations, extracted from the different reports of the committee, will serve to convey an idea of the usefulness of this institution.

“The very peculiar character of seamen can be known to those only who have passed much time amongst them. Sailors, in general, are bred up to their occupation from early youth, and retain few of the habits of persons employed on shore: Their great failing, and the principal occasion of their misfortunes is, an almost total absence of foresight and of consideration for the morrow: They appear to have no conception of the possible approach of misery until it is too late to escape it: and when at length they become subject to its visitation, they are appalled and sink beneath the weight. If informed of, or directed to, hospitals, asylums, or other places of relief, *on shore*, which do not bear the title of “Seamen’s,” they are unwilling to approach them, and submit to be driven to such receptacles only by extreme anguish and misery.

“A sailor, rather than repair to an hospital on shore, will strip almost the last rag from his back for the means of obtaining a cure; and it is well known to every person acquainted with the habits of these extraordinary beings, that they will at any time prefer remaining on board their ship, even on approaching death, to being taken to an hospital on shore, although with a prospect of returning health. This prejudice may appear unaccountable, but it is nevertheless general and powerful.

“It is not easy to express or to conceive the situation of hundreds of poor fellows, who, having lived upon the ocean and braved its perils from their earliest youth, totally estranged from all domestic ties, afflicted with the diseases incident to the climes they have visited, when at length they reach their native land, instead of finding relief for their sufferings, are ignorant of the means by which it is to be obtained; and have the miserable prospect of a protracted sickness, without a home to receive their exhausted frames, or a relative or friend to compassionate their forlorn condition and welcome them to the common offices of kindness. How different must be their feelings now, in the provision of an asylum, suited to their habits and dispositions, for their reception in the hour of sickness, pain and want!



Instead of the rock upon which they are doomed to perish, their country will henceforth be hailed by them as the harbour in which they may find a balm for their afflictions, and whence they may again depart, with strength in their limbs and gratitude in their hearts.

"The situation of seamen is in many respects most helpless, as compared with landmen : in common with them, they labour hard for small rewards ; but with this difference—that they have to face many dangers and to endure hardships unknown to people on shore ; and what little money they earn is, in many instances, disposed of before it is due, either for the relief of aged parents or for the maintenance of some tender branch of their family, whom their generous hearts will not allow to want while they have the means of assisting them.

"That such is the disposition of the generality of British seamen is well known : shall then such men, the glory and defence of their country in war, and the patient and hardy conductors of her commerce with distant countries, be neglected by their benevolent countrymen in the trying hour of their extreme distress ?

"It frequently happens that vessels coming into the Thames from long voyages have most distressing cases of sickness, disease, or accident on board ; the subjects of which, being now sent to the *Dreadnought*, are restored with astonishing rapidity ; and who, but for this institution, must have waited some days before admission could have been procured for them into hospitals on shore, with the hazard of becoming incurable, from the effect of delay in applying a remedy."

"The rules and regulations by which other hospitals are governed, limit the period which the patients are permitted to remain in them, to that of their requiring medical treatment : and which is generally sufficient, as the objects to whom their beneficence is extended, have homes to receive them after cure, and friends to support and comfort them ; whilst, on the contrary, a sailor, who, although relieved from his complaint, is discharged in a weak condition, is without a home to go to, or a place to yield him a night's repose. In this respect the regulations of the seamen's hospital are essentially different ; *every person being allowed to remain on board in a state of convalescence*, until he has completely regained his health and strength ; and in the interim, an opportunity is afforded him of obtaining employment, in which pursuit he is aided by the personal influence of the committee with their friends connected with the shipping interests.

"It may also be mentioned, that seamen, when they return home in ill health, frequently fall into the hands of ignorant wretches, who fill them with pernicious drugs as long as their money lasts, and then turn them out half naked, and in a worse condition than when they received them, to perish with cold and hunger in the streets."

"During the period of the patients remaining under the care of this charity, every effort is used to impress upon their minds the vital importance of religion : to which end they are amply furnished with such religious tracts as are suited to their several capacities, and are properly exhorted and instructed by the chaplain.

"Shipwrecks, which are of such frequent occurrence on various

parts of the coast of England, subject the constitution of seamen to severe injury from long privations and excessive fatigue : in all such cases, when medical assistance can no further avail, a conveyance is provided for them to their homes, with every comfort necessary for their journey.

“ Instances are constantly occurring of seamen driven into a life of vagrancy, by diseases originating in distress and privation : persons of this description are, nevertheless, received on board the *Dreadnought*, if deserving ; and where, in order to prevent infection, it is found necessary to destroy the rags which cover them, *the men are provided with new clothing*, and are thus enabled to resume their avocations.

“ The foregoing is but a feeble sketch of the numerous advantages of this charity. It is nevertheless hoped that enough has been said to establish the claim of the charity to public support ; and that the first institution of this nature, for the relief of a class of men, so useful, numerous, and helpless, will not want the means of effecting its benevolent purposes—that a nation indebted for so large a share of its honour and prosperity to its hardy seamen, whose undaunted bravery and unshaken perseverance have been so universally acknowledged and extolled, will not permit a work—begun in grateful remembrance of their past services, and under a sense of their value to the state, and which has already been productive of so much benefit—to fail in the means of adequate permanent support.”

“ It is, on the contrary, confidently hoped that this appeal will find its way to the hearts of the well disposed and benevolent ; that they will reflect, that without their help, sick and diseased seamen must still remain in the hour of need, in a great degree, forlorn and unprovided ; that with such aid, by the blessing of Providence, their sorrows may be alleviated ; their health re-established ; and instead of being a burden and a reproach, they may continue to be members of that community which is the glory and pride of our country.”

“ The committee take this opportunity of recommending to the owners of ships, to make this institution known to their commanders and crews, at the time of paying their wages, conceiving that few seamen would refuse to contribute their mite to a charity, from which their shipmates are continually receiving the greatest benefits, and to which they may themselves—they know not how soon—have occasion to apply.”

“ In the confidence of being received into this hospital, seamen travel from the most distant parts of the kingdom.

“ If, in the performance of the gratifying duty of bringing the seamen's hospital into greater notice, the committee may be allowed to express a regret, it is, that while poor and friendless seamen, from every quarter of the globe, are conveying to their countrymen a knowledge of the benefits of this institution, its very existence, it is to be feared, is still unknown to many in this great metropolis, whose wealth and importance have arisen from the exertions of those on whose behalf this appeal is now made.”

Now we most sincerely desire that the foregoing extract from a *brochure* which we have just received, will not only reach the hearts of Englishmen in this metropolis but throughout the country. We give in a foot note at the end of this appeal the names and addresses of those who will aid the society by receiving contributions. There are many who would not feel an effort in the way of a handsome contribution of money. But in the warm glow of an approving breast at the good deed, and there is no one to whom the appeal of the society comes but who can do something similar though of less amount, we say to them all this is no slight affair—this is a charitable purpose of no common kind. It is one (a charity, it is true), that, if you are a merchant profiting by oversea traffic, calls on you specially for aid—if you are in the ordinary enjoyment of independence, it calls on you as an Englishman to contribute to the benefit of that class for which your country is celebrated; and if you are an individual of no great resources in the mass of society, still it calls on you also to contribute *something* towards the welfare of those who contribute to your country's good as well as her good name; and, in the cause of pure Christianity, it calls on every one to do the part of the charitable neighbour, and prevent the seaman in his distress from falling among thieves.\*

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PORTSMOUTH AND ITS BAR, WITH OBSERVATIONS ON SOUTH-AMPTON CONSIDERED AS A NAVAL STATION,—*By Captain W. L. Sheringham, R.N.*

The heads of the following remarks were noted down under the impression that I might be called on to furnish such information to a committee now sitting on the question of dockyards, as I had acquired during the progress of my survey of Portsmouth Harbour. Such a conclusion was not unreasonable, as no other survey of that important harbour has been made within the memory of man, except that which I had the honour to conduct in 1840. Time, however,

\* Subscriptions are received for the Treasurer, H. S. Thornton, Esq., by Messrs. Williams, Deacon and Co., 20, Birchin-lane; Messrs. Drummond, Charing-Cross; and by all Bankers; at the Bars of Lloyd's, the Jerusalem, and Jamaica coffee houses; by the navy agents in the metropolis; by Messrs. Nisbet and Co., Berners-street; and by the Secretary, Mr. S. Kemball Cook, at the office, 86, King William-street, City. Mr. W. H. Atkinson, North Shields; Mr. George Potts, South Shields; Mr. William Nicholson, Sunderland; Mr. Thomas Rowell, Hartlepool; Messrs. Thomas and John Marwood, Whitby; the Secretary to the Commander-in-Chief, Sheerness; the Secretary to the Commander-in-Chief Portsmouth; the Secretary to the Commander-in-Chief, Devonport: Capt. Robert Crawford, Superintendent of Mercantile Marine, Glasgow; Mr. Alexander Buchanan, 40, Savoy-street, Bridgeton, Glasgow.

seems to have shown that any evidence I could give on that subject can conveniently be dispensed with; still, as this opinion is not shared in by many persons well qualified to judge of such matters, I have been induced to extend my notes for publication in their present form.

Assuming that the defence of Portsmouth would be most effectually secured by a combination of floating batteries and stationary forts, I presume it would be found expedient to keep not only an imposing force at Spithead, but to select a position where a powerful reserve could promptly be brought into action either for defence or aggression, and which should be equally suitable in all cases as a sure and safe refuge for our disabled ships.

It is manifestly important, in order to fulfil the above conditions, that such a position should be selected as would effectually preserve our ships, whether disabled or in reserve, as well as the docks and basins for their refit or equipment, from any near point of attack.

The great question, then, is,—Are all these conditions attainable at Portsmouth? My answer is—No. First, because there is not sufficient area for a large number of ships, the channels of deep water being so narrow as to render it difficult, indeed frequently impossible, for long ships to swing. At certain times of tide—for instance, at slack water—when wind-rode, they often remain for a considerable time across the harbour, rendering the port scarcely accessible. Secondly, it would not be advisable to have the ships in reserve under a fire arising from an attack on the dockyard; and thirdly, if a successful attempt was made by an enterprising enemy to run past the forts and sink one or two ships in the harbour channel—no very improbable case,—not only would the arsenal be paralyzed for the time, but all the force it contained placed *hors de combat*.

I am aware that extensive works are proposed for increasing the dock and basin accommodation, and also the depth of water inside the harbour and in its approaches,—all of which is very desirable; but I urge the necessity of observing great caution in the prosecution of such operations. Portsmouth Harbour and its channels are not to be trifled with in an offhand manner. That great arsenal is of too much importance to this nation to be summarily dealt with.

No engineering operations on a large scale can be undertaken in rapid tidal streams and treacherous submarine strata without, I may say, the certainty of important changes, as the natural result of disturbing a normal condition. What these changes may be no one can with confidence predict.

I have no great faith in prophecies even of engineers,—although subscribing to the general high opinion of the skill of that useful body of scientific men; but, during a long professional life, I have seen so many failures and defeated expectations, that I think it would be unwise and hazardous to tamper with Portsmouth Harbour to such an extent as might endanger its present limited efficiency, without being prepared with some other asylum in its vicinity which would be available as a port of refit in the event of any emergency.

Amongst the many schemes proposed for the improvement and extension of the accommodation in Portsmouth Harbour, one is to enclose between 200 and 300 acres of the mud lands situated to the North of the dockyard; and deep basins and large docks are to occupy the recovered space.

This plan of course involves the loss of a large amount of tidal water, every drop of which, in my opinion, is essential for keeping the channels open and scouring the bar. But, say the authors of the scheme, we have provided for this by withdrawing from Langston Harbour a portion of its tidal waters, and conducting it into Portsmouth Harbour by Hilsea Creek.

This, we all know, is not a new idea. I remember the late Sir Francis Beaufort mentioned the subject to me twenty-five years ago; but he never could make up his mind to recommend its adoption. So many difficulties presented themselves, and the amount of work was so enormous to bring it within a probability of success, that the idea, apparently so plausible, was always abandoned.

The late Captain Basil Hall, in a note addressed to Sir Francis Beaufort, which I possess, touches upon this subject. He says—"It might be well to notice whether any and what kind and what quantity of sediment does now come from Langston Harbour by that channel through which you have an idea of urging a still more potent stream. I mean that before undertaking such a work it may be readily ascertained, possibly without any great difficulty, whether such a process as you propose might not do more harm than good."

But suppose this scheme was adopted,—it appears probable that this additional water would not be obtained either at the time or in any quantity to be useful for scouring purposes. The creek and its approaches are dry long before low water; at springs the rise is only six feet, at neaps little or nothing; in the first case the creek is dry four hours and a half, and at neaps three hours and a half after high water.

Now, if it is to be presumed that it is near the last of the ebb that the scouring power is most wanted, I think it will be conceded that the additional supply of back water from Hilsea Creek would have but small effect for that purpose on the first of the ebb. It appears to be equally admissible that the miserable drain that would be available at the proper time of tide, having to run a distance of something like five miles before it reached the bar, diverted into numerous creeks and holes in its way, would in the end be next to useless.

The question, then, naturally suggests itself,—What must be the extent and amount of work necessary to render it a valuable stream for the purpose proposed?

Again, suppose success attended the attempt of abstracting a large volume of water from the Langston Estuary, the consequence would be to rob Langston of so much back water, which is undeniably essential for its own purposes, viz., that of keeping open its own channels and keeping down its own bar. The result, in all probability, would be a considerable rise of the latter, already dry, or nearly so,

at low water. In which case the tide would not flow into the harbour at the first of the flood, and thus the object, to secure more tidal water for scouring Portsmouth, would be defeated to a considerable degree, by thus cutting off a portion of the resources for that purpose, in addition to the danger incurred of the gradual destruction of Langston Harbour itself.

It has been proposed also, and partly acted upon, to reduce to a lower level the high and indurated shoals known as the Burrow and Ballast Banks. I trust this measure and the effect of it has been well considered, for it is manifest that it is to these banks that Portsmouth is indebted for its deep water channels in the most valuable and useful portion of the harbour, owing to the natural contractions of those channels, and therefore—without asserting that such is the case—this may be an operation of doubtful expediency. The velocity of the tide at the third hour ebb, when the stream is strongest, I found to be as follows, viz.:—at the dockyard, 2 knots; abreast of the Burrow Bank, about  $2\frac{1}{2}$ ; abreast of the Ballast Bank, nearly 3; between the points,  $4\frac{1}{4}$ ; on the bar,  $2\cdot9$ ; at the Spit Buoy,  $0\cdot5$ .

An opinion has been advanced that even should a large amount of the mud lands in Portsmouth Harbour be reclaimed, or, in other words, the area of tidal water be reduced, the effect upon the inner channels and the bar would not be felt. This opinion, it is said, is supported by the evidence that existing documents prove that although about *forty acres* of mud have been recovered within the last sixty years for dockyard extension, no visible alteration has taken place. It would be interesting to know to what extent this theory can be carried out, for surely it must be against all engineering experience. I will, however, offer no opinion on the subject myself, but leave the question to be settled, as I consider it ought to be, by the engineers.

Let us now turn to the bar and see what is going on there.

The narrowest part of the bar is between No. 1 white and No. 2 black buoys, distant about 190 yards.

When I made the survey, the water over the bar was fourteen feet at low water spring tides; and therefore, no doubt, owing to the increased and increasing draught of our large ships, great anxiety arose as to the necessity of deepening it.

No doubt this was a subject for deep and anxious thought; but there was another consideration of scarcely less importance—the necessity of using great caution in dealing with the approaches to this valuable port, for beyond all doubt a great responsibility lies with the Admiralty advisers that before all this dredging and delving is recommended year after year, they should be convinced by time and experience, not by the theories of this man or of that, however eminent, that there is no probability of doing mischief.

It cannot be denied that frequently serious consequences arise from rash attempts to control and over-rule nature in her great operations, experience teaches us that she works persistently and consistently in establishing a balance of cause and effect, so necessary to maintain an

unchangeable condition. Let us hope that we may not find this out in what we are doing at Portsmouth when it is too late.

The nature of the bar before the dredging commenced was a hard indurated ridge of shingle—almost a natural concrete, marking how unchangeable its condition had remained through a long period. This ridge abuts upon, and supports as it were, the natural slopes of the higher banks on each side of the harbour channel, viz., the Spit Sand and the East Sand. If this natural support be removed, there appears to me to be considerable danger that the two sides would break down into the channel.

I expressed this opinion to the late Sir Richard Dundas, and a few years before to Admiral Washington, who was at the time a member of the Harbour Board, and I really thought that I had made some impression, for the latter thus wrote to me on the subject:—"We will recommend nothing rashly with respect to the Portsmouth Harbour Bar, nor till we have read and fully considered all you have said or have to say on the subject; but I must own, after diligently studying the contour lines of depths, which we have had coloured in, I do not see any objection, at any rate, to deepen from the fifteen feet edge to the same edge on the inner side."

The above is dated in 1848: from that day to the day of his death he never again consulted me on the subject. Evidently he had made up his mind to carry out his views; and the sequel proves that he succeeded in having done so. The bar, therefore, was handed over to the tender mercies of the dredging-machine, with the additional risk of not confining the operation to the fifteen feet edge, but to extend it at once to twenty feet.

I confess I viewed with alarm this wholesale work, which could no longer be looked upon as an experiment. I therefore warned Sir Richard Dundas against going so far, and recommended that the dredging should be proceeded with gradually, and the effect of it carefully watched.

About twelve months after the dredging commenced the Admiral spoke to me on the subject, and expressed his alarm at the result, adding that the work had been temporarily stopped. Of what has taken place since I can say but little, except that it was stated on authority in the House that five feet water had been gained in depth over the bar before the dredging in 1863 was commenced. I can only say the surveyor's soundings do not bear out this assertion, as was proved when the last examination took place, in May, 1862.

The surveying officer reported that he found, on comparing the soundings taken in 1861 with those taken in 1862, the work having been suspended in the interval, the depths had not altered. It is curious to see how he arrived at this opinion. The result may be useful to the conservators of our great harbours, offering, as it does, a valuable lesson not to accept such hasty conclusions without a full examination of the grounds on which they are based. But let the officer speak for himself. He says,—“The mean of all the soundings,

1,321, makes no difference whatever in the depth of water in 1861 and 1862, and that the soundings of the two years agree throughout in a most remarkable manner." Now, let it be observed that this fallacious mean, so unscientifically devised, was just the one best calculated to mislead the unwary and careless observer. A mean of the soundings may show water enough for a ship, but it may be made up of an actual depth in some part *insufficient* for her draught of water.

I have already stated that in all probability the effect of the dredging would be a waste of the adjacent banks, followed by a deposit in the channel. This the survey taken in 1862 has abundantly proved to be the case, if rightly and rigidly examined. In fact, the depth of water over the *Spit Sand has increased*, while the depth of water in the *harbour channel has decreased* almost in exact proportion.

I now proceed to show this fact from an inspection of that survey.

Having considered a transverse section across the spit, passing over the middle of the bar, it appears that the mean depth of water *gained on the Spit Bank amounts to four and a half inches, or, in other words, the Spit Sand has been lowered to that amount.*

The bar had undergone, on this section, no change, to speak exactly, there was a gain in depth of one inch; and this was to be expected, as there was no rising bank on the opposite side to stop the progress of the shingle down the slope into deep water.

It was necessary, therefore, in order to arrive at a correct and safe solution of the question, to look at a longitudinal section of the whole harbour channel as far as the survey went, and it occurred to me that the fairest line to adopt would be the surveyor's leading or fairway mark, which he had re-adapted after his last examination.

*This section shows that there has been a mean loss in the harbour channel in the depth of water of three inches; or, in other words, a deposit had taken place to that amount.*

These facts, therefore (if facts they are), must, I think, demonstrate—

First,—That the surveyor's deductions were erroneous.

Secondly,—That such deductions were calculated to mislead.

Thirdly,—That important changes were in progress, and appear to be of as great amount as could have been expected in so short a period.

Fourthly,—That it would have been more satisfactory if another year had elapsed before the dredging had been proceeded with. But we will admit, for the argument's sake, that by constant dredging more water may be kept over the bar. Should, however, my fears be realized, it will be attended by a corresponding waste or lowering of the level of the sands on either side of the channel—which now constitute the valuable and principal protection to the entrance of Portsmouth Harbour and its defences, as well as of Southsea Common—by increased exposure to those heavy seas brought in by S.E. gales, particularly at spring tides.

In the *Channel Pilot*, published by the Admiralty in January,



1863, I find this passage,—“Prior to 1861 there were only 12 feet over the bar at low water ordinary springs\*. It was then dredged to 17 feet; but to allow ships of heavy draught to cross it at any high water it is being farther dredged, and in April, 1863, *there will be 32½ feet* over it at high water and 20 feet at low water springs, and 30 feet at high water neaps.”

I understand that the present Hydrographer believes that such is now the fact, but upon what authority I, of course, am not aware, as the result of the last year's dredging is not yet known.

The bar, I believe, is now undergoing another examination,—and it will be interesting to see what depth there really is throughout the harbour channel,—not on the bar alone, for there really may be other obstructions forming further in. In fact, it is important to know whether the adjacent banks and channels are undergoing any and what changes.

I have now, to the best of my abilities, brought under notice the principal features of this momentous question,—and endeavoured to point out the risk and difficulty which might attend such extensive and comprehensive measures as would be required to render Portsmouth a safe and commodious harbour for the fleet;—having this object in view, that where so much uncertainty really exists, it would only be exercising a wise precaution and prudent foresight first to be prepared with some other suitable port for the reception of our ships before entering upon the enormous work proposed.

I have from time to time pointed to Southampton Water as admirably fitted for that purpose, for no port in Great Britain can compete with it; not with a view of superseding Portsmouth, which must always remain our most important arsenal, but of relieving it of functions which, in my opinion, it can never fulfil do with it what we may, that of being not only an efficient arsenal and valuable building yard, but, in addition, a commodious port of refuge for a large aggregation of ships in reserve.

I refer pointedly to this fact because a very erroneous and unfounded opinion has been widely spread that my object was to substitute Southampton for Portsmouth,—which is sheer nonsense, and carries absurdity on the face of it. Under this mistaken view, it has been said further that by so doing all our fortifications, complete and in progress for the defence of Portsmouth would be thrown away. Fortunately such rubbish carries its own refutation. Portsmouth will ever demand all the defence we are giving or can give to it. And the fact, I think must be apparent to a practical mind and discriminating eye that the very defences you are raising for the security of Portsmouth will be no less available for the protection of Southampton, whether by the eastern channel of the Warner, or the western approach by the Needles.

\* By my survey, I believe the only authority extant at the time, the depth of water over the bar at low water ordinary springs was 14 feet. Who it was that altered my statements without consulting me, or *for what purpose*, I will not take upon myself to say.

In a letter which I addressed to the late Hydrographer, in 1861, a copy of which I append to these remarks, I referred particularly to the vicinity of the Hamble River, as offering an eligible position for the construction of docks and basins; and he was so far impressed with the importance of the suggestion, that he had plans drawn and estimates made of the probable cost of such works. These no doubt will be submitted to the Committee. To that report, however, I may now add, that should it not be considered advisable to select a new site, and enter upon entirely new works, it may be prudent at all events to turn our eyes towards the present docks and basins on the Itchen, where a vast amount of valuable accommodation already exists.

Possibly the packet establishments may at no distant period creep down Channel to a more western port, and if so, increased facilities would arise for the transference of these magnificent docks and basins to the government for national purposes. But let the question assume what aspect it may, it seems to me conclusive that we cannot much longer overlook the claims of Southampton to be considered as the most advantageous position for the great central port for our fleet in the Channel. While Portsmouth, if relieved of a pressure which it ought not and cannot bear, will immensely increase in utility, and become more than ever our most efficient and important naval arsenal.

*Copy of a Letter addressed to the Hydrographer of the Admiralty, in 1861, on the merits of Southampton Water as a Naval Station.*

*Cheltenham, March 22nd, 1861.*

Sir,—So much importance is attached by me to the subject of our conversation in your office on the 8th instant, that I consider it right to bring again under your notice in a more official form the substance of my submissions on that occasion and the arguments on which I founded them.

Ten years ago, on the completion of my survey of Portsmouth, Spithead, and Southampton Water, &c., my attention was naturally drawn to the vast national interests which were identified and so to speak interwoven with the practicable improvement and extension of that great arsenal,—objects which I felt assured must sooner or later engage the serious attention of the government.

Two questions prominently suggested themselves to my mind.

First,—Whether Portsmouth Harbour was not fast becoming inadequate to meet the demands arising from the recent increase in the size of our ships of war,—and the immense additional establishments which the general introduction of steam involved: and—Secondly,—Whether that harbour is capable under any circumstances of being so improved and extended as to meet such demands.

After much deliberation,—and the best consideration I could give to the subject,—I arrived at the full conviction, that from many adverse causes, as far as *adequate* improvement and *sufficient* extension

was implied, that it was not capable of such adaptation, and therefore it became expedient to be prepared with some supplemental establishment to relieve the pressure which year after year was increasing, and unless mitigated by some means or other would in the end paralyse the resources of Portsmouth Harbour.

As the Admiralty Surveyor it became my duty to state this as the result of my experience;—and therefore I brought the subject, at a personal interview, under the notice of the late Sir George Cockburn, the senior sea Lord at the time,—and also, in more than one conversation, under that of the Hydrographer, Sir Francis Beaufort.

On those occasions I urged the importance of securing for state purposes a valuable site in Southampton Water, at the entrance of the Hamble River, then (as now, I believe,) unappropriated by private enterprise,—as a position eminently suitable for the construction of docks and basins, should the increasing maritime demands of the country render the addition of such auxiliaries necessary.

I found, however, that my arguments made but little impression at the time, owing, I believe, in a great degree to an opinion that such an establishment would be too far removed from the resources and defences of Portsmouth.

Within the last few years, however, this question has been revived with tenfold vigour; and every professional mind has been more or less impressed with the paramount necessity of not only providing for the security of Portsmouth against attack: but of devising means for increasing its accommodation and improving its access by enlarging and deepening its approaches.

I am fully aware how much your mind has been engaged with this subject, and how anxiously you have considered the probable success of any attempt to improve the harbour and deepen its channels, under a weight of responsibility which is attached to your position as Hydrographer. It is for this reason that I am disposed rather to address my remarks to you than to the Secretary of the Admiralty.

Admitting that the serious inconvenience incident to the want of water area in Portsmouth Harbour may be partially mitigated, and that some improvement may result from an attempt to increase the depth over the bar by dredging;—it is still my firm opinion, that owing to a complication of natural obstructions, no amount of engineering skill can or will render that harbour equal to the requirements which before long will be found necessary.

It must, I submit, be conceded that it is utterly impossible under any circumstances that Portsmouth Harbour can be made available for the reception of large iron ships of the *Warrior* class,—ships 400 feet in length, of 27 feet draught of water, and 6,000 tons burden;—and it is equally conclusive to my mind that for at least two thirds of the tide the harbour must be to them inaccessible.

Not, however, to be misunderstood on this point, I do not say that great additional accommodation may not be effected; neither would I lay down any dogmatical opinion that the entrance may not, under skilful and careful management, be, to some extent, improved.

It is unnecessary, at present, to allude further to the condition of Portsmouth Harbour, as my immediate object is to bring under your notice the importance of drawing the attention of their Lordships to that invaluable estuary Southampton Water, and by the statement of a few facts endeavour to show that we should not overlook so eligible a position in it as that at the mouth of the Hamble for the construction of those national works which indisputably will soon be required for the accommodation, protection, and equipment of our iron-cased ships.

A glance at the chart must, I think, forcibly convey to an observing mind the singularly important geographical position of Southampton Water for a naval station; its central position in the Channel, removed from observation and reconnoitre by the intervention of the Isle of Wight and its consequent comparative security from the attack of an enemy, along with these qualities, viz. :—

1. Its facility of approach at all times of tide and in any weather by wide and navigable channels,—from the eastward by the Warner, and from the westward by the Needles.
2. Its deep and quiet waters, free from rocks or shifting banks.
3. Its valuable range of tide for the construction of docks, &c.
4. Its equable and moderate currents, and the long duration of a high water level.
5. Protected at its mouth by that valuable barrier, the Bramble Shoal, it is effectually secured by distance from destructive shell range, as the nearest approach of an enemy would be nearly four miles, or from 7,000 to 8,000 yards.
6. Its proximity and being within the lines of all our strong fortifications, completed and in progress, for the security of Portsmouth Harbour;—and
7. The facility with which it may be brought into immediate connection with that important arsenal either by *canal* or *railway*.

It appears needless to insist on the value and importance of such port of refuge or aggression for a powerful reserve of ships of war, of whatever class or number, fully equipped, lying in perfect security, and ready at all times and under all circumstances for immediate service,—far enough removed from the effect of any combined attack or concentrated fire on Portsmouth, and yet sufficiently near to afford valuable aid in the possible event of such a disaster.

The two channels which lead into Southampton Water, are separated by the Bramble Bank.

The main or deep water channel lies to the N.W. of this shoal, with a depth of not less than 5 fathoms at low water, and debouches at its West end into the Solent or western entrance to Spithead by the Needles.

The other or eastern channel lies between the Bramble and the East shore, having a depth of 18 feet at low water,—and it may be fairly presumed that even this depth may easily be increased without risk or considerable expence.

In both channels the velocity of tide is not more than two knots,  
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and are both accessible by night or by day :—although they might promptly be rendered nearly impracticable to an enemy.

So that, in fact, Southampton Water possesses every element for an extensive and commodious national harbour, with remarkable facilities for the construction of such works as may be necessary for the formation of a supplemental establishment to Portsmouth.

I trust the submissions which I have now the honour to bring under your notice will be considered of sufficient importance to engage your serious attention, and through you that also of my Lords Commissioners of the Admiralty.

I have, &c.,

W. L. SHERINGHAM.

*To the Hydrographer of the Admiralty.*

#### THE EASTERN DIVISION OF THE MEDITERRANEAN.—*Winds.*

(Continued from page 250.)

The prevailing winds of the Sicilian Channel in winter are the N.E. and N.W., which occasionally blow with great violence, and throw up a considerable sea. With the East winds, the sky becomes overcast, and rain is frequent; but with N.W. and westerly winds the weather is fine.

During the summer season the prevailing winds are from East and S.E., veering sometimes to South, and producing a thick humid atmosphere generally full of electricity, unpleasant to the feelings. But they do not blow very strong and are not lasting. The land winds are not strong and of short duration, they reach the Maltese islands. These are, in general, the result of the prevailing wind, and sometimes the preludes of the approaching wind.

It has been supposed that tides are felt in the bay of Tunis, but the phenomenon is very questionable. The rising and falling of the water there is rather the effect of wind, the influence of the moon being really nothing. This difference of level between the waters of the bay and those of the lake renders attention to the sluices necessary, the difference being as much as 3 or 4 feet. But the tides are said to be sensible at the Conejeras or Rabbit Islands and the adjacent coast. And although no great attention has been paid to them at this place, it is observed that with the rising water the current sets East and S.E. about a mile an hour; and when it falls it sets West and S.W., there being six hours of flood and ebb.

The climate of Tunis is highly extolled by Admiral Smyth, whose valuable observations we have already extensively used. He considers "the climate of Tunis to be one of the finest in the world, and its air pure, serene, and wholesome, the thermometer ranging in general seasons from about 45° to 87°, with an average temperature of 68·5,

and all the revolutions of the weather, with rare exceptions, are between 29·10 to 30·30 inches.

“ During the summer and early autumn rain is unusual, but it is looked for towards the middle of October ; and should it not fall till later in the year, a scanty following harvest is expected. After the rains have commenced they continue with great violence for eight or ten days, when hunters for antiquities repair to the many neighbouring ruins in search of coins and other antiquities laid bare by the showers. From thence to the spring a fine period for Europeans generally ensues, for the winter, improperly so-called, can only include the mouths of December and January, during which fresh winds and heavy rain render the air chilly and raw. The spring is warm, but hot weather sets in towards the middle of June, and lasts in its fervour till September. The coasts are, however, attempred by a constant sea breeze, which blows from 9h. a.m. until sunset. Notwithstanding this corrective, the land winds are almost insupportably sultry, and bring with them clouds of fine sand which darken the air and penetrate into every recess.”

The Admiral makes the following important remark :—“ Navigators making landfalls hereabout in the winter should be sure of their reckonings in foggy weather, for there is not much sea room,” in which, may be observed, the prevailing easterly current must be allowed for. The following amusing anecdote is related by the Admiral :—“ Cloudless skies for weeks together are wearisome enough, and the trite exclamation of the late Captain Fothergill may be in point. This eccentric officer was returning from India, where he had served for years ; coming on deck when entering the English Channel in a foggy November morning, ‘ Hah,’ said he to the lieutenant of the watch, ‘ this is what I call something like, none of your cursed eternal blue skies here, a fellow can see his own breath now !’” The seasons of Tunis, as above stated, differ from those of Labrador ; for, according to a remark of the gallant Benbow, still preserved at the Admiralty, he tersely recorded—“ There is a winter of nine months, and d—d bad weather the other three !”

One of the points of the Mediterranean in which the tides are felt on this coast is in the gulf of Kabes, and principally in the islands and channels of the Querquenes. The tranquil state of the waters has been favourable to observing their progress, and the tidal establishment at springs is 3½ h. p.m., and the rise and fall 6 feet ; but the easterly winds delay it sometimes until 8h. The current runs from 2 to 2½ miles an hour ; the flood to the S.E. and South according to the trend of the coast, and to North and N.W. on the ebb. Again the tides flow and ebb with the same order at Gelves as they do at Querquenes ; the tidal establishment at Gelves 10h. 10m. a.m., and the rise and fall 6 feet.

On the coast of Tripoli, although the cause of the tidal streams has not been closely determined, still off the shore they have been observed with tolerable force, and they are quite sufficient to set a vessel out of her course when intending to make a port. The current most generally found is that from the Strait of Gibraltar, setting along the

coast modified by the direction which it assumes. Here it is affected by the trend of the shore, in the gulf of Kabes ; from thence, however, it takes its course along the coast of Tripoli and Egypt, turning along the Syrian coast, and forming a counter current along the shores of Europe, and thus completing the circular movement of the Mediterranean waters.

Notwithstanding the constant easterly current in the roads of Tripoli, opposite currents are found to prevail, the cause of which is not yet accounted for unless they may be attributed to tidal influences, which, although less sensible than in the Gulf of Kabes, and on which we are not so well informed, but yet which make themselves felt. Such disturbing influences, however, serve to warn the navigator not to be over confident in his reckoning, or he will find himself to the East or West of his port when he does not expect it, especially when the shores are low, and he cannot see that he is being drifted to leeward of it. There is no doubt of the influence of the moon on the Mediterranean waters being felt at Tripoli. Observation shows a rise and fall of 2 feet at full and change, which sometimes the wind outside will increase to 5 feet, but it is not so much with southerly winds.

From April to October throughout the summer months sea and land breezes prevail, but perhaps once or twice in each of these months there will be northerly and N.E. winds, throwing in an unpleasant sea. The land breeze or southerly wind, which commences in the early part of the night, lasts until daylight ; then veering westward in proportion as the sun gets up, until about 8 a.m., when it falls calm to make way shortly for the sea breeze which sets in at N.E. This wind will go on changing through the day to E.N.E. and East, freshening up from the latter point in the afternoon, until about sunset it gradually goes down, and at nightfall is calm, some hours of this calm lasting before the land wind comes.

In winter time, from November to March, the prevailing winds are those from West to North, and perhaps from N.E. But the strongest winds are from West to W.N.W., which are generally accompanied by cold yet clear skies. During this season, and when the weather is settled, land winds occur at night, but always from S.E. In the months of January and February they are more moderate than in November and December ; but in March winds set in from all points of the horizon, with rainy weather, and regularly leave off at N.W. and W.N.W. In April again the land and sea breezes become again established.

Tripoli being an important place, the following remarks on making it may not be unacceptable to the navigator from the Derrotero, the same source from which the foregoing is had.

Ships from the N.W., bound to Tripoli, should correct their reckoning by sighting the island of Lampedusa, which bears N.  $11^{\circ}$  E. from Tripoli 158 miles. If they shape their course for Tripoli from this island, with N.E. winds, the current may set the vessel into the Gulf of Kabes and on the Querques Banks, and therefore the lead should

be used, and had better have kept half a point or a whole to windward of her course.

Another, from the eastward or N.E., and unable to make Malta, or without a chronometer, should take greater precautions and make the land to the eastward if the prevailing wind be from this quarter, or to westward if from that quarter, so as to allow for the current which will certainly follow.

The tides seem to be lost in the Gulf of Syrtis both in direction and height, although the ancient authors had a different opinion; but it is not improbable that they may be much the same as are found in the Gulf of Kabes. But the current is as little found as the tide, and the course of the waters seems to be entirely in conformity with the prevailing wind.

The most common wind of the Gulf is from North, inclining to N.W. or N.E., according as it may be blowing outside. But the North is the most prevailing wind of the gulf. The land wind comes from the East or West also, according as the wind may be outside; but when it is from South it is accompanied by a suffocating heat occasioned by the desert. Calms are very frequent in the gulf and fogs at the entrance of it, producing those optical phenomena known by the name of mirage, and called by the Arabs "sirab," a delusive representation of objects afar off seen in the atmosphere.

On the coast of Africa further West, about Bengasi, during the summer months, the winds are mostly from N.E. fresh during the day, falling calm in the evening, and degenerating into the land wind at night. These winds reach as far as forty miles off shore, and, therefore, useful to vessels. But the principle should always be observed of making the land to windward of the port.

But off Dernah, where abundance of provisions of all kinds with fruit and vegetables, all at very low prices, are obtained, in summer time the prevailing winds are from W.N.W. It would appear that the northerly winds on reaching Cape Razat separate into two currents, one being directed along the coast to the westward, and when off Bengazi being N.E., and the other pursuing the eastern coast and becoming N.W. Thus, vessels bound to Alexandria, making the land off Cape Razat, are certain of a fair wind along the coast.

There is a phenomenon common to the Mediterranean, to which we have alluded as frequently occurring in the Strait of Gibraltar, from what the Spaniards call *contrastes*, the meeting of strong opposite winds. But the waterspout to which we allude is perhaps more frequently formed in light winds and calm weather from the wonderful power of electricity collected apparently in a large cloud. The experienced navigator knows that he must do all he can to prevent his ship from getting near this monstrous meteor, and that it may be dissipated by a sudden concussion of the air produced by the report of a gun.

Admiral Smyth gives the following account of them:—He says, "It is not uncommon, especially in and near the middle zone of the Mediterranean, to experience typhoons or whirlwinds, of which some



of the most obvious instances that have passed under my notice are in the vertical columns of sand in the deserts of North Africa. From such currents of air rushing through the atmosphere and along the surface of the sea, with an impetuous spiral rotation, there very frequently result, in the warm months, those extraordinary phenomena somewhat inappropriately named waterspouts since they are owing to a commotion of rarefied air only. Of these syphons, I have frequently seen several at once of various magnitudes round the ship.

In round terms they may be described as trumpet-shaped cones descending from a dense cloud, with the small end downwards, beneath which the surface of the sea becomes agitated and whirled round, and the water, converted into vapour, ascends with a spiral impulse, till a junction is effected with the cone proceeding from the cloud; frequently, however, they disperse before the union takes place, especially when the action of the wind drives them out of their perpendicular position.

There can be little doubt that the Franklinian theory is substantially right; and that from the vapour being evidently drawn or forced upwards, waterspouts are the consequence of a previous whirlwind. In addition to the operation of wind, atmospheric electricity and its opposite may be also found to exert influence; but Dr. Franklin's argument will here suffice for the upper air is rarer than at the base, and the syphon itself is mechanically the effect of its own whirling motion; besides which, as vapour when once formed always rises, it cannot do so but directly upwards. The gyrations in this sea are thought to be in accordance with the direction taken by the hands of a watch while going, but their revolving spirally makes this difficult to establish, and there may exist a great disparity in their temperature, humidity, and substance.

"Careful seamen," says the Admiral, "should avoid this phenomenon; and as it is received in space by the prevailing wind, which is acting equally on the ship, it may be made to pass by a skilful manœuvre."

In continuation of the directions previously given for navigating this sea, the following will be serviceable to the seamen in his choice of

#### ROUTES TO PORTS.

It is a general rule among navigators to adopt that course which is nearest to their port of destination, and which is undoubtedly the shortest, especially when carrying good chronometers, which prevent the necessity of making capes and islands to verify position.

But this rule does not always apply to the Mediterranean; for in the short portions of sea that there are to be run over, there are often islets, currents, and sudden or gradual changes of wind which oblige them to make an out-of-the-way course, besides which cases occur in which it is right to take one route in preference to another more direct, either to shorten or ensure making the voyage.

There is, however, nothing more difficult than to lay down tracks for vessels to follow from one place to another in a sea so reduced and

full of obstacles as the Mediterranean, in which practical experience can only overcome them with good navigation.

The Balearic and Tyrranean Sea being impeded by the islands of Corsica and Sardinia in an extent of above 250 miles from North to South, compels navigators, who have to pass from one sea to another, to select one of the three routes which they form, on which selection frequently depends the character of the voyage. We will endeavour to describe the particular advantages which belong to each route.

*The Route Northward of Corsica.*—All vessels from the Atlantic Ocean and from the South and West coasts of Spain, including the Balearic Islands, probably bound to Genoa and ports of its coast, or those of Leghorn and the coast of Tuscany, as far as Civita Vecchia, pass North of Corsica.

In summer time this navigation has no particular obstacles. Vessels run down in sight of the coast of Spain as far as Cape San Sebastian; they cross the Gulf of Lyons to make the Hieres Isles, and then run along the coast of Genoa if bound to some port of that coast; or, perhaps, if bound to Leghorn from Hieres, they will sight Isle Gorgona.

If the vessel is bound to one of the southern ports of Tuscany she will steer from the Hieres Isles to make Cape Corso, to pass between it and Isle Capraya, and keeping North of Elba if going to Civita Vecchia.

Vessels from the Balearic Islands, and also those from Algiers bound to Genoa and Leghorn, generally take the direct route by the Hieres Isles if going to the Gulf of Genoa or to Cape Corso if for Leghorn. The same, but in the opposite direction, would be adopted in the summer season when proceeding from the coast of Tuscany or Genoa, if bound to the Spanish coast, the Balearic Isles, or the Atlantic.

These passages may be made easily in the summer, because the winds of the Gulf of Lyons are neither common nor lasting, and a vessel requires no great care in her management while the S.E. and S.W. winds are more frequent.

*Winter Season.*—It is not so, however, in winter, on account of the difficult navigation of the Gulf of Lyons, which a ship must cross when bound to and from the above ports. In this case the coast of Spain should not be left until the vessel is certain of seeing Cape San Sebastian or Cape Creux; and should the weather threaten what is called a *golfada* (a hard gale) she should not lose sight of the coast. Even when vessels from the Balearic Isles or the Algerine coast prudently work for the parallel of Cape Sebastian, endeavouring to cross the gulf here, they blow so hard, especially after rain, that their violence has produced great distress to ships, throwing them off their course considerably, and blowing even as far as the western shore of Sardinia.

When the N.W. wind, called by the country people the *Mistral* (Maestral), is moderate, it is very favourable to navigating either East or West when the vessel is off Cape de Creux; for when the drift of

the Gulf makes it a scant wind, drawing it to N.N.E., a vessel should attempt the passage only by sailing well free, as she will certainly find that, in proportion as she gets to the eastward, the wind will haul northwardly, allowing her to haul up to her proper course, and before her arrival will be on the quarter.

But just the reverse of this will occur to a vessel having to cross the gulf from East to West; and it will be impossible for her to do it if the wind is strong when she gets into it, in which case she must be content to wait at the Hieres Isles till it is past or off Cape Corso, according to where she may be caught by the Mistral

Nor are the winds from seaward at all less dangerous to the navigator who has to cross the gulf with them in the winter time. In a case of this kind a vessel must adopt the reverse of the foregoing, that is to skirt the gulf well outside of it, so that if the vessel on the wind setting in between S.W. and S.S.E. should be off Cape San Sebastian or Cape Creux, she should make to the eastward with all sail possible, even if she has to lay her head for Corsica until she has got out of the influence of the currents. These set strongly towards the head of the gulf, with more strength, in fact, than they set out of it when the wind is from the northward, blowing the same way by more than a mile an hour. Ships from the Balearic Islands or Algiers, proceeding to Marseilles or any other part of the gulf, should observe the same precaution as above, for it is a common event for a ship to be drifted into the head of the bay when she was considered to windward of Marseilles.

*(To be concluded in our next.)*

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CHANGES IN COAST LINES,—*By S. M. Saxby, Esq., R.N.*

(Continued from page 268).

The preceding chapter was leading me into deeper water than we have agreed to sail in, and it will be prudent to keep within easy soundings; let us, then, again approach our subject; we will do it "crab-fashion," in deference to the (to use a big word) "idiosyncracies" of nautical readers; for, as a parallel case, I much doubt if even in our yachting excursions the pleasure consists in sailing on one monotonous course all the day long. There is an excitement in knowing that the exercise of judgment and unyielding perseverance will obtain for us more than will an apathetic placid deference to circumstances.

A flowing sheet and fair wind are at times pleasant, but then we at least only make leeway, which could be done almost as well upon a haystack. If we carry a proper keel and forefoot, and are fairly ballasted, our water lines being after the first fashion of the day, I see not why our proper object should not be the "wind's eye" itself.

Now we are fairly upon a "Channel cruise," with a definite object, and really have to weather a point that lies dead to windward of us, so that advantage must be taken of every incident which, even though lengthening our actual course "through the water," gives, by means of a *convenient tack or two*, the benefit of actually and the more effectually securing the success of our voyage. I remember the delight with which I once made a rough beat round Dunnoose, for the mere pleasure of proving the qualities of my little craft when opposed by wind and tide. A similar motive prompts us in other matters. It is frequently the standing "off and on" that promotes not only our pleasure but our real advance, so "about we go" again.

Few of my nautical readers will have suspected one object I had in dwelling, as in the last chapter, upon the hitherto, I believe, unbroached question of the heaping-up of the waters as conducive to changes in coast lines; and less in number will be those who have foreseen the bearing which these papers have upon one of the great questions of the day—one which is actually *hinging upon* that which we are considering.

Humble as may be this attempt to elucidate facts which bear not merely upon hydrography but upon the subject of man's early history, his "antiquity," much more importance attaches, I believe, to the subject of these chapters than would appear either from the unavoidable *manner* in which they are introduced, or from the want of ability in the writer to do justice to a question which now so earnestly engrosses the thoughts of presidents and professors of learned societies, and the more especially since the publication of Sir Charles Lyall's interesting book on the *Antiquity of Man*. We can scarcely open a serial of any pretensions without meeting with something about "sea beaches" and "flint implements."

Although the *Nautical Magazine* is and has long been the legitimate repository for facts in hydrography, and the consistent record of all which relates to the sea (and, of course, the sea coast), I should, for obvious reasons, have hesitated in referring to abstruse hypotheses which would better find place in a work specially devoted to the investigation of individual subjects; but it seems strange to reject a few illustrative and perhaps instructive remarks in speaking to sailors and "seafaring gentlemen" merely because they smack of science. As already quoted, the Admiralty, in their interesting *Manual*, warmly encourage the giving of more attention to those branches which fall within the range of naval officers' opportunities. There can be no positive harm, therefore, in looking "over the side" as we pass among a few rather prominent and peculiar "landmarks." My brief observations shall be put in as innocent and simple a form as possible.

Not to attempt to connect the following considerations with our subject would, indeed, be to wilfully suppress useful facts, and to connive at their longer obscurity—they show the extent to which the labours of the hydrographer (aided by considerations of undavorology) may be furthered by circumstances when pursuing a straightforward

course of reasoning upon coast lines. It is the province of geology, in its vastly comprehensive review of the earth's crust, to generalize observations, and combine them upon a grand scale. Undavorology fills in the details of the sketch and completes the outline, while it defines, illustrates, and harmonizes. Geology shows the *condition* of the earth's surface, and it is for undavorology to investigate and explain such mechanical changes as have been produced by *moving water*.

Geologists are discovering traces of such changes of sea level, but have not as yet been able to detect the causes.

I showed in the preceding chapter that certain changes of level of the sea have occurred in certain parts of the coast, and that we in these papers can trace causes which heretofore had been undetected.

It becomes me, then, to walk warily, lest, by the appearance of presumption, I prejudice my case.

It is a pleasing proof, however, of the care with which eminent workers in science proceed in general when we can find that the researches of one man can develop the accuracy and confirm the consistency of another's reasoning. It is by such *independent* means that the truth becomes satisfactorily developed.

Now, the facts in connection with our speculations on coast lines, which are exciting such intense interest, are, divested of all obscurity, simply these :—

Spear-shaped instruments, which evidently the hand of man has chipped out of flint *from the chalk*, have been found in certain localities, such as the valleys of the Seine and Somme, on the North-East coast of France, and the valleys of the Ouse and the Waveney on the East coast of England. These are found in "drift gravels," *high above the present high water mark*; and, having been evidently deposited by the tide, seem to indicate that either the sea level has lowered, or that the land has risen, for the places in which these remains have been found are evidently "sea beaches;" and, therefore, say some geologists, since no evidence exists of any sudden upheavals of the land at these places, a long extent of time *must* have passed while this change of level was taking place, and, moreover, because (supposed) human remains have been found in these beds; therefore the "antiquity of man" must be greater than the world had presupposed.

It is, I say, really refreshing to see (as I presume to show) what accuracy of reasoning men eminent in science attain when honestly pursuing a subject of scientific investigation. Professor J. D. Forbes, in his admirable paper in *Good Words* for May, 1863, refers (in illustration) to the opinion of M. Elie de Beaumont, the distinguished French geologist, viz.—that the drift gravel of the Somme is newer than "deluvium or the drift deposited by some general deluge." The professor even adds (and it is this which bears on the subject of our last chapter) that "he does not admit that any of the gravel beds of the Somme belong to the *diluvial* age." They are all, according to M. Elie de Beaumont, transported gravels, due to the action of terrestrial rains and *similar casualties*. *Now a reference to my last chapter will*

*suggest that they were deposited during the period of what I have called the heaping up of the waters during the time of the Channel lagoon.*

This seems, therefore, to throw doubts upon what is supposed (upon apparently insufficient grounds) to indicate the asserted great antiquity of man. Professor Forbes repudiates the notion that the elevation of *terraces* or ancient elevated *sea beaches* which fringe our coast was *gradual, and this materially assists my argument in favour of my lagoon theory*; for we have seen in these papers to what extent the work and action of pent up waters for a limited period within the elevation of an assumed fifty feet may have operated, *without any upward thrust or raising up of the earth's surface*; and it certainly would occur that, as soon as such confined waters found an outlet, the general water level would permanently and very rapidly subside, *leaving the beaches or terraces of the lagoon period perfectly traceable, as we now find them.*

Such subsidence might have even been the work of a very few years, or perhaps months; for such a combination of lunar and solar influences as induced me (so justifiably as results proved)\* to warn the world, in the *Nautical Magazine* of March, 1863, against the dreaded period of 10th to 12th December last, and which, with equal consistency, allow of my further warning as to the period of 29th and 30th January next, would be quite sufficient to warrant the belief that the first irruption of the sea which formed the original Straits of Dover might have occurred during one of those heavy gales from serious atmospheric disturbance upon a grand scale which, as in December last, raised the level of the Yarra, at Melbourne, quite forty feet above its banks, and the "Meredith," &c., in Tasmania† some twenty to thirty feet.

(By the bye, we are making a long "tack;" but standing on a few "lengths" further in this direction will give us an extended view of our subject, and may "clench" our argument.)

I will just briefly quote Professor Forbes as to important admissions he has made in *Good Words*. At page 440, of May, 1864, occurs this remarkable paragraph, and which, I submit, exonerates me from all imputation of presumption in attempting to introduce the science of undavorology as the handmaiden of both hydrography and geology. "Many persons will doubt whether, under the influences of existing causes alone, even had they endured for tens or hundreds of thousands of years, the observed phenomena of the *Drift of Picardy or Kent or Sussex* could have been produced. The chronology based on uniformity is, therefore, at fault." (These are the very localities which we have been considering.) And again, the gravels or beaches referred to in *Good Words*, at page 434, "have been distinguished into 'high level' and 'low level' gravels, occurring respectively at heights of about

\* *Saxby's Weather System*. 2nd Edition. Longman.

† *Vide Times* of 13th February, 1864.

*eighty and forty feet above the present ocean.*" (That means above the present level of the Straits of Dover.)

I have recently had the honour of introducing to the world through the venerated pages of the *Nautical*, a discovery as to the moon's influence on the weather, which has borne the test of adverse scrutiny. Pointing to this circumstance as a "credential," I would say that, with equal care have I weighed the opinion which I respectfully offer to the intelligent nautical visitors to foreign coasts who have opportunity for inspecting such interesting raised beaches in various parts of the globe, as well as to *savans* of Europe on the question of coast lines—bearing out my previous assertion that, in the investigation of any one subject connected with nature's laws, we need great vigilance, as we cannot always at the commencement of our inquiry estimate the nature of the bye paths, nor the direction they may take.

Well may the esteemed author just quoted say that "reasonings *not connected with geology or flint weapons, &c., may, possibly, after all, prove even more reliable guides.*"

The reader will please to remember that the valley of the Somme lies on the coast of Picardy (France), just in the very light of what I have called the former channel lagoon; and this, with the coast of Kent and Sussex, would receive the highest level of the pent up waters occurring at every flood tide. The professor's assertion that (page 434) "there is no reason to conclude that the relative level of sea and land has altered more than twenty or thirty feet since the time of these deposits" much relieves the responsibility under which I am writing.

*The pent up water must have flooded twice a day the present valley of the Somme.* I have only asked the concession of an *extra* tidal accumulation of fifty feet vertical rise at high water in the length of about 300 miles (*Vide Nautical* for May, 1864, page 263.) But it is quite as easy and quite as consistent to suppose that rise to have been *eighty* feet—such would be only a heaping up of about three inches in a mile (not a fifth part of what occurs daily in some parts of our estuaries).

Now, grant this, and we open a field for the further development of one of the greatest considerations which, not only in its intrinsic interest, but in its exciting influence on the minds of the European "heads of science," has, for a long period, attracted so wide a public curiosity.

One cannot, without some professional risk, touch upon ground on which (so far as I know) no foot had previously trodden.

One feels (with all due self respect and apology) to be somewhat of a "navvy" in thus striking one's "spade" into "virgin soil." A few days since I saw the labourers (as they may, indeed, be called) working at the new fortifications which are to protect the people of Sheerness from the possible intrusions of foreign gentlemen, who might without them some day enter their houses without first scraping their boots. I watched the vigorous "dig" into the stiff blue clay of the marsh, and noticed the huge lumps rapidly filling the barrows, while

each spadefull described, as if by machinery its "regulation" swing, from the brawney arms of an Irish Hercules. "Hard work!" said I to the burly fellow, who, from his colour, might have been built of very old mahogany. His only notice of my remark, which was really intended for civility, was a defiant scowl seeming to demand of me an answer to his evident mental question "Did I say it wasn't?"

Well "digging" is hard work, and I have had my share of it. Only there is this difference between us—What was the spade in the hands of the navy has been the pen in mine. Each of us has been working at *foundations* in frequent ignorance of what was to be the precise extent of the structure to be raised thereupon; each has been in earnest and in the path of duty. Having on the spot settled this to my *dissatisfaction*, I walked away instructed, but ready and contented to renew my "digging," which it is now time to resume.

From what has been said as to the again referred to heaping up of the water in the *eastern part* of the former lagoon, which has since become the English Channel, my nautical readers will not need much assistance in estimating the *manner* in which the destruction of the former coast line has been effected. It will be unnecessary, therefore, to trace operations along the southern shore of England; but there is one locality which ought to be noticed as typical of the whole.

It will amply repay the yachtsman in the coming summer (which, so far as regards lunar influences, permit me to say, is likely to prove a quiet one in its general weather) to visit afloat the coast of Dorset, say between "Bat's Corner" and "Warbarrow Bay."

I remember the joy and excitement with which, in a snug little craft, I examined that district about fifteen years since, anchoring in one of the prettiest spots to be found in England's coast line, viz.—Lulworth Cove. It was not the almost overpowering interest felt in its exquisite geological illustrations—it was not the charming clearness of the still sea water which revealed so distinctly the plainly visible submarine treasures growing, without disturbance, at the bottom of this lovely inlet of a perfect fairy land. These and a dozen other attractions were each enough to gratify the mere tourist, but to me the all absorbing interest was in the testimony which the surrounding cliffs and rocks that nearly enclosed this picturesque spot unmistakably gave of the former contest between earth and water. If any part of the Channel can be designated a battle field of the elements this neighbourhood may. Oh! that steam should be permitted to convey the mere indifferent loungee to a spot so lovely! It is desecration!

Those who may not have time to examine the whole locality will do well to pull into the neighbouring Warbarrow Bay. It is difficult to convey an idea of the magnificence of the scenery hereabouts. A feeling of desolation like that experienced on beholding the ruins of an ancient city, assails those who look for the first time into Warbarrow Bay! The only living tenants at the time of my visit to this splendid wreck were the few sea birds that proudly claim the solitude as their own. A grim old cormorant, I remember, was sitting on a high but



to us inaccessible ridge of rock within the outer barriers, and occasionally flapped his wings in surly recognition of us; but when he turned his head towards our advancing boat, it was done with such "an air" of indifference that—confound the fellow—he made us feel it to be quite a condescension, and that we were really intruders!

Bat's Corner is a wonderful example of the destructive power of the sea; the arched rock, called the "Barn Door," is another; these form the limits of "Durdle Cove."

By the way "Durdle," "Barn Door," "Bat's Corner," and further onward "Durlstone," or "Durdlestone." It must puzzle hydrographers occasionally to determine the true names of places. Are not these names suggestive of the probability that they may have been bestowed not by surveyors but by farmers from neighbouring counties. What, for instance, would a "Zummerzethire" bumpkin call a "Turtle?"

Thus far little has been said of any peculiarities which may attach to evidences of the *progressive formation* of the Straits of Dover. When the sea broke through the ruin of the chalk strata, which were dislocated at the time of the upward thrust of part of Kent and Sussex (as already described), the breadth of the strait must, at first, and probably for a long time, have been comparatively small. I think this abundantly capable of demonstration before closing these papers. The shape of the sea bed is not an infallible guide for us in our speculations, because the scourings of a current moving with tidal velocity will often operate so rapidly, depending, of course, upon the geological nature of the bottom. Yet in very many instances, and in this especially where no obstacles to their introduction seem to exist, we may give weight and importance to their testimony.

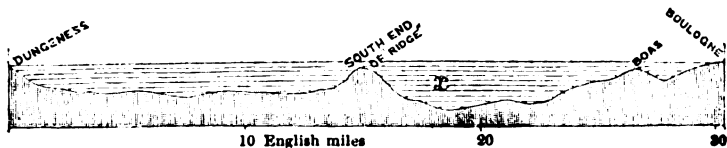
To touch lightly for the present on the effects of the flood stream having impinged at a large angle on certain parts of the resisting French shore line of the estuary of the former Somme, the irregularity of the soundings and the submerged ridges lying off that part of the coast southward of Boulogne, sufficiently indicates extensive changes in the ancient coast line; but, whatever may have occurred, it seems that the deep water of the strait must always have been much nearer to Cape Grinez shore than towards the English coast. Indeed, sections of this part show a singular uniformity of deep sounding, and the accompanying four diagrams (to scale) will plainly illustrate my meaning.

In fig. A, a line is supposed to be drawn from Dungeness to Boulogne, just crossing the southern end of the present dangerous mid channel danger called the "Ridge."

In fig. B, a line from Dover to Cape Grinez gives a totally different type of soundings, this being the very neck of the strait.

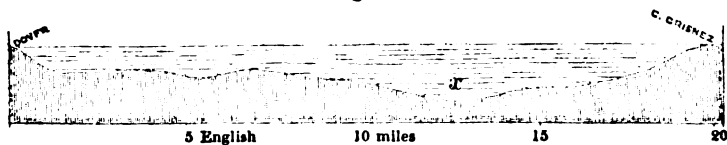
While at fig. C we have a completely different section from the "Heaps" Buoy (at the estuary of the Thames) across the northern limit of the strait to the commencement of the intricate series of banks and shoals which so encumber the Dutch coast.

Fig. A.



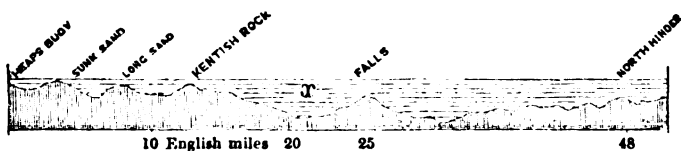
Section from Dungeness to Boulogne (Straits of Dover.)

Fig. B.



Section from Dover to Cape Grinez (Straits of Dover.)

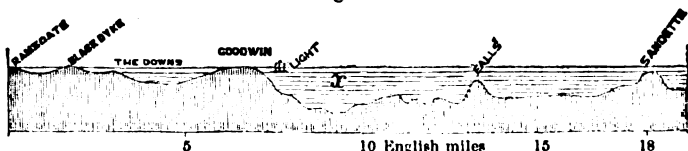
Fig. C.



Now, in all these, one thing is remarkable, viz.—we find the deep water continued at a good offing from the present coast line of Kent.

But, further, if we examine, in a line from Ramsgate to the shoaling of the French coast (say to the Sandette Bank) the truth of our hypothesis becomes plainer, for we see in fig. D

Fig. D.



Section from Ramsgate to the Sandette Shoal (Straits of Dover.)

that actually the deep lies just where it should have been expected to be found before the succeeding second grand encroachment of the sea (at the Goodwin) gave to this part of the English Channel its present dimensions.

The cause of the singular comparative shallowness of the Downs and the presence of the Goodwin Sands will be illustrated in the next chapter; but one thing seems certain, that the early strait first ran *outside* the Varne and Ridge, outside the Goodwin, and between the Goodwin and the "Falls," which latter probably, for a long period—perhaps for ages—formed the line of the French coast.

Having thus suggested enough out of what we can gather from the present aspect of the shore on which to ground a few convictions upon the progress of the formation of the English coast line, I might, with propriety, close this attempt to turn speculations as to water action into a definite channel; but being able to trace certain important changes down to the historic period, it will be well to connect them with our illustrations in undavorology in such manner as to fix a date or two of such changes which prove to have occurred since the period of the Roman invasion of Britain, and to have effected, to an enormous extent, the estuary of the Thames.

(To be continued.)

## Nautical Notices.

### PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 277.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist in Mls.	[Remarks, &c. Bearings Magnetic.]
18. Hindar Bank	Belgium coast	51° 22-5' N., 2° 28-4' E.	R.	40	12	Est. 4th April, 1864. Every three minutes. See page 278.
19. Alexandretta	Syrian coast	36° 35-5' N., 38° 9-1' E.	F.	49	5	Est. 1st April, 1864. Two lights vertical.
Latakiah	Ditto	35° 31-2' N., 35° 45-7' E.	F.	49	4	Est. 15th April, 1864. Red light.
Khalifa	Ditto	32° 49-9' N., 35° 0' E.	F.	66	5	Est. 25th April, 1864. Two lights vertical.
20. Holyhead	Welsh coast	Breakwater extremity	F.	40	..	Altered 1st August, 1864. Red light. (a.)
Holyhead Old Harbour	On wooden jetty	At entrance	F.	20	..	Altered 1st August, 1864. In lieu of former, discontinued.
21. Manfredonia	Adriatic	41° 37-8' N., 15° 56-9' E.	F.	26	6	Est. 5th May, 1864. (b.)
22. Demerara	Guayana	River Entrance	E.	..	16	Alteration. Now revolves once a minute. (c.)

F. Fixed. Fl. Fixed and Flashing. R. Revolving. I. Intermittent. Est. Established.

(a.) 20.—A gong will be sounded during foggy weather, in like manner as is now done on board the light-vessel.

A red buoy marks the spot where the extreme end of the breakwater will be when finished; vessels should pass eastward of the buoy.

The light-vessel at the end of the breakwater will be removed.

At night, vessels should not steer in for the harbour until the small red light shown from the Old Harbour lighthouse bears between S.S.W.  $\frac{1}{4}$  W. and S.W., and in entering or leaving the harbour should keep three-quarters of a cable eastward of the light on the breakwater.

(b.) 21.—Also, that a red light is shown from the wall on the South side of the town, for the guidance of vessels belonging to a steam company.

(c.) 22.—The light-vessel off the mouth of the river is in  $3\frac{1}{2}$  fathoms water, has only one mast, and now exhibits a *fixed* white light.

Also, that Bel Air Beacon has been removed. The white buoy on the edge of the bank on the East side of the channel now lies at about a mile N.E.b.E. of its former position.

The red buoy on the West side of the channel has been replaced by a black buoy, distant about a mile from the white buoy on the eastern side; and a small black buoy lies abreast the lighthouse in fourteen feet at low water springs, on the edge of the western bank.

There are only ten feet at low water springs, at the entrance to the Demerara River, between the white and black buoys; and the depths of water in the navigable channels and over the banks have changed considerably since the last survey.

The windmills and high tree at the western side of entrance to the river have disappeared.

A large red buoy lies on the edge of the bank north-westward of the mouth of the river, in 9 feet at low water springs; it bears N.N.W. distant  $7\frac{1}{2}$  miles from the lighthouse. The Sugar Bank Beacon has been placed about  $2\frac{1}{2}$  miles North of its former position; and a black buoy at about  $2\frac{1}{2}$  miles south-westward of it marks the channel to the E-sequibo River.

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#### SAILING DIRECTIONS:—YZERVARK POINT TO MOSSEL BAY,—*South Africa.*

The following important directions for ports on the South African coast have been published at the Cape, and we preserve them for the benefit of seamen.

*Cape Town, January 1st, 1864.*

*Yzervark Point*—lies W.b.N. ten miles from Cape Vacca; it is bold and rocky, with a hill, Buffel's Kop, 740 feet high, standing one and a third mile inland from it. It may be known by a round bare sand hill, 200 feet high, close to the sea, a mile and a third West of it. This hill terminates the sandy feature of the coast in the light between Kafir Kuil's River and Yzervark Point. Aasvogelberg, a long elevated hill, 1,620 feet high, stands N.b.E.  $\frac{1}{2}$  E., eleven and a third miles from the point, and may serve to identify it.

Between Yzervark Point and Cape Vacca the coast consists of rude jagged rocks, on which a heavy sea is constantly beating. The land immediately at the back slopes to the height of 700 to 500 feet, and is covered with bush and vegetation. There is a small but remarkable sand patch of a reddish colour midway between Yzervark Point and the Gouritz River, and half a mile from Bull Point. This point is not easily distinguished, as it is only a very slight projection from the general line of the rocky shore. South three quarters of a mile from the red sand patch, and a third of a mile off shore, there are patches of detached reef, which break and show at low water. At the distance of a mile and a half from this rocky coast the soundings range from 30 fathoms off Yzervark Point to 20 fathoms South of Cape Vacca.

*Gouritz River*—lies West a mile and a third from Cape Vacca; it has a sandy beach at its western entrance, but the breakers are gene-

rally too high to make it available as a landing place for boats. The sea breaks right across its mouth, which at the outer part is only half a mile in width, and at half a mile inside it is only ten to fifteen yards wide.

*Cape Vacca* (Vaches of Horsburgh) lies W.  $\frac{1}{4}$  S., fifteen miles from Cape St. Blaize Lighthouse. It is a low flat of rock and shingle jutting out from a round hill over the eastern entrance to the Gouritz River, and which bears N.  $62^{\circ}$  W., a mile and a third from the cape. The sea breaks half a mile outside the cape in rough weather, at which distance a depth of 9 fathoms was found. From the discolouration of the sea, and the uneasy ground swell in the vicinity, it is more than probable that shoal rocky ground exists there. Care must be observed in rounding this low cape, as the new light on Cape St. Blaize will not be visible from it. The lead here will be the best guide at night or in thick weather.

*Flesh Bay*—is formed by Cape Vacca on the S.W., and Fish Point on the N.E. They lie N.  $64^{\circ}$  E., and S.  $64^{\circ}$  W., two and two third miles from each other. The shore of the bay is sandy throughout, save at the extremes, which are rocky. About the middle of the bay there is a bare sand hill, 280 feet high, just over the beach. This bay affords no shelter for vessels, save as a temporary one in N.W. gales, and it can only be used as a landing place in tolerably fine weather. The island, and the facilities this bay afforded for procuring fresh water and cattle, mentioned by Van Keuten and the early Dutch navigators, no longer exist. There is no island in the bay, and very little fresh water is found near to the sea, and that is brackish. At the time of the survey, 1862, cattle were not to be had, the inhabitants living entirely on sheep.

*Fish Bay*—is formed by a deep curve of three miles in the coast line between Fish Point and the well defined commencement of the rocky cliffs which extend four miles westward of Cape St. Blaize, and which is called Pinnacle Point. From Fish Point to Pinnacle Point the bearing is N.  $82^{\circ}$  E., and distance nine miles. The whole shore of this bay is sandy, with small patches of rock showing out about low water mark, and in the breakers, which are generally high throughout the bay. The land at the back, at the distance of a mile, rises 400 to 500 feet in height, and is covered mostly with bush and vegetation. The bay may be used by vessels seeking shelter from N.W. gales. The best anchorage will be found a mile and a quarter from the sandy shore in 7 to 8 fathoms, Fish Point bearing South to S.  $10^{\circ}$  W., and the extreme of the bluff cliffs near Cape St. Blaize E.  $\frac{1}{4}$  S. It is advisable for vessels seeking shelter to put to sea as soon as the gale subsides, for then a heavy S.W. swell sets in and causes a dangerous breaking sea. The best landing is near Fish Point; in a small sandy cove between rocks, but in fine weather boats may land in the bight under Jackson's Farmhouse.

*Pinnacle Point to Cape St. Blaize.*—These four miles consist of precipitous rocky cliffs of a reddish colour, about 250 feet high, with deep water close to: it is quite impracticable for boats landing. The

higher land half a mile at the back ranges from 600 to 200 feet in height towards the cape, and is mostly covered with grass and bush. Cape St. Blaize bluff is the eastern extreme of these rocky cliffs. A windmill stands on the high land near the cape, but it is only visible to vessels approaching from the southward or the eastward. The cape itself is a tongue of low flat land fronted by rugged reef jutting into the sea 500 yards from the bluff on which the lighthouse stands. A remarkable whitewashed rock, the Logan Stone, poised upon natural supports, stands just beneath the bluff. A sunken rock called Windvogel, with fifteen feet water over it, lies a quarter of a mile outside the cape, and it breaks at low water and in rough weather.

*Lighthouse.*—The lighthouse is a square white tower, forty-five feet high, with buildings at its base for the light-keepers. It is in lat.  $34^{\circ} 11' 10''$  S., long.  $22^{\circ} 9' 31''$  E. It will, when lighted, exhibit a red fixed light of the third order, dioptric, at an elevation of 240 feet above the sea, and be visible from N.N.W. round by the East, South and West to S.  $80^{\circ}$  W. or N.  $80^{\circ}$  E. from a ship ten to twelve miles in clear weather. As Cape Vacca bears S.  $87^{\circ}$  W. from the lighthouse, vessels proceeding westward must be careful not to lose sight of the light; as they will then be either getting in towards the rocky coast westward of Cape St. Blaize or into Fish Bay. Vessels well acquainted with the coast may take this liberty, and use Fish Bay for a smooth water board in working westward: the lead must then be a guide, but 20 fathoms is the limit within which none but a coaster should be found.

*Mossel Bay.*—From Cape St. Blaize the land takes an abrupt trend to the N.W.b.N. for three miles, still retaining, with the exception of three sandy coves, its rocky coast feature? the outermost two of these coves are called Vaarkens and Mauro Bays, in the former of which landing is generally made. At the end of these three miles the coast curves to the N.E. for three miles, with a sandy beach to the mouth of the Haartenbosch River, and two miles further on to the Little Brak River. A line drawn from this river to Cape St. Blaize may be considered as the limit of Mossel Bay. Just to the N.E. of the Haartenbosch River there is a large conspicuous sand patch, which extends to and beyond the mouth of the Little Brak River. This patch is useful for strangers from the eastward in identifying the bay, and from the westward for clearing the Windvogel Rock in rounding Cape St. Blaize. N.  $12^{\circ}$  W., two and three quarters miles from the lighthouse in the depth of the bay, and one third of a mile from the sandy shore, lies Seal Island, a small rocky islet about fifteen feet high, with depth of 3 to 4 fathoms between it and the shore; it has deep water close around it.

Mossel Bay affords excellent shelter to vessels during the winter months, April to September, when heavy N.W. gales are of frequent occurrence, and it is far preferable to use it as a place of shelter than to buffet the sea about Cape L'Agulhas, which is 120 miles only to the westward. During the strength of these gales the water in the bay is smooth, and ships ride well, but it sometimes happens that a heavy

S.W. swell sets into the bay if the wind veers to West and W.S.W., and this renders the bay unsafe, and landing very difficult or impracticable. During the summer season, when S.E. gales occur, the bay is exposed to the full effect of the open sea, but these gales seldom last longer than thirty-six hours, and do not blow home. A heavy breaking sea then rolls in, and ships trading to the port usually ride with a long scope of cable, secured to a coir or hempen spring to ease the strain on the cables. With this precaution vessels ride safely, and the holding ground is good. As in Algoa Bay, there appears to be a strong easterly current, or "undertow," which assists to ease the strain on the cables. Should a vessel, however, not wish to risk riding out a south-easter in the bay, by putting to sea early, she will be well able to clear Cape St. Blaize by first making a good long board to the eastward, in which she will be assisted by the "undertow." Captain Laws, the harbour-master, has found by observation that a rise of the barometer usually precedes a south-easter, and that the increase of the wind is gradual at the commencement.

*Anchorage.*—The anchorage space is included (1) between a line drawn from Cape St. Blaize Lighthouse through the Ladies School (a conspicuous building with a double gable point, and the only house near to the cape), bearing S. 27° W., and (2) a line drawn from the windmill through Barry's Store (a large two-storied stone building which stands on the mound close to the sea at the West side of Vaarkens Bay), bearing S.b.W.  $\frac{1}{2}$  W. Small vessels may anchor in this space in from  $3\frac{1}{2}$  to 4 fathoms water, with the outer low point visible, bearing between S.b.E. and S. E.b.S.; but vessels seeking shelter ought not to go inside a depth of  $6\frac{1}{2}$  or 7 fathoms in either season of the year. The windmill in line with the new jetty is a good line for strangers to anchor upon, suiting their depth of water to the size of their vessels and the object they have in visiting the bay. Vessels intended to load or unload may take up a berth more to the westward, and into the depth of the bay—not, however, going within the line of the windmill and Barry's Store already mentioned. Ships of war visiting the bay should not anchor in less than 7 fathoms during the summer months, the lighthouse bearing S.b.W.  $\frac{1}{4}$  W., nor less than  $5\frac{1}{2}$  to 6 fathoms in the winter, the lighthouse bearing S.  $\frac{3}{4}$  W. There is a substantially built jetty in the nook or cove, called Vaarkens Bay, abreast of the anchorage. With a small outlay in making a rough stone pier from the outer point of the bay, to protect the jetty from the breaking sea that sometimes comes in, landing might be effected in almost all weathers: at present the rollers render landing almost impracticable at times, endangering even the jetty itself. Fresh water is supplied from a pipe at the jetty end, at the rate of about thirty tons a day. Fresh provisions and vegetables are to be had in any quantity, and it is in contemplation to erect a flag-staff at the lighthouse, so that vessels wishing to be reported can make their wishes known, and have information sent by electric telegraph either to Cape Town or Port Elizabeth. The agents for Lloyds are Messrs. Barry and Nephews.

*Mossel Bay from the Westward.*—Cape St. Blaize is a conspicuous bluff, the land at the back being quoin-shaped, and somewhat resembling the Bill of Portland. To round Cape St. Blaize keep Pinnacle Point open to the southward of the cliffs just to the West of the lighthouse bluff, N. 72° W., until the large patch of sand at Haartenbosch River bears N.  $\frac{1}{2}$  E., or until a large stone beacon which is white and stands 500 yards to the N.W. of the lighthouse, comes open to the northward of the Logan Stone; this will clear the “Windvogel” Rock.

*Mossel Bay from the Eastward.*—Coming from the East and S.E., Cape St. Blaize is more difficult of recognition, as the land shows on each side of it, but it may now be identified by the lighthouse, which shows conspicuously against the dark background; by the Logan Stone, which is also white; by the windmill on the bluff; and by the remarkable sand-patch at the mouth of Haartenbosch River.

*High-water and Tides, &c.*—It is high water at full and change at 3h. 30m.; rise and fall six to seven feet; variation of the compass 29° 50' W. There is no regular stream of tide in Mossel Bay.

F. SKEAD, *Master R.N., Admiralty Surveyor.*

Bearings are Magnetic; Distances Geographical Miles; Soundings at low water, spring tides.

WAYSIDE WAIFS ON THE ROAD TO THE WEST,—*By a Voyager.*

*W. I. and Pacific Steamship “Bolivar,”  
At Sea, April 18th, 1864.*

In lat. 41° N., long. 27° 30' W., on a calm evening, I perceived several small specks on the water on either bow and ahead. In a few minutes the ship was up with two of them, and as they turned over in the ripple from the ship's bow I saw they were cocoa-nuts, with their lower parts white with corallines and barnacles. I passed six in the space of twenty minutes, also sundry bits of driftwood.

Have these productions of another zone been borne on the Gulf Stream from the place of their growth? or were they washed off the deck of some vessel? The driftwood in company leads me to incline to the former opinion. If this is correct the occurrence is not an uncommon one, and in the days of Columbus must have attracted the attention of the adventurous seamen of the time, and led them to speculate on the possibility of reaching the coasts where such fruit flourished under a warmer sun than theirs.

One hundred and sixty miles from the Azores I met one of those phenomena, which, for want of a name, I shall designate “trough waves.” At sunset the ship was steaming, under all sail, with a light S.E. wind and smooth sea, steering W.b.S. About 2h. a.m. the



breeze freshened to a topgallant breeze, accompanied by the usual sea which rises under such circumstances, scarcely sufficient to throw a spray over a ship 250 feet on the keel.

By 4h. a.m. the weather had become gloomy and threatening, with lightning in the N.W.; the barometer had also fallen three-tenths since midnight, viz., to 29.80. I therefore ordered the foretopsail and foresail to be laid for reefing. The hands went aloft, and I was looking to see that all was correct on the yards, when suddenly a feeling came over me as if the ship was sinking rapidly under my feet. In a moment the whole of the topgallant fore-castle was plunged several feet under water, which poured like a cataract into the waist, sweeping everything that was loose to the break of the poop. The lookout-man had felt the coming shock, and clambered up the fore-stay, but not sufficiently smart to escape a thorough drenching. The shock being passed, everything went as quietly as before; neither did the vessel, when the foresail and topsail were set, plunge again as low as the fore-castle deck.

It is these "trough waves" which are so dangerous in the sudden intervals of lulls which often occur during the heaviest gales. They fall like a mass of lead on a ship, crushing under their enormous weight the strongest woodwork (I am informed that two years since the fore-castle deck of an Atlantic steamer was flattened down to the next) or bending strong vertical bars of iron into the most fantastic shapes.

Any one who watches the approach of a wave when a ship is hove to will observe that the ship appears to repel it. The great mobility of water causes this, being sensible to the slightest check. But for this property the strongest hull would yield under the force of such a mass as often approaches the side. The undertow from the base of a perpendicular cliff or pier well exemplifies this principle. On the Mersey vessels lie alongside the sea-wall, preparatory to docking, in very heavy weather without sustaining injury.

Search the records of damages sustained at sea, or consult the most experienced amongst a nation of seamen, and you will find that in nine times out of ten one sweeping sea did the mischief, by breaking the fortress to such an extent as to defy all attempts of its occupants to repair. A common saying is "If it had not been for that unlucky sea we should have come through it splendidly."

To avoid these trough waves is an impossibility. We can only prepare to receive such unwelcome and dangerous visitors by having everything properly secured. Their formation is, I believe, entirely owing to those sudden shifts of wind which occur in Atlantic gales. The troughs are raked by a force across their original direction, which gouges them into hollows, as the furrows of a ploughed field may be treated. A combination of circumstances places the ship immediately over one, into which she drops as if going down altogether.

Another remark will close this sheet. During many voyages I have remarked that between the parallels of 36° and 26° N. the baro-

meter is always high and steady with S.W. winds. For days in succession I have marked it between 30.30 and 30.50. But on passing the 36th parallel it falls with the wind from that quarter. This varies in some measure with the season of the year, but I have observed it in December and May.

W. W. KIDDLE, *Commander.*

[The foregoing remarks verify the old story of "eyes and no eyes," and show what interesting notes may be made on a voyage without leaving the ship. We hope our correspondent will continue his "waifs."—ED.]

### New Books.

SAXBY'S WEATHER SYSTEM,—or *Lunar Influence on the Weather.*—By S. M. Saxby, Esq., R.N., Principal Instructor of Naval Engineers H.M. Steam Reserve, &c. Second Edition. Longman, London.

Mr. Saxby is a bold man. "Does the moon influence the weather?" is he asked? He replies, Yes, it does, and he has brought forward proof in abundance to substantiate his opinion. "Thrice is he armed whose cause is just," and taking his stand on the results of observation over all the world's surface, (for he justly scorns to chain himself to any special locality,) he certainly does show if not *here* at least *there* that his calculations are verified. Somewhere on the surface of our globe most susceptible from probably various local causes, the changes which he predicts are found. Those who doubt this fact, and they are the greater portion of the large body of society who do so, had better refer to the book before us, consisting of some hundred pages. *Cui bono?* any one would immediately answer, and as each one would know the weather he is to have at his own *habitat*. what am I to care about weather at Rome when I want to know what it will be in England? The range of extent to which a certain condition of weather is confined, no doubt arises from some other causes than the moon. A constant current of air in any one direction will produce a species of weather dependent for its character on the direction of that wind. The limits of such a current will probably be the effect of localities,—mountain ridges, valleys, plain or wooded land, dry and arid or wet and marshy: all local conditions will have their influence. And what a difference in moisture or dryness, in heat or cold, opposite streams of wind, passing each other in adjacent parts, produce. We know that from experience here. We are loth to part with our winter fires with our present obstinate easterly winds,—but let us have our own S.W. breezes, with the invigorating warmth of the ocean, and we have no hesitation in bidding adieu to the carbon! Truly the weather is a curious subject, one which requires an age of study to comprehend,—one apparently simple in appearance, and yet one which has never been mastered! Will any ever solve the huge question under its manifold innumerable phases?

Before Mr. Saxby commenced undermining our own humble views in respect of the moon's influence on weather, we had long repudiated the idea of direct action, but were quite satisfied that "the empress of the night" exercised an indirect influence over it, in certain localities, through the action of the tides. Time was when her powerful action in producing this phenomenon was not admitted, but the seaman has good reason to be thankful for tables in which she takes the primary part; and although Mr. Saxby, from his own observa-

tions and investigations, has sufficient authority for building and supporting his theory, and notwithstanding the opinion held at Parana, we do not see why the quarterings of the moon should be held responsible for weather changes. There are abundant sources for these, even in the different directions of the wind and the cooling and heating effects of night and day.

In the course of this work we have published some curious observations on meteorology from the old school, under the title of "*Æolian Researches.*" In those essays the sun was held to be the great disturber of the weather,—a fact which every one will admit. The great source of light and life and its varied influence on the earth's surface in different parts of its orbit, cannot but produce an infinite number of changes on that translucent sea called the atmosphere,—to which source meteorologists should undoubtedly look for the explanation of many phenomena constantly passing before them.

But, after all, theories are good things. They set men at work with their wits, obliging them to consult facts, which prove or disprove their correctness. This, Mr. Saxby has done, and with them is still encouraged to brave the world of opinion against him, and he leaves his labours to fair criticism in his *Weather System*.

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CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,  
ADMIRALTY, in April and May, 1864.

England, South Coast, Dodman to the Start Point, Captain Williams, R.N., 1860, (1s. 6d.)

Mediterranean Sea, France, South Coast, Toulon Harbour, French Survey, 1861, (3s. 6d.)

Africa, East Coast, Tamatave, French Survey, 1863, (1s. 6d.)

Mexico, West Coast, Mangrove Bluff to Corrientes, Captain G. H. Richards, R.N., 1863, (3s.)

Pacific Ocean, New Hebrides, Ports in, Captain Denham, R.N., F.R.S., 1860, (2s. 6d.)

Africa, North Coast, Tripoli Harbour, Captain Spratt, R.N., C.B., 1861, (1s. 6d.)

Brazil Coast, Mossaro to Touro, Lieutenant A. Vital de Oliveira, Brazilian Navy, 1859. (2s.)

Brazil Coast, Touro to Formosa, Lieut. A. Vital de Oliveira, 1859. (2s.)

Brazil Coast, Formosa to Pernambuco, Lieut. A. Vital de Oliveira, (2s.)

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EDWARD DUNSTERVILLE, *Commander, R.N.*  
*Hydrographic Office, Admiralty, May 20th, 1864.*

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MAPS AND THEIR CONSTRUCTION.

There are certain sciences which, under a modest garb, reveal simple and clear facts without any trace of the great labours by which they have been attained;—and to these assuredly belongs that of geography. Maps which explain the most recent discoveries are in every hand. The tourist consults them for his journeys; the general for his plans of action; the engineer for his projects: The casual observer sometimes glances at them, for geography is really one of the most familiar and attractive of studies. Still it is not known how these are formed nor the degree of confidence to which they are entitled. We know very well that observations are yet required to delineate many important features of the globe,—its seas, valleys, and plains,—and to show in their proper places on paper the positions of towns, to represent in a correct manner the sinuosities of rivers, and the forms of mountains: But we should not know how to appreciate the correctness of the art if we were ignorant of the process by which these are attained. Again, there are conventional signs in topography which it is important to know the meaning of in order to read on paper all that geography employs for this purpose. Maps have an alphabet and language which is entirely their own. In order to know these, too much neglected in the science of geography, they should be displayed under an attractive form. Then we should appreciate the minute observations of astronomy which give results to the utmost attainable limits.

Maps, again, for a long time were the mere results of imagination; their contents then were representations in perspective, the villages represented by churches and the mountains by masses of shade. The large map of France by Cassini, is an instance of these imperfect methods. Under the influence of new wants for great public works, it was found necessary to define everything with exactness. The map should be as perfect in giving positions as possible, and not left with mere approximations. It is not sufficient for an engineer to know that a country is mountainous. He wants not only to know the inequalities of the ground, but the actual limits of hill and dale. Such details in topography were the aim of geographers, who at the commencement of this century established the bases of all such works for the future: in fact, geography was thus rendered one of the exact sciences, and thence materials were prepared for the solution of the long agitated problem—the true figure of the earth.

Homer we know considered the earth as a circular disc, surrounded by the ocean and supported by a colonnade of which Atlas was the guardian. Herodotus had it as an extensive plain. But observations of the stars led gradually to more rational ideas. After finding that among these there was one which remained nearly immovable, serving as a pivot, or a pole round which all the rest apparently moved, the early astronomers soon discovered that this star became lower above the horizon in proportion as they went to the South; and, on the contrary, that it became higher in proportion as they went North. Such a change of altitude and horizon could not be reconciled with the theory of the earth being a plane; but that it must be in reality circular. It was discovered, also, that the sun rose earlier to the people in the East than to those in the West, which was another proof that the earth was round. In the time of Aristotle the theory of the figure of the earth was so far improved as to be considered as a globe of an immense size isolated in the midst of space. The division of the earth's surface by meridians extending from pole to pole and by circles parallel to the equator, may be assigned to the same period; and as the countries known to the ancients were considered to extend much less to North and South than they did to East and West, the divisions in this direction received the names of degrees of longitude, and those of the other were called degrees of latitude. Either way the circumference was divided into 360 parts, such as are used in the present day. The situation of any place on the globe, on shore or on the ocean, is thus given in longitude and latitude.

One of the first points which attracted the attention of astronomers, was to measure the dimensions of the earth; that is, to measure the diameter or the circumference of the immense sphere which represented the earth. The first attempt at this dates very far back. Eratosthenes had remarked that at Syene the sun cast no shadow when at its height on the day of the summer solstice, and he justly concluded that this town was under the tropic. Having also measured the shadow which the sun gave at Alexandria at the same period of the year, he calculated that Alexandria was  $7^{\circ} 12'$  to the

North of Syene: then taking an arbitrary valuation of the distance of these two places from each other, which he supposed were under the same meridian, he calculated the circumference of the earth to be about 250,000 stadia. Other contemporary astronomers obtained by their own observations results differing but little from his. These rough calculations were manifestly deficient of precision; but nevertheless the true value of the stadium could be roughly estimated, being a measure employed by the Greeks the length of which is unknown to us.

Astronomical observations, however, on which such measurements depended, could make no progress until the invention of the lens and its application to the telescope. It was attempted in observations of this kind to measure with great accuracy angles for which the telescope is indispensable, less on account of the size of the objects than on attaining a perfect direction. In the sixteenth century Tycho Brahe measured such angles by the naked eye nearly to a minute. His contemporaries, not so skilful, were far from reaching such accuracy; while in the present day it is easy even to measure to seconds and fractions of seconds in such angular measurements.

The invention of the telescope, dating in 1609, the measure of the earth was not attended with success before the seventeenth century. Before enumerating the various attempts that have been made to solve this problem it is important to show the principle of the method employed. Two points or fixed positions are first chosen; then the latitude and longitude of each of these are determined by the mean of a series of astronomical observations made at each position; and thence their distance apart is obtained in degrees, minutes, and seconds. If their actual distance on the surface of the ground be obtained in any known measure, it is immediately seen how much of that measure a degree contains, and thence what is the length of the whole circumference of the earth. But, again, as it would be too tedious and difficult to measure a straight line on the surface of the earth between two points which may be some hundreds of miles from each other, the method of ascertaining that distance is to measure a base of some thousand yards, and to take this base for a series of triangles attached to each other throughout the whole distance required, and it is only necessary to measure the angles of these triangles. Such was the method adopted in the first geodetic operations, and is still employed with slight modifications, of which experience has shown the necessity.

The first geodetic operation of this kind was in 1669, by Picard, of the Academy of Sciences of Paris, who took for the extreme points of his work Sourdon, in Picardy (Somme), and Malvoisine in the Gatinais. The result which he obtained was that the terrestrial degree was 57,060 toises long. This work, executed with the most minute care, seemed to be definitive until doubts arose whether the earth was a perfect sphere. A clock, regulated at Paris to mean solar time, on being transported to Cayenne by the astronomer Ricker, was observed by him to be slower by two minutes and a half every

day. He discovered also that the pendulum, in order to beat seconds, should be shorter at Cayenne than at Paris. From which it was considered that the force of gravity should be more intense there than at the equator, and consequently that the earth should be rather flattened at the pole. The hypothesis of the flattening of the poles appeared very rational to geometricians, as a natural consequence of the diurnal rotation of our planet as a semi-fluid globe round its axis. Huyghens originated this idea, and Newton confirmed it by his reasoning, founded entirely on astronomical observations.

Here, then, was at once a complication of the whole subject of the measurement of the earth, and enough to set aside the calculations of Picard. From the moment that the earth was considered to be a spheroid and not a sphere, all the degrees could not be of the same length,—they became, in fact, longer as they approached the pole. It was not sufficient to measure it in one place; it was necessary to measure it nearer to the equator, and then to make another measurement nearer the polar regions. By a comparison of the results of these operations it was then considered that the true figure of the terrestrial meridian would be obtained, which was then supposed to be an ellipse. The object in view was, moreover, twofold. It was necessary to know the great axis of this ellipse,—that is, the terrestrial diameter on the plane of the equator, and, besides this, its lesser axis on the plane of the meridian.

This question of the measurement of the earth was one of the principal occupations of *savans*, and the French especially, in the course of last century. It is but justice to affirm that geodesy is a science eminently French, and that French astronomers were for a long time alone occupied with it. In 1736 the French Academy of Sciences took up the question, and several of its members were sent to distant parts of the world. Maupertuis went to Lapland, Bouguer and Condamine to Peru, while Cassini followed up the triangulation of Picard from one end of France to the other. About the same time the Abbé La Caille measured an arc at the Cape of Good Hope, and similar operations were performed in America, in the state of Pennsylvania, and also in Italy. Unfortunately, the results of all these different works did not agree with each other. Maupertuis, whose proceedings had been much impeded by the rigour of the climate, had not carried his triangles sufficiently far. La Caille's arc was also too short. In fact, the uncertainty of the value of the veritable meridian was such that in 1792, when the national convention of France would have introduced a new system of decimal measures, of which the metre (the ten-millionth part of the fourth of the terrestrial meridian) was to be the base, it was indispensable again to go over the former operations more carefully, from their contradictory nature. The arc measured in Peru by Bouguer and Condamine being admitted as satisfactory, it was resolved by the French to measure another between Dunkerque and Barcelona. Delambre and Mechain were charged with this work, and it was from the result of their labour that the legal length of the metre was determined.

It should be mentioned here that an object was in view which was somewhat illusory, when it was proposed to adopt a unity of measure chosen by nature that could not be the same in every country. At first the rigid determination of this unity was attended with much difficulty, but it is pretty certain that even in these days, with instruments and methods as perfect as they can be made, a result very little different from that would be obtained. It is very well known that an error of calculation was detected in the works of Delambre and Mechain, an error such as would increase the value of the metre by a small amount.

But it has been ascertained that the terrestrial meridians have unequal lengths: that, for instance, of Paris is greater than that of New York. The invariable nature of the base of the metre is not an argument in favour of the metrical system for the circle, although it may have its advantages; but the rejection of the system was final.

Works of a geodetic nature date so far back that it may be worth while to glance over them. We shall find that the subject has been exhausted, and that after the minute operations of Delambre and Mechain on the great meridian of France between Dunkirk and Barcelona the real figure of the earth is quite sufficiently known. Perhaps no one else ever undertook an entirely new triangulation for the mere sake of ascertaining the curvature of the terrestrial meridian. But gradually all the European governments felt the want of a correct map of their own country. France, under the first empire, was the first to begin this great work; afterwards England, then Germany and Russia; Spain has only just set about it. India, the Cape of Good Hope, the United States, Central America, and Egypt followed. In fact, wherever civilization has reached, wherever colonization has produced roads, railroads, and canals, the construction of a correct map is considered the first essential requirement for all public works. Now, the great triangulations which serve as the foundation for topography are precisely those which geometry provides for the study of the form of the globe. It will not be surprising then that geodetic operations have been always in process without interruption, and are going forward even at present.

The disagreements which astronomers of the eighteenth century found between the results of the measurements in France, Peru, Lapland, and the Cape gave little encouragement for small arcs. It may be easily imagined that the results would be more faulty as the measurements were shorter, for local irregularities exercise more influence in proportion over a small arc than over a large one. Scientific men, therefore, were desirous of extending their operations to a considerable distance. Thus, the meridian of France, which stopped at Barcelona, was prolonged by Biot and Arago to the South as far as the Isles of Formentera and Iviza; while to the North it was connected with the triangulation of England, that had been stopped at the English Channel, from the Shetland Islands: so that the whole of this arc, measured with extreme precision, extends now over twenty-two degrees of latitude. Instead of the small arc measured by Maupertius in



1737, we have an arc of twenty-five degrees' length, which crosses the whole of Russia and the peninsula of Scandinavia. The English, again, have measured twenty-one degrees in the East Indies, and five degrees at the Cape of Good Hope. These works admit of the question being treated from a general point of view, but too many countries remain yet unexplored to allow of a safe conclusion being arrived at.

After finding that the earth is flattened at the poles it is curious that *savans* of the eighteenth century should make no difficulty in agreeing that it is perfectly circular at the equator. They do not appear to have supposed that our globe might also have a tropical zone of protuberances and flattenings, and yet this hypothesis appears at present very probable, and certainly conformable to observation. Instead of being a perfect ellipsoid in revolution, the earth is now asserted to be an ellipsoid of three different axes. The equator and the parallel sections at the surface in different degrees of latitude become ellipses, and are no longer to be considered as circles, as they have hitherto been supposed.

To this new theory it might be objected that no other consideration besides that of geodesy confirms it. However this may be, the theory of three unequal axes proposed by the Russian General Schubert has been discussed lately by Captain Clarke, an Engineer to the Trigonometrical Survey of England. According to his calculations, the largest terrestrial meridian would be situated in  $12^{\circ}$  E. (? Paris), and the smallest perpendicular to it  $102^{\circ}$  E. (?). We will here quote some figures in order to show the approximate value of these flattenings. The polar axis of the earth having a length of 789,912 English statute miles, the greatest equatorial diameter would be 7,926.7 English statute miles, and the smallest 7,924.7 English statute miles. Between the two extreme diameters of the equator there is thus only a difference of 3,539 yards. If the earth be not a perfect sphere, it at least approaches very nearly to it. On a globe of about a yard in diameter the flattening of the poles would be three to four millionths of thickness at the extremity of one diameter, and one might conclude the elliptic protuberance at the equator by adding to the ends of the above diameter a hundred-thousandth part of this thickness. Well, indeed, may geographers wholly neglect this correction on their maps and charts. The effect would only be perceptible on great maps of a large scale, including a large extent of country.

This hypothesis, somewhat captivating, for considering the terrestrial globe as an ellipsoid of three unequal axes, up to the present time, it must be owned, rests on observations too uncertain and too limited to content scientific men. As an indispensable condition of delicate observations and dry calculations, on which geodesy depends, it is always necessary to consider the result arrived at as an approximation,—that is, that includes the amount of error to which instrumental defect and erroneous calculation are liable. It is known that the flattening of the poles, such as is at present calculated, is correct to within a very small portion, while the hypothetic flattening of the

equator has not been determined, except approximately; so insufficiently, in fact, that it may be doubted if this flattening really is true.

Again, it is very singular that the calculations, purely theoretic, which select the meridians of  $10^{\circ}$  and  $100^{\circ}$  E. obtain an *a priori* confirmation from the physical aspect of the globe. A glance at a map of the world shows that the meridian of  $10^{\circ}$  E. passes over Europe and Africa at a small extent of land, and that all the rest of its circle comprises the opposite hemisphere—in fact, it crosses oceans. Of all the terrestrial meridians it is that which is mostly oceanic. On the contrary, the meridian of  $105^{\circ}$  passes over Asia in a direction parallel to long chains of mountains of the Birman Empire, passes near Australia, and in the other hemisphere passes by the two Americas, coinciding nearly with the mountain system of the Andes, which geologists consider the most recent production of terrestrial convulsions.

This meridian traverses the continents more completely than any other. There may be a fortuitous coincidence in these facts, but it is an ingenious idea to bring the views of the geometrician and the geologist to serve in a consideration of our planet from their own very different points of view; and it is not irrational to consider that the last geological revolutions have altered the primitive circular figure of our globe, and imparted that elliptic form to its equatorial part which the geographers of the day consider they have discovered.

Nevertheless, there remains a doubt to be set aside before even admitting the elliptical principle of the equator. This hypothesis rests on the difference in the whole length of the terrestrial meridians, and the means by which those great lengths have been ascertained. In fact, we have seen above that one process is to measure a part of the distance between the extreme points connecting them by triangulation; the other is to determine the latitude of these points or their geographical positions. Now, this is not an easy matter. When Newton had established the laws of universal gravitation, he concluded from them, as a necessary consequence, that the plumb-line hanging vertically should deviate from its vertical condition by the attraction of the neighbouring mountains. By very careful observations made in Peru, near to Chimborazo, Bouguer and La Condamine were satisfied that such was the fact. But the observed deviation in such case being very small, they were led to suppose that these volcanic mountains enclosed large cavities. The attraction of the mountain was recognized afterwards by many astronomers; and what is very curious is the remark that the plumb-line will also deviate from the vertical in a flat country, as if there existed in the interior of the earth heavy as well as light parts, which attract more or less powerfully the bodies on the surface. M. Struvé, a Russian geometrician, has recently pointed out a perturbation of this kind near Moscow, in the midst of an extensive plain, the soil of which is remarkably flat, having only the slightest undulations.

Such anomalies can only be accounted for by the existence of subterranean cavities or some very heavy masses which break the homogeneity of the globe. Whatever it may be, the astronomical obser-

uations which are made for the purpose of determining the latitude and longitude of a place are all tainted with considerable error. Near the Caucasus the deviation of the plumb-line has amounted to fifty-four seconds of a degree. All the consequences which result from a comparison of arcs of a meridian measured in different countries are thus affected by the inaccuracy of the original observations arising from this cause, which could only be avoided by the observer taking this source of error into account. The local discordances, where they are considered to arise from the general deformation of the globe, are thus explained by the unexpected variations in the intensity and the direction of local weight.

This great question of the form of the terrestrial globe, the highest problem of geography, is not yet then solved, after a century of laborious operations. Astronomers have frequently supposed that they have at length arrived at the definitive term; but difficulties increase in proportion as the methods of observation are improved, and instruments, in being more perfected, lead to more delicate complexities. The experiments still going on in Germany, England, and France will yield, no doubt, before many years are over, more perfect results. For the present we can only admit that our planet is not a perfect sphere, and that either in its form or geological construction there are partial or general irregularities which exert an influence over all our most delicate, and therefore most important, geodetical operations.

(To be continued.)

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#### A DAY AMONG CANNIBALS; OR, ADVENTURES OF A WHALEMAN AT THE MARQUESAS.

The American whaleship *Congress*, Captain Stranburg, sailed from New Bedford in June, 1863, on a cruise for the North Pacific. After touching at Sydney, she called at Hivaoa, or Dominique, one of the Marquesas Islands, to obtain water and fresh provisions. Arriving before the harbour of Puamau, January 13th, two boats were fitted out with articles of trade, such as knives, flints, hatchets, and muskets, to exchange for what they might wish to obtain.

When the boats had anchored in the harbour, another boat, manned with a chief and crew of native islanders, came off, who appeared very friendly and anxious to trade with the strangers, stating that they had hogs and potatoes in abundance. Mr. Whalon, first officer of the whaleship, who had charge of the ship's boats, then transferred his trade into the natives' boat, got in and went ashore with them, leaving his own anchored off in the harbour.

Upon landing and proceeding up the valley, the natives commenced chasing pigs, caught one and tied it. While they were chasing the animals through the valley, the chief and Mr. Whalon stood together, and the natives were shouting, evidently for the purpose of calling

the people, for they came rushing from all parts of the valley, armed with hatchets and knives, which at least looked suspicious. Mr. Whalon, fearing that they meant no good, proposed to the chief to return to the boat; upon which the latter stepped up to him, suddenly seized his hat and placed it upon his own head. This, he thinks, was a well-known signal among them, for he was instantly seized by a score of natives, thrown down and stripped naked, his hands and feet bound with ropes, which the chief had in his hands, but which he supposed were intended to tie the pigs.

The natives then proceeded to tear up his clothes into small pieces, and cut the buttons off, making a distribution among the crowd. After this they paid their attentions to their prisoner by pinching him severely, bending his fingers and thumbs over the back of his hands, wrenching his nose and torturing him in every imaginable way. They would strike at his head and limbs with their hatchets, always missing him by a hair's breadth. For about three hours they continued to amuse themselves and torment him in this manner. He supposes this was the custom preparatory to being killed, as it doubtless is. Some of the natives tried to entice the ship's two boats to come to the shore, and Mr. Whalon's boat-steerer was on the point of landing to find him, when they were warned off by a young Marquesan girl, belonging to the family of the Hawaiian missionary Kekela. This girl shouted "pull away," it being all she could say in English, beckoning at the same time to leave the shore. The boats returned to the ship without their officer. Had they gone on shore, it is not unlikely that there would have been a combat, and all been massacred, as they were not prepared for any attack. The same girl had tried to warn Mr. Whalon not to go inland with the chief, but he did not understand her, and when he was seized she used her utmost endeavours for him among the natives, weeping all the while that they were tormenting him.

A Hawaiian missionary, whose name he did not learn, having heard of the trouble, now approached him, but was unable to converse with him. Soon after a German carpenter arrived, and being unable to release him, told him he would remain by and do what he could to save him. At night the natives placed their prisoner in the house of a chieftess who had tried unceasingly to secure his release from the chief, and no doubt her efforts alone saved him from death during the day. The German remained by him through the night, which to the prisoner was a long and dreary one, anticipating as he did every moment that the natives would break into the house, and carry out their design of murdering him. He afterwards learned, that according to the native customs, the house of a chief is sacred, and no native can enter it without permission, under peril of death. Morning dawned, and the natives began to reassemble and became noisy for their victim. All his hopes of relief had now fled, and he began to look for death as certain, as the chieftess would soon be called on to release him. About this time, which was early in the morning, the German heard the natives speaking of the arrival of the Hawaiian

missionaries, Mr. Kekela and wife, in the neighbourhood. Upon hearing this, the German dispatched the other Hawaiian for him, and the natives finding that Kekela had been sent for, hastily untied the hands and feet of their prisoner.

Kekela and his wife are Hawaiian missionaries, sent out from the Sandwich Islands, and supported by the Hawaiians. They live in a neighbouring valley, but at the time of the capture of Mr. Whalon, were on a visit to another island. Kekela soon arrived with the chief, under whose protection he lives, and instantly commenced remonstrating with the natives for their inhuman treatment, and besought them to release him. They demanded a ransom as the only terms for his release. After a council among themselves they decided to release him for a *whaleboat and six oars*, upon which Kekela told them to take his boat. At this offer, however, Kekela's chief demurred, as this would deprive their settlement of their only boat. The discussion now waxed warm between the two chiefs, during which Kekela declared that he was ready to give up *anything and everything he possessed*, if he could but save the foreigner's life—an instance of disinterested philanthropy, which the annals of missions cannot equal. After some further parley, it was agreed to give a musket and some other trade in exchange for Mr. Whalon, which was immediately done, and he was led beyond the boundary which separated the domain of the two chiefs, and across which to recapture a person would lead to open warfare between the two tribes. Mr. Whalon hesitated when they wished to lead him farther inland, as he did not know what the new chief intended to do with him; but upon being assured by Kekela that he was to go to his own house, where he would take care of him, he gladly went.

Upon arriving there, Mr. Whalon was astonished to find a pleasant airy cottage, furnished in a neat and tasty manner, much after the style of a New England farmhouse, surrounded by a garden where flowers, trees, and vegetables grew abundantly.

The boats had returned to the ship on the previous afternoon, when warned off by the Marquesan girl Thursday and Friday, Mr. Whalon remained with Mr. Kekela and wife, during which time he was a witness of the daily routine of a Hawaiian missionary's house. Morning and evening a bell was rung for prayers, which were attended by about fifteen natives, male and female, who seemed quite orderly and attentive to the exercises. Meals were served at a table after the European style, and consisted of meats, sweet potatoes, and bread fruit. While here natives belonging in the same settlement brought fresh bread fruit daily for the foreigner. Mr. Kekela assured Mr. Whalon that had the natives demanded all he had, he should have given it to release him. In conversation with Kekela regarding the progress which Christianity was making among the people, Kekela states it as his opinion that his efforts among the adults were almost useless, but that among the youth he had promise of great success, having now forty regular attendants on divine worship on the Sabbath. Mr. Whalon bears testimony to the upright Christian character of

Kekela and wife, and of the great influence they have over the natives in their settlement. Kekela is a most industrious man, thus setting a worthy example to the islanders. He has more land under cultivation than any other one man, and more sweet potatoes than the whole of the rest of the settlement together. They have one Marquesan girl (before mentioned) that lives with them, who shows unmistakable evidence of improvement, being very domestic in her habits and an apt scholar.

Saturday morning, Jan. 16th, the ship appeared off the island, and Kekela and the chief made preparations to take Mr. Whalon off to her, in their own boat—first sending a native ahead to see that nobody was in ambush for the purpose of shooting any of the party. Finding the coast clear, they embarked, and soon reached the vessel, where they were welcomed on board by Captain Stranburg.

Mr. Whalon's emotions on reaching the ship can better be imagined than described. He had been rescued from the savages and returned to his vessel through the efforts of a native Hawaiian—a stranger, who had been prompted to act in his behalf by the teachings of the Christian religion, of which he gave most exemplary evidence. During twenty-three years' voyaging around the world, he says he has never passed through a more eventful cruise than this one, nor anywhere met with strangers who have won his gratitude and affection as these humble Hawaiian missionaries, living on the Island of Hivaoa, to whose efforts alone he owes his life. Nothing that he could give to them could cancel the debt he owes, and he says that whenever Kekela stands in need, let him know and he shall share with him. Of course, both Captain Stranburg and Mr. Whalon rewarded Kekela and his chief with such gifts as they had at their disposal, and they returned to the shore.

Speaking of Mrs. Kekela, Mr. Whalon said he was surprised to find a native Polynesian so courteous, kind, and polite, and so well educated. Her manner and conduct at all times were ladylike. It is the best commentary of the transforming power of religion. Kekela and his wife could speak broken English, just enough to be understood, and supplied all his wants.

After Mr. Whalon had been released, and escaped to Kekela's house, he inquired the cause of his seizure by the natives, and learned that it was done out of revenge for the kidnapping of Marquesans by the Peruvians, who had stolen a cargo of men and women from this and the neighbouring islands. Some of these kidnapped natives had been returned by the Peruvian Government, but many had died on the passage to or from Peru, while others had had various diseases, including the small-pox, which they brought back to the group, and was spreading over the islands. The Marquesans were so incensed with these outrages of the Peruvians, that they took vengeance on any foreigners that might fall into their power, regardless who they were. Had not Kekela been away, they would probably not have maltreated Mr. Whalon in the manner they did. Kekela does not live with the tribe, into whose hands he fell, and has but little influence with them.

They are frequently at war with the other tribes on the island. Still he is known all over the island, and the day may come when through his teaching, wars there may be ended, and the tribes dwell together in peace, as they do on our more favoured Hawaiian group.

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#### WANDERINGS IN JAPAN.

My friends at Nagasaki were entirely at my service. Thanks to them and the long walks which I was enabled to take alone in full security about the town and the country, I obtained so complete a knowledge of the people and their language and customs.

The Japanese town of Nagasaki occupies a considerable extent of ground; it has plenty of handsome straight streets. The houses are small and low, whitewashed, and covered with ugly roofs, with black and white tiles; in other respects simple enough. Japanese paper is of cotton texture, and strong; still it does not long resist the effects of a moist climate, and requires to be renewed once or twice in the course of the year. This singular covering serves to give the Japanese houses that fresh and pleasing appearance of order and neatness that distinguishes them from the Chinese. The lower floor is generally open until the occupants retire to rest, and then the doors are closed with strong thick planks of wood. Hence in summer all that passes inside is easily seen from without; and even in winter, with a little curiosity, it is by no means difficult to become thus acquainted with the customs of the people. The Japanese live to daylight; they, in fact, realise the dream of the Roman who would live in a glass house, and many travellers are of opinion that they thus carry their ideas too far. But to me it is not so. There is certainly a great difference between depravity and the want of modesty. The infant has no sense of this kind, and is not ashamed.

Rousseau has said with much truth that modesty is a social institution, and grows with civilization. Every climate and every epoch tends to bring out this virtue, as all travellers and historians can testify. Not only is French modesty quite another thing compared with that of the Mussulman, but it is very different now from what it was in the time of our ancestors. Every race in point of morality and manners has its own criterion for deciding what is decent or not. It would hardly be fair to impute indecency to an individual in his own country who does not transgress the laws of social order in which he has been brought up. The most delicate and rigid Japanese is not offended at seeing a young woman taking a bath at her door before any passengers; and people of all ages and sexes who collect in rooms to perform their ablutions have never been guilty of any want of modesty. A highly educated Japanese, with whom I have conversed on the curious customs of his country, could not absolutely comprehend the surprise of Europeans and the remarks which I undertook to explain to him

on the subject. "Yes," he said "when I see a woman naked, I see her entirely. What harm is there in that?" I could not get anything else from him, and it was evident to me that we separated at points of view too different to arrive at the same conclusion.

The interior of a Japanese house is a specimen of simplicity. A uniform propriety may be considered its principal feature. The rooms have low ceilings, and are separated from each other by moveable wainscoats, the changing of which is sufficient to alter at pleasure the whole apartment. Each of these chambers is furnished with thick bamboo mats; but nothing is to be seen in them of such furniture as we use. There are no chairs, tables, drawers, or bed. If the Japanese wants to write he takes a placard from a kind of desk, about a foot high from the floor, before which he places himself on his knees: the letter written he shuts up the desk. At meal times tables are prepared of a most limited size; at bed time they lie down on the mats, wrapped up in thick silk dresses of more or less value. After throwing off his every day clothes, the Japanese wraps himself up in his nightgown, which covers him entirely, and rests his head on a wooden pillow, the upper part of which is stuffed, and which has the form and dimensions of a smoothing iron, and thus he consigns himself to sleep. In the morning these things are shut up in a black cabinet; every door is opened for air, the mats are carefully swept, and the room, completely empty, serves in the course of the day as office, parlour, dining-room, again to become the night chamber for sleep. This mode of living explains the natural and excessive neatness of the Japanese dwellings.

There are but two moveables in general use among all classes of the Japanese, and these are the *brasero* (our brazier) and the tinder box. The Japanese is a great tea drinker, a great smoker, and a great talker. At all hours of the day he wants hot water, and the *brasero* must be burning by night as well as by day in summer and winter. It answers also for lighting his pipe, which he will take from his girdle twenty times a day, to which also is suspended a bag of tobacco. It is not much larger than a thimble, and is replenished five or six times in as many minutes. Those who are obliged to work and to whom time is of importance, can only drink their tea and smoke *en passant* a few pipes; but those who have nothing to do and who do nothing—and the number in Japan is considerable—these pass many hours over a *brasero*, drinking tea, smoking their little pipes with evident satisfaction in their faces. It is when one approaches the Japanese thus assembled that one can appreciate their good humour, their kind manner, and their incorrigible idleness. The love of work is not a labour among the Japanese; many of them are indolent to a degree of which an European who has not been in the East can have no conception.

Nagasaki contains a great many temples; as to religious buildings they abound in Japan. From an official return they have not less than 149,280, of which 27,000 belong to the primitive religion, the Sintism, and 122,280 to Buddhism, which was introduced there to-



wards the middle of the sixth century. These figures, although they may seem exaggerated to some, are not so to those who have visited Japan, and who, in going through the villages or the country, have remarked that they have found more such buildings than in any other parts of the globe. At Yeddo, a town of considerable extent, the temples occupy a fourth part of it. There are 1,483 temples, of which 1,201 are Buddhist and 282 Sinitism. But what astonishes one still more is the disproportion which one finds between the manifestations so frequent of religious sentiments and the nature of it. Seeing Japan covered with temples and convents, the building of which must have cost enormous sums of money, and this out of the public revenue, a stranger is led to believe that he has got into a very religious country, or, at least, one where religious prejudice is strong. But this is all a mistake. The Japanese in matters of religion are the most indifferent people on earth. In this respect they go even beyond the Chinese. The commerce which they have established with their divinities, high and low, is so very curious that without entering into details it will be interesting to look a little into the subject.

There are two religions in Japan, as already observed, regularly established and recognized, Buddhism and Sinitism.\* In upper classes of society there are many followers of Confucius, the Siodisms as they are called, free thinkers, who have a contempt for all pious acts properly so called, and who pretend that real religion consists in a perfect accordance of deeds according to the precepts of sound reason. Sinitism is the primitive religion of Japan. The temples dedicated to it are called *Mias*. That which distinguishes them from *Teras* or Buddhist temples is that they contain no idols. They are generally small, and surrounded by gardens or cemeteries, attended to by a horde of monks, who, according to observation, have a right to marry, but who are by no means remarkable for chastity. As to Buddhism, it is divided into several sects, four principles of which are recognised, but there are many more. At least a dozen have been mentioned to me, and that would not complete the list, for there prevails a sad state of ignorance on this subject. Among the Buddhists some priests are allowed to marry, but all others remain single. If some live exclusively on vegetables and eggs there are others who have no horror at fish. All the rest appear, without exception, to be idle and stupid ;

\* Sinitism in Japanese signifies *Sin*, God, and *sion*, faith, recognises as the first the goddess of the sun, *Tensio-dai-Sin-Sama*. This goddess was born at some unknown epoch in the Japanese province of Isje, and it is from her that the numerous dynasties of gods and demigods descended who have preceded Sin-Mon, the earliest man emperor of Japan, and grandfather of the damios, mikados, or spiritual emperors of the country. But as yet the religious history of Japan is mixed up with contradictory stories, from which it is very difficult to arrive at the truth. The Japanese themselves seem to know but little about and never care to talk about it. But the most complete accounts on the subject are to be found in the voluminous work of M. Siebold, entitled *Archives of Nippon*.

and, although they form a class between the upper and lower, they are treated with no respect whatever. I have made a good long stay in the vicinity of a Japanese convent, and thanks to the experience of my host, the Abbé Mermet, I have been able to arrive at a thorough knowledge of the idle and useless kind of life passed by the monks.

This life is entirely passed in repeating the forms of prayer (a rosary serving to reckon the number), to ring the bells, to beat the case, to preside at funeral ceremonies, to beg, and, above all, to eat, drink, and sleep. The duties which they perform in the morning, midday, and at evening are tedious. They generally intone a common chant, which is not without similarity to those of our churches. Often, when waking about daybreak, on seeing the large temple glaring with mysterious light, and listening to the monotonous psalmody of the Japanese monks wafted to me by the morning breeze, have I fancied myself some thousands of miles from them in a Catholic country at the doors of a Chartreux monastery, or one of the Trappist order. The same at night, when the beautiful bells of the temples of Nagasaki announce the departure of day, and invite the people to repose, the faithful to prayer, I am reminded of my own country, when—

“The curfew tolls the knell of parting day.”

The Japanese who are to become priests—bosans, as they are called—seem to be the only individuals of the whole country who occupy themselves in the least degree about religious matters. The people, as far as I can judge myself or learn from friends resident among them, make religion an affair of a very secondary kind. They treat their deities, of which they have a very large number, canonized heroes, as their superiors, that is to say, with a most studied politeness, often obsequiousness, but with which they mix up a certain friendship and even familiarity, and along with a respect that is not exempt from some secret apprehension. As to the difference to be found among them arising from different sects of Buddhism, where that religion may be distinguished from Sintism, it is not possible to discover it, and on this point we have but most uncertain authority. The natives seem to know nothing about it; it seems to them of no kind of importance, and they say their prayers without any distinction of sect in any temple that lies in their road. When the beautiful Catholic church of Yokohama was opened, M. Girard, the pro-vicar apostolic of Japan, saw it with the greatest satisfaction and the Japanese crowded to it, treating it with the most profound respect, examining carefully the image of the Saviour, placing their offerings on the altar, and some even went on their knees reciting prayers. Nothing seemed more natural than to consider them as people disposed to be converted to Christianity. But some persons who were a little familiar with Japanese customs were not long deceived. The Japanese above everything took care to maintain a most respectful behaviour in the new temple, as becomes everyone well brought up, as they are in any building of a nature dedicated to improvement, whatever that may be.

As to the image of the Saviour, in their estimation this was no more than the representation of some great man of the West, before whom it was right to prostrate oneself in the same manner as if he was to appear in person. The only real belief among the Japanese is the respect due to the hierarchy, the authorities, human grandeur! The abject devotion of subjects to their sovereign is the glaring proof of this. Religious sentiment, such as is known among us, is entirely foreign to the Japanese, and their facility even in approaching Christianity itself, nothing more than indifference to such matters, is a fact sufficient more and more to discourage our missionaries. It will be a great mistake to attribute to the influence of religious conviction the severe laws which proscribe the introduction of Christianity into Japan. It was no more than a purely political act. When the governor of Yokohama made M. Girard understand that he would punish with imprisonment, and even death, any Japanese who should trespass on his chapel, he was certainly guided by a respect for Buddhism or Sintism, for he is a Siodosin or free thinker, or from the hatred of Christianity, which he did not know. All he feared was that the frequent communications of the missionaries and the Japanese might give rise to a certain feeling of fraternity which the government of the tycoon endeavours everywhere to put down.

The Japanese religious code contains a great number of deities and demi-deities, and hence the multitude of feasts in their calendar. The principal feasts are celebrated in the first, the second, and the fifth months of every year. New year's day is a feast, as with us. They make visits, &c., as we do, and the *carte de visite* is common among them. The second month, Nigouats, is the month in which the great feast for women is celebrated. The third, Go-gouats, is dedicated to the men. Male infants who are born in this month are considered as predestined to a happy existence. The anniversaries of some of these deities are allowed to pass unobserved; but when the most solemn of the Madzouris comes, the whole population is alive to celebrate an occasion at which every one assists in feasting and rejoicing, every one, in fact, following the bent of his own fancy. I had the good fortune to be at Nagasaki when they were celebrating the saint's day of that place. This is a Madzouri *par excellence*, and gave me three days of observation and amusement. The governor, an amiable man, and distinguished by relations of whom I have most pleasing recollections, had sent to the American consul, my host, a little before the fête to say that he had prepared places for us to witness the proceedings, which would be out of doors, in honour of the patron saint of Nagasaki, and on the appointed day of course we were there.

Of course the day was a holiday for the whole town: the streets were deserted, the shops shut up, and the few persons to be seen were in their fête dresses, making the best of their way to the place where the Madzouri was to be celebrated. There, indeed, was an immense crowd, compact and joyous, but calm and inoffensive. With that politeness which the Japanese never forget, they made way for us immediately that we might pass: and seemed to say, here are strangers,

let us treat them as we should do as their hosts. We thus crossed a part where some were going through their usual exercise, and having mounted a wide stairs, we found ourselves at the place reserved for us, and where a dramatic representation was to take place. An officer now attended us, who, with a profound salute, expressed his regret that we were so few, and conducted us to a covered room next to that which was intended for the governor and his officers. They had taken the precaution to provide furniture for our use, for the Japanese are content to squat on the ground, and we found a table provided with abundant produce of the Japan cuisine. There was rice, fish, fried and broiled, eggs, vegetables, fruit, sweets, Osaka wine, (also sweet,) sakki, (brandy from rice,) and tea. We were scarcely seated when a servant brought us pipes and tobacco. A few minutes afterwards the governor sent a message of thanks to us for accepting his invitation. It was (he said) a sight which had little claim to our attention that he had to offer us, but he hoped that in passing our judgment we would consider this as a proof of his desire to find us some amusement."

My companions and myself did not agree with the first part of this. The entertainment which he had provided for us was as varied as it was interesting. Before us was a wide extended space. All round us was a compact multitude of spectators, which the presence of the governor kept in respectful silence. The best places had been given to children. It was both interesting and pleasant to see them with their little heads well shaved, some dressed in brilliant silk and others in cotton, both neat and clean, watching everything with eager curiosity. Behind them were their parents, grave men in dark coloured robes, with a sombre appearance, and a tight girdle round their waists (the obi), from which was suspended their writing apparatus, the tobacco blaque, the pipe, and the fan. The women were dressed somewhat more coquettish: their beautiful hair is carefully got up, ornamented with long pins, and kept up by combs of yellow shell; they are painted to excess: red and white is seen in thick layers on forehead and cheeks; the most forward of them had painted their lips, but the most modest were content to rouge with carmine. The married women, according to custom, had their eyebrows shaved and their teeth blackened, a process which in our estimation is far from being ornamental. But white teeth and well formed eyebrows are essential to beauty among the Japanese. The women, in making themselves ugly after marriage, make a sacrifice, the value of which must not be mistaken. In becoming mothers of families, their duty is to be faithful to their husbands. Beauty then being a quality with which they should trouble themselves but little, and in proof of their giving up all intention to please they subject themselves to the process of blacking their teeth and shaving off their eyebrows. The young women, on the contrary, which the law does not leave to this barbarous custom, are charming: they have the most beautiful teeth in the world, beautiful eyes, and eyebrows dark and finely arched: to a perfectly oval face they add a well formed person, with pleasing manners, distin-

guished for cheerfulness and good humour. It is necessary to see them with their respectful salutations and amiable smiles, and hear them saying when one is passing another, *Ma-piru gomen assui*, thus begging pardon for some imagined mistake, to be convinced that the Japanese people are under all aspects the most affable and the most polite in the world.

All at once there was a great noise; the crowd opened a passage through them to allow a troop of travelling dancers to appear: the first played fifes, tam-tams, the great boc, and the sam-sin (or guitar of three strings); others had charge of planks and utensils; the last were three in number, and each of them carried a child across his shoulders about ten or twelve years old fantastically dressed and accoutred. In the twinkling of an eye the machinist had arranged the scene and its decorations. The scene was to be the middle of a garden, and there were bushes, trees, and a little house, not even its smaller ones were deficient. The musicians had taken their places,—the three children were placed on the platform of this theatre, and their bearers arranging their mutilated toilettes; the director was at his post, three blows were given to the tam-tam, and the representation begins.

But I was unable to catch the point of the play, which was a tissue of declamation and unlikely matters. One thing struck me particularly, which was the extraordinary degree of assurance in the young performers, who never once had a moment of hesitation or embarrassment. The story was very simple. A young man makes love to a damsel, and the pair are surprised by an old man. Of course there was mishap. Swords were drawn and numerous wounds inflicted, the maiden meanwhile is in tears, and the result is that she joins in the fight and stabs the old man, getting behind him, he of course falls, and the lover puts him to death. A moment or two afterwards the dead man reappears in the form of a divinity and blesses the young couple, who care nothing for the murder nor have the least remorse. On the contrary, they all three set about celebrating the marriage with an odd kind of dance,—excited by the orchestra with beating drum, continually increasing, until it is summarily interrupted, having reached the climax of confusion. It is then all over: the children remount their bearers, the theatre is dismantled, and the troop with their music in front march off, taking the road by which they came. This makes room for other performances, which follow each other without ceasing, and each set of performers proceeds to repeat their drama before other spectators who are collected at other parts of the town. The representation of each piece lasts from fifteen to twenty minutes, comprising the setting up and taking down of the theatre,—the performances do not exceed ten minutes. From nine in the morning some half dozen troops of actors have performed, and before sunset perhaps twenty sets of them.

After remaining to witness five or six of these dramatic representations, of which I could not understand much, but of which each had three children for interpreters, we left the ground, with the view of

seeing other amusements of the grand madzouri at Nagasaki. We sent our respects to the governor, who directed one of his officers to accompany us wherever we pleased.

What appeared to me as most strange at the sight which I had just witnessed was the self-confidence of the young actors. Those who had performed on the platform had not shown more ease and *sang froid* than these children. Before a numerous assemblage of spectators, partly composed of high personages, they were neither shy nor clumsy. This quality did not displease me. I certainly appreciate bashfulness—that amiable virtue which belongs to children, as an old proverb says; but timidity is no other, too often, than a form of vanity, and, to my mind, a child who has well learnt her lesson, and who is certain of no mistake, would express herself with confidence. *L'aplomb* with her is but a proof of innocence—of confidence.

In every part of our road there prevailed an extraordinary degree of animation, but at the same time a most orderly state of things. In our way we saw a buffoon, a fortune-teller, a woman with wonderfully tame birds, and a man who for a little copper coin would show a gigantic wild cat. One of the feats of the buffoon attracted my attention from the neatness with which he produced a large butterfly made of paper, but so perfectly imitated that at a distance it could not but be taken for the veritable insect. He threw this butterfly into the air, then cleverly agitating his fan, he kept it over his head, made it turn, ascend, and descend, giving to all its movements the appearance of life, and finished by allowing it to rise to a good height, from which it came down gradually, the large wings serving as a kind of parachute, on a flower which the man had in his hand.

The circus of wrestlers among whom we had come, although spacious was crowded with spectators, but good places had been reserved for us, from which we could see all that passed. In the centre there was a circular stage elevated two feet above the surface, and about twenty feet in diameter. The platform was supplied with a straw bed, which was covered by a considerable depth of sand, so as to break the fall of the performers. The surface of the sand was slightly concave. As to the wrestlers I never saw such large well formed men: they were really of the Colossus breed, six feet high, the least of them weighing 200 lbs., and the principal had attained, as he proudly said, the weight of 300 lbs. Such a boast appears odd, but it is justified by the nature of the exercise which the Japanese undergo. To remain master of the ground and to expel his adversary was the object of the strife. To achieve this a good corpulency is a powerful auxiliary, and it is for this reason that the wrestlers are selected from among the heaviest men that can be found. Those who were to perform before us were nearly naked, for they only had a scarf secured round the loins. Squatted down on the ground and looking stupid and heavy, they were curious looking objects, and certainly with nothing agreeable about them. One of the wrestlers came ready to the arena as we took our places. An officer then appeared and announced

to the spectators the names, &c., of the two wrestlers who were present, and then read a long list of names from a paper, with weight, &c., this referred to the parties that would be engaged in the present trial, and which, according to Japanese custom, had been communicated to the chief officer at the fête to be read aloud, with the view of stimulating the combatants. The reading over, the officer took pains to have the middle of the arena free, and two wrestlers presented themselves, and after saluting the spectators by lifting the arm above their breasts, they arranged themselves to begin. The preparations lasted a long time, the crowd, who should have been accustomed to this, did not like it; but the strangers lost patience, and their exclamation of *haiakko*, (make haste,) was said more than once, to the great satisfaction of the Japanese, who laughed loudly at it.

The wrestlers commenced by scattering some grains of rice over the arena and some drops of water, to propitiate the deity of gladiators. They then wetted their shoulders, arms, and legs slightly, rubbed their hands with sand, made some grotesque movements (no doubt for the purpose of trying their strength), and finished by placing themselves opposite to each other in the middle of the arena, in the posture of men prepared to exert all the physical force of which they are capable. Squatted on their large feet, their elbows fixed against their sides, necks extended, busts inclining forward, their attitude is at once grotesque and menacing. On a given signal by the manager of the feast, the two men utter a wild cry and throw themselves on each other,—each with the intention of throwing his adversary. The shock is severe and the noise is suspended throughout the circus, the flesh of the combatants reddening up with each other's grasp; but the attack had been so well prepared for that the effect was neutralized. The men had rebounded over each other, so to speak, like two inert masses of the same weight thrown against each other with equal force. They returned immediately to the charge with all their force, each making powerful efforts to become master of the arena. After some fruitless attempts it was determined that they should finish the match thus, and great was the applause of the spectators, who were watching it with a feverish interest till they sat down side by side.

In their encounters they presented a sight fit for the gents of the fancy: two nearly naked, colossal men grasping each other with all their might, shoulder against shoulder, body against body, the arms interlaced and the legs firmly fixed, supporting without bending their enormous weight, and a fine show of muscle was displayed; neither of them had moved. Suddenly one of them grasped his adversary by the waist and, lifting him from the ground, held him for some seconds in the air, and then threw him violently from the arena and sent him rolling among the other combatants, who, as well as the crowd of spectators, had been watching attentively the progress of the contest. Breathless and staggering from the exertion, which had thrown him into a violent perspiration, the victor advanced to the middle of the circus, saluted the spectators, and retired amidst tremendous applause.

These athletic Japanese, called *soumos*, form a peculiar caste, and enjoy a certain standing among their countrymen. The lower people are always proud of their company, and invite them to their houses to eat and drink with them, and even the nobility do not disdain to mingle with them. There are different societies of these wrestlers. The champion of each party is also the chief of that party. Like the belt among the English, he has one which is generally presented to him by the chief of his natal province, and which he displays at the commencement and end of a performance. Still, as a profession, it is not open to any one. Every wrestler must belong to a society, and is obliged to be content with the pay he receives; but the chief of the society manages to keep for himself the lion's share. Still he is not the absolute master of his society. He takes his turn to be under the chief of the wrestlers who presides over the principal society at Yeddo or Kioto, to whom he has to pay an annual tribute. The chiefs of these societies have the rank of an officer, and wears two swords, the distinctive mark of Japanese nobility. They are continually travelling, and take their several companies to different parts of the country, staying at some large town, according to directions from the authorities, and they receive plenty of money, for the Japanese are great admirers of their powers.

After witnessing several displays of these wrestlers we left the circus and went to the streets. The crowd had deserted them and gone to the houses where they were enjoying the pleasures of the table. Here and there we came across faces somewhat disguised by *sakker* (their brandy from rice); others, again, who were singing and laughing aloud, showed that they likewise were somewhat gone in that way. Nevertheless, there was throughout not only a disposition to be merry, but also quite peaceable. We stopped before several houses, and everywhere were invited to go in and partake of their jollity. But we declined their invitations, for the officer who was our guide had told us that he would take us to a place which was most extraordinary. As the *Madzouri* was celebrated in the *Decima* quarter, situated at one of the extremities of Nagasaki, he took us through the most populous part of the town. After having passed a massive gate, guarded by a party of soldiers, we found ourselves at the entrance of a street which was certainly most remarkable. Long and very wide, this street was most silent, sombre, and almost deserted. The houses of which it was formed were not like those of other streets; they were larger than those of merchants and artisans, but there were no large doors like the houses of the nobility. The access to them was marked by strong gratings, which did not prevent one from seeing what was passing inside.

(*To be continued.*)

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## CHANGES IN COAST LINES,—By S. M. Saxby, Esq., R.N.

(Continued from page 328).

The kind forbearance of the readers of the *Nautical* does not alter facts. The "manner" in which these developments of a subject are introduced is, I fear, undignified, and I must again confess it. Perhaps, however, there is consolation in the belief that the public taste forbids our plumping at once *in medias res*, for we see in the most enlightened of the daily press, that—as in science so in politics—a sort of conventional circumlocution prefaces whatever opinions the writers purpose to deliver. Indeed, one now seldom commences reading a "leading article" at its beginning, but pounces upon any stray line or two short of the fiftieth or sixtieth, in order that light may the sooner break upon the mind or the *purport* begin to dawn upon the understanding.

Now, I dislike this, because (permit me to say) it betokens a growing depravity of appetite in the reading public. Plain, wholesome, nourishing, mental food has to be so "hashed," and "curried," and "spiced," that a slice from the bonny round joint itself (hear it ye brethren of the good old school) is scarcely supposed to be digestible by this generation,—this marching-in-intellect, this competitively-examined race of scientific Britons!

What?—Is John Bull becoming so squeamish that his grass and hay must be seasoned to his palate?—perfumed?—rose-watered? Is he really so bashful as to be no longer equal to the bold and resolute contemplation of solid facts, unless he first views them as through a veil?

Dear old fellow! you must shake yourself free from these pamperings: down with your venerable poll and rush at all such new fangled fancies, as I have seen you do at a red cloak. Believe me, John, all "cloaks" are *red*, and *ought* to irritate an honest bull! Whether your glorious horns be tipped with the army and navy button, or you "volunteer" your natural and own tough, formidable weapons, spare not the use of them, I beseech you, in defence of your real dignity.

It is, however, serious that when, in conformity to custom, one cannot even write about coast lines without being confined to the "shallows," lest some unlucky reader find himself suddenly soused "over head and ears," and be inclined to leave the subject altogether as "too deep" for him. One has occasionally to sit like Grimalkin playing with a captured mouse, and with like assumptions of indifference to the ramblings of the pen; but we all know that the cat's half closed eyes and averted glance are mere sham, for only let the poor mouse dodge among the legs of a chair or partially disappear behind a corner, when up springs puss and again clutches her victim securely. The reader may have noticed more than once the necessity for a similar spring at *my* mouse, and indeed may have expected, and perhaps hoped for, its escape altogether. It is now, however, time to think of the *coup de grâce*,—perhaps I have already played too long with my subject.

In the last chapter, fig. D is very suggestive. The shallowness of

the water in the Downs, as compared with the deeps marked *x*, seems to indicate the position of the *original* Strait of Dover.

The nature of the bed of the "Downs" would even appear to settle the argument as to the date of its formation; for had this bed been of rock the resistance to water action would have accounted for its shallowness through a very long period; but it is really of soft clayey material and yet lies no deeper!

Now, in the *Nautical* for August, 1861, I described the probable date of the great operation which submerged the strata *inside* the Goodwin; and as many of your new subscribers (since 1861) may not have seen that paper, it may be convenient to them, as well as to all, to see (even at the expense of a little repetition) the close analogy existing between what was then developed as having affected a small district, and the larger operation which has been the subject of the current chapters; for *let us prove unmistakably that a lagoon of Kent once existed within the period of human records and the hypothesis of a previous Channel lagoon is vindicated.* Let us show a cause for the raised beaches of Richborough, Minster, and other places in the valley of the present Kentish Stour, and we may without presumption turn to those upon a larger scale and greater height above the present sea level, in the valleys of the Somme, the Ouse, and the Waveney, as the effects of *similar* water action.

The following diagrams are intended to illustrate what may have been the appearance of the lagoon of Kent some eighteen hundred years since; but it will be better to first reproduce that which we must now briefly but further explain, taking up our thread at the period of the *first* penetration of the Dover Strait.

"The strength of the flood tides at the 'springs' in the English Channel, especially when aided by the S.W. winds, so prevalent at this part of the globe, would, in their almost direct infringement on the *soft marly strata* of the French coast southward of Cape Grisnez, have gradually scooped out the land, as appears to have been the case. This would have given a *new direction to the stream of flood in the Strait of Dover*; and before the excavation to its present extent had been completed, the tide would have been thrown with such force upon the part of the land about the Ridge and Varne, as to break through that insufficient barrier of chalk, marl, &c., and this once accomplished, the wearing away of the contiguous Kent and Sussex basin, or upheaval of Weald clay and Hastings' sand, would easily have occurred.

"Such boring operations would, however, have received a check at the solid chalk cliffs of Dover, which most likely suffered very little in consequence; but as these chalk strata dip under the marl just beyond the South Foreland, at Kingsdown, all beyond Kingsdown for some miles would have presented very feeble resistance to the inroads of the tide (N.B.—The chalk at the South Sand Head lies eighty feet below high-water mark), so that the flood striking precisely upon this soft shore, as it must have done, would in time have scooped out a lagoon or gulf of about ten or twelve miles long by five or six wide. The Goodwin being of chalky strata, capped with tough marl, and

harder, would resist longer, so that the eastern entrance of this lagoon would have been the South Sand-Head or thereabouts. The northern extremity of the Goodwin then joined the mainland of Kent.

“*Now, this state of things existed at the Roman period. We assert this on the following grounds, viz.:*—The mouth of the lagoon referred to was open to the daily action of the Channel floods, and the pressure of the tide at the entrance upon the thus pent-in water raised its previous high-water level, so that the sea overflowed the land and formed what was called the Wantsum, which occupied a space between the higher parts of Thanet and the hilly slopes commencing near Walmer and running to the north-westward. The entrance of this inlet would therefore have extended from near Walmer, on the South of it, to near Ramsgate, on the North, a distance of about nine miles across,—the inlet rapidly narrowing till it attained, at a part between Minster and Guston, a breadth of about two miles and a half.

“Off a promontory at which the South bank of this inlet suddenly turned to the westward stood a small island, at a distance of about a furlong from the shore. From its commanding situation, and from its being near the very centre of the mouth of this inlet, the Romans built on it their stronghold—their *RITVPÆ*, the noble ruins of which we know as Richborough Castle, already referred to. That this, which is now a mile and a half from the sea shore, was actually once a *water-side* fortress, is attested by the discovery of the ancient sea-beach along its foot, which is now a part of the South-Eastern Railway.

“Perhaps few districts have been so difficult to read as East Kent, from the circumstance of the sea having receded so much at several parts, while it is actually advancing at others.

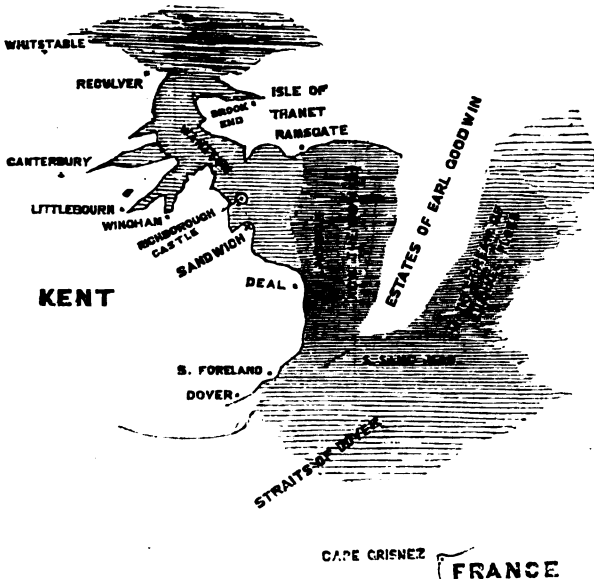
“It is probable that several centuries passed until the breadth of the inlet (called the Wantsum) decreased to any great amount. The excavation of the lagoon referred to was rapidly proceeding, and as more area was scooped out by the sea, the less would be the rise of the high water as compared with that eastward of the Goodwin; but whether the tide had succeeded in forcing a small passage through Kent North of the Goodwin, so as to liberate a portion of the water of the lagoon towards the North, or whether the advance of the waters in that direction had of itself tended towards the drainage of the Wantsum, certain it is that in the time of the Venerable Bede (say in A.D. 700) the Wantsum was only about three furlongs wide, and this may have further diminished till nearly A.D. 1095, at which time, as history informs us, a terrible irruption of the sea overwhelmed the lands of Earl Goodwin, leaving them what we now see, a dangerous extent of sandbanks called the ‘Goodwin Sands,’ partly dry at low water, but having a chalk and chalk-marl under stratum; while the Wantsum became, as it now is, a mere ditch.

“The difficulty with antiquarians has been to reconcile an ‘*irruption*’ of the sea at the Goodwin with a simultaneous drainage of the land at Richborough. But it is highly probable that this irruption occurred, as it is said to have done, during some violent tempest or

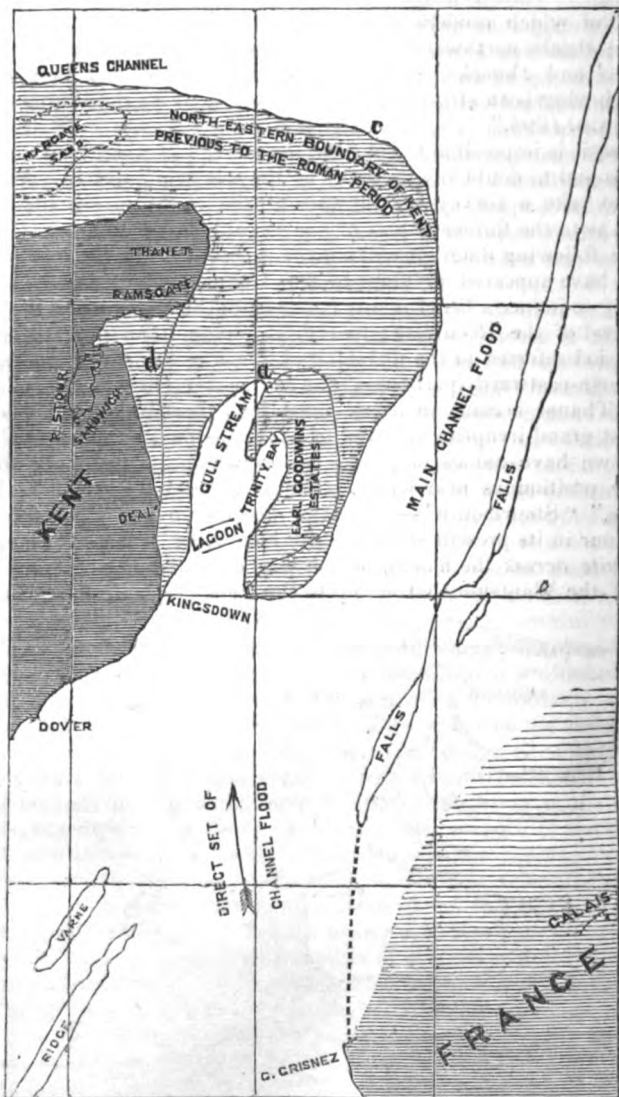
hurricane, and that the sea suddenly denuded the softer strata which lay eastward of the present chalky cliffs of Thanet, and thus gave *free passage* to the flood tide inside the submerged Goodwin through the present roadstead called the Downs, the clayey nature of the bottom of which renders it so good an anchorage for shipping; while all the shoals northward of it, such as the Brake, and the various 'knolls' and 'knocks,' as they are called, have chalky bottoms, the strata having been stripped at the time of the last grand inroad of the sea in A.D. 1095."

Now, it is impossible to compare the above hypotheses with existing records and to doubt the accuracy of the "lagoon" theory. We have only to take a survey of the vale of the Stour to see indubitable proofs as to the former extent of the so-called Wantsum.

The following diagram will convey a fair idea of the locality as it would have appeared previous to A.D. 1095, at high water. There is nothing to induce a belief in any northern outlet of the sea in the neighbourhood of the Reculvers; indeed, it is more than probable that at the period referred to the mainland of Kent extended considerably to the north-eastward, perhaps as far as the present Queen's Channel. That Thanet became an island must have been due to the period of the last grand irruption referred to. To this day, even up to Canterbury, we have names of places inland which refer directly to their former position as near water. For instance, "Brookend," "Littlebourne," "Stourmouth"—the latter having no possible reference to the Stour in its present state,—and "Fordwich," a small town extending *quite across* the marsh, which was once the ancient *ford* of an arm of the Wantsum that led up to the walls of Canterbury itself.



The next diagram will illustrate the extent of the change which occurred, the darkly shaded portion being the outline of Kent in its present state.



*a* being the bight of the lagoon. *d* being the present low water line.  
*c* the probable former coast line.

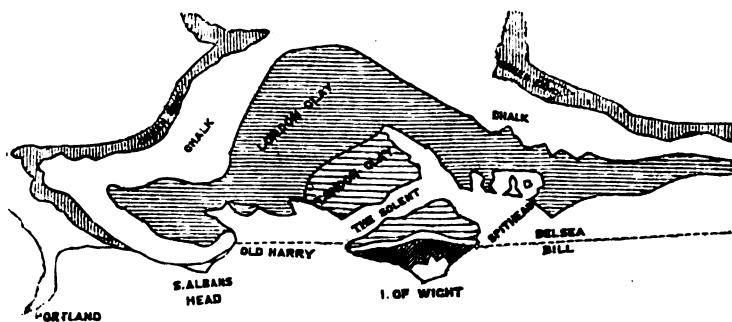
It is remarkable, and favours our argument, that history no where speaks of the estate of Earl Goodwin as being an island, or as being on an island. The records speak of it as they would of any mainland district.

The second diagram gives a general indication of the coast outline early in the lagoon period, at a time previous to the waters having become so "pent in" by the flood tide as to raise the sea level high enough to form the inlet called the Wantsum. It shows also what is most likely at the same period to have been the breadth of the Strait of Dover, as then confined between the site of the present Goodwin Sands and the north-western part of France, as limited in its contour by the harder beds of which the "falls" are composed. I am not aware of their geological character, but it would evidently be either chalk or green sand,—more probably the former, as they seem to lie in the direction of Cape Grisnez.

It is most likely that the "deep" eastward of the "falls" was the result of water action produced by the *ebb tide*, which must soon have torn away the soft strata of the French coast several miles *seaward* of the present Calais, which then was considerably inland.

Much might be said of the immense excavations caused by the action of the *ebb tide* when once an outlet was made through the Strait of Dover. The immense shoals which lie off the Dutch and Flemish coast are the ruins of and attest the said devastations.

I am only sorry that the attention of the reader must not at present be presumed on further. I would recommend a private consideration during the next winter evenings of the most interesting "evidences" which exist in the neighbourhood of Spithead, the Isle of Wight, &c. Not to intrude longer on the patience of those who may have been even slightly attracted by certain novelties (call them, if you please, "crudities") which I have touched upon, permit me to leave a few hints in the form of a diagram representing the limits of the extraordinary locality named by geologists the "Hampshire Basin;" where a sinking of a district *after* the deposition of the most recent strata presented the softer layer of rock to the action of the advancing waters in such manner as facilitated the formation of the channel of the



*Hampshire Basin.*

Solent, while a probably simultaneous forcing or squeezing upward of the green sand and wealden of the back of the Isle of Wight prepared for the magnificent ruins of that lovely district, which in these later times are considered to be unsurpassed in beauty, and constitute in themselves a cause for a modification of temperature so grateful to the consumptive invalid seeking restored health among their sublimities.

The intelligent reader will see much to be done in tracing the chalk of the Needles to the singular chalk cliffs of East Dorset; and also the course of the chalk range between Culver Cliff, in the Isle of Wight, across the "Owers," to Beachy Head. And in the degradation of the strata caused by the scarping out of the Solent will see much to account for the accumulation of the shingles near the Needles; while, turning eastward, he will see the same effects in the immense beds of shingle at Dungeness, &c., &c. He will bear in mind that the course of the Gulf Stream, in its action in the direction of the Channel flood tide, was thrown on several points of the English coast at a great angle as the sea wore away the bays of the French coast; until finally the scarping out of the Bay of Biscay deflected the Gulf Stream altogether, and threw it upon the extreme south-westward of England, leaving its last wreck in the Isles of Scilly.

That reputable but usually formidable individual called "nurse" used to endeavour to impress on my infant mind that it is best to leave off "with an appetite." Alas! how many a sorrow did the good old creature cause me!

But the pleasures of "the table" differ from those of the imagination. There is a greed of the mind in its cravings for food quite as vulpine as that of the occasional bodily appetite; perhaps even more difficult to satiate than the latter, since in it the heartier the "meal" the greater the hunger it produces. It is, however, a hunger conducive to health, guarding the mind from relapses into an apathetic vacancy, which is both morally and physically destructive.

If in these papers, with all their imperfections, I may have smoothed the path of any timid inquirer into sea-side investigation, and have enticed him to cast an extra thought upon the immense "field" which, *whenever he likes*, he can convert into a very "playground" for his amusement, my aim will have been successful. I would, however, ask permission to again mention my conviction that the *Admiralty Manual*, if more read and more studied in our noble service, would amply repay perusal in its effect upon even the most untrained and unstable minds, *if it be possible* that such can be found among those who "go down to the sea in ships" and "do business in great waters," for "*these see the works of the Lord and his wonders in the deep.*"

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## WHICH IS THE BEST PORT OF CALL IN THE CHANNEL FOR OUR FOREIGN MAIL STEAMERS?

(Concluded from page 291.)

While we were considering in our last number the claims of the western channel harbours to be the port of call for our foreign mail steamers, and had all but come to the conclusion that Dartmouth had carried off the prize, we were not a little surprised to find that the question had been already decided for us by nothing less than a royal commission. This commission had done their work in so masterly a manner, had not only awarded their decision, but accompanied it with all the particulars of information and reasons on which it was founded, and had obtained that information so purely free from all prejudice or predetermination concerning the places in question, that we considered it to be our fairest course to complete our paper with that report and all its reasonings. And as it is easily referred to in our last number we may add here a few concluding remarks on the subject, although they have left but little for us to say.

No one, however, reading that report cannot but be struck by the patience and attention with which the commissioners had received all claims. "The authorities of each port were previously apprized (they say) of our intended visit and examination, accompanied by a request that they would be prepared to adduce such evidence, either verbal or written, as they might consider essential in support of their respective memorials;" and having given a week to Southampton, another week to Portsmouth, four days to Dartmouth, ten days to Plymouth including Devonport, and seven days to Falmouth, receiving "any evidence, however extensive, which it might be considered desirable to produce," they unhesitatingly chose Dartmouth as combining all the qualities which they as seamen considered necessary for a port of call in the Channel for the mails. Our own opinion carried us that way, and when we consider that Dartmouth was the port of call for the Cape mails, that Mr. W. S. Lindsay, M.P., a most important authority, being, we believe, himself a seaman, would make it so again, were he in the same position as when he had those mails, and that he did not resign his contract on account of any objection to Dartmouth as a harbour, but because the terms of the government contract were too low, we can only feel surprise should Dartmouth not eventually be selected as the commission have recommended.

Referring once more to the commissioners' report, they prefer a quiet harbour, independent this of all the other qualities possessed by Dartmouth "to the selection of a large naval port as a packet station subject, as it is, not only to the great national maritime operations, but, in some cases, to the influx of shipping seeking shelter therein, and which would necessarily occasion much obstruction to the departure or arrival of steam packets." There is considerable importance in this observation, the truth of which appears to be realized by the present Cape mail. For we find by the report of a meeting held



in March last at Southampton, on the subject of the port of call in the Channel, that even Southampton would strengthen her claims at the expence of Plymouth. The chairman is reported to have said,—“As they were already aware, the Cape mails are now landed at Plymouth, but the boats conveying them find it to their interest and convenience to make Southampton their port of arrival and departure, and a gentleman in Southampton had been in the habit of keeping a log, which proved that ninety-nine times out of a hundred no time had been saved by landing the mails at Plymouth, and sometimes the contrary would have occurred had they been brought on.” So that by this the water carriage between Plymouth and Southampton was no *delay*,—or ten miles an hour as good as thirty! We will leave this to Plymouth to account for, but we shrewdly suspect that the vessels found the quietness of Southampton preferable to the hurly burly of maritime operations of a naval seaport,—from all of which Dartmouth must ever be free.

But looking at the subject in all its bearings, there is not one unfavourable to Dartmouth. Where access at all times is the readiest and easiest the sea risk must be least, and who that knows what steam voyaging is cannot picture to himself the happiness after a long voyage with a head wind and sea coming up Channel, of getting into a safe land locked lake of deep water, and in the full enjoyment of its tranquil condition, with no shoal in his way, or nasty bubbling sea to delay him, he has nothing to do but to step out of the vessel in which he has come from his voyage on to the pier, and in a few minutes to find himself in the railway carriage started for London. Such advantages, such easy transition from ship to shore at all times in the worst or finest weather, in the broad glare of day or in the darkest night, is held out alone and can be enjoyed by no other port than Dartmouth. The commissioners were quite right in their choice.

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#### THE WESTERN DIVISION OF THE MEDITERRANEAN.—*Winds.*

(Continued from page 320.)

Nor is the proximity of the Gulf of Genoa without its difficulties in winter time. With an opening as wide or wider than that of the Gulf of Lyons similar results frequently occur. The navigator should manage to cross it by a method somewhat analogous to that laid down above for the Gulf of Lyons. Certainly, however, he has here the advantage of being near harbours and shelter, which he has not in the former.

*Summer Winds.*—The prevailing winds in summer on the coasts and in the neighbourhood of the Gulf of Lyons are West and S.W. ; but in most of the roadsteads in the day time there is a sea breeze, which, falling as the sun goes down, gives way at night to the land

wind. These—which are called solar winds, from the circumstance of their following the course of the sun—commence setting in at daylight in a light air from N.E. ; as the sun rises above the horizon they obtain a little more strength, hauling further East; later still, they freshen and become S.E. When noon has passed they again become stronger, and haul to South and S.S.W. ; and as the sun loses height they gradually lose their strength, changing still round to West ; and after the sun disappears below the horizon they are gone, and a general calm prevails. The usual harbingers of the delightful weather of this period are heavy dews at night ; which are seen in the morning in light mists and vapour resting over the land.

Fresh winds from West are also the rule in this season, which at sea are general, commencing mostly after the land wind has gone down, setting in regularly at ten in the morning. At sea they are fresh, but at sunset, about the coast, they become weak. Should it happen that they continue fresh during the night, they become stronger during the day following, and about noon attain their utmost degree of strength.

But in summer time, and especially in August, a fresh N.W. breeze is by no means uncommon, although of short duration, for it will seldom last twenty-four hours, and although it may be very strong in the course of the day, it will be all gone by night. Should it set in after a little rain it will blow much stronger ; but should it blow after much rain the wind will not be so strong. When the N.W. wind blows the sky remains clear, small detached white clouds only being seen ; which clouds have a peculiar form, which has given rise to their being called packs of cotton. When these clouds suddenly make their appearance, the weather being moderate, they are considered a sign of wind. These winds generally reach the coasts of Corsica and Sardinia, and at the Balearic Isles they are converted into northerly winds.

Easterly winds are not so frequent in this season, and shift to the N.E. in the vicinity of the Gulf of Genoa and to S.E. in the Gulf of Lyons, without becoming much stronger or loading the atmosphere with clouds.

*Winter Winds.*—But in winter time easterly winds are very frequent in the Gulf of Lyons and its vicinity ; being, however, more common in October, when even the land winds are not very moist. They become very violent and darken the weather, inclining to S.E. in the mouth of the gulf, and when they reach this quarter they degenerate into heavy gales, which are very trying to the navigator. They do not blow so strong as the North-Westerns ; but, in compensation for this, they last much longer, sometimes as many as fifteen days, and even longer. Navigation inside the Gulf of Lyons is very dangerous on these occasions, as much from the difficulty of seeing the shore through the gloom which they produce, as also from the tremendous sea which they raise.

The North-Westerns in this season also attain great strength for several days together during this season. They usually begin at

N.N.W., veer to N.W., and even W.N.W., to change back to North, where they go down. On these occasions, also, the Gulf of Lyons is terrible for a ship that should happen to be in the middle of it, for, on account of the heavy cross sea which they get up, it is impossible to carry sail to keep command over the ship and nothing is left but to bear up, unless the vessel is very powerful. For this cause, when there is reason for expecting a N.W. wind, a vessel should get away as soon as possible from the entrance of the gulf, adopting that course which will either take her to the coast of Spain or the Hieres Islands; and if, when having adopted either of these alternatives, the direction of the wind will not admit of her carrying it out, she must wait, lying by, until it is over. These N.W. gales blow much harder during the day, bringing with them heavy rains, which it is necessary to be careful of so as not to expose the vessel to being dismasted.

These winds in the vicinity of the shore become North, blowing very hard, with heavy rains, off Minorca, and W.N.W. on the coasts of Corsica and Sardinia. At the same time the same winds prevail in the Gulf of Genoa, and with equal strength, only that here, from the direction of the shore, they become N.N.E. in the middle of the gulf; they are N.E. off the Hieres Islands, and N.W. at Elba and on the coast of Tuscany. The vessel meeting them between the two gulfs will become the plaything of the seas and the storm, and will be fortunate to get to the Hieres Islands, the limit of these contending winds, to escape their ill effects.

When the wind hauls from West to S.W. in this season a S.W. gale may be expected. The navigation of the gulf in this case is very difficult, from the obscurity which prevails and the heavy sea which gets up. Nor is it less outside, for, as it generally shifts to South, it then becomes an onshore wind, rendering it impossible for vessels to avoid mischief in the gulf. In these circumstances the sea attains an enormous height, and much higher than in the Atlantic, from the short fetch which it has for a ship, while the strength of the wind and rain does not allow the sail to be carried that is indispensable for meeting the walls of sea or for escaping out of the gulf. The current, again, sets strongly towards the centre, drifting ships to their fate on Tînaus or other parts no less dangerous.

In such cases a vessel must do her best to escape by the mouth of the gulf, obtaining shelter if she can in the Bay of Rosas, or run for the Hieres Islands if she can. But when a vessel is bound to some port of the Gulfs of Genoa or Lyons she must not approach either in a gale from the S.E. quarter. When this weather from seaward occurs the water of the ports in both gulfs rises about two feet, showing how it is drifted to them.

*Currents.*—It is not easy to describe the currents of the portion of sea to which we are alluding. In the Mediterranean there is no such thing as a constant current, if we except that which enters the Strait of Gibraltar, runs along the African coast, turns up along that of Syria, and, joining that from the Bosphorus, skirts the coasts of Italy, France, and Spain, returning to mingle with the general current of

the strait, thus making the circuit of this inland sea. But this small general current is often overcome by those of different localities, produced by prevailing winds or those which have been blowing; and this latter cause happens very often in the part of the sea to which we have just alluded.

Whenever it blows hard in the Gulf of Lyons the waters of it drift out in proportion to the strength of the wind, radiating from the centre as the wind may blow. Thus, for instance, with a N.W. wind, the water which runs from the gulf takes different directions, some of it collecting in the Strait of Bonifacio, some rushing on the West coast of Sardinia, running down it to the southward to get round to the eastward; while that which goes out on the western side of the gulf takes a southerly direction, falling against the Balearic Islands, and to the S.S.E. or S.E., running along the coast of Spain. Those which escape by the eastern entrance of the gulf take an E.S.E. and easterly course towards Cape Corso and the Tuscan Archipelago. But whenever northerly gales occur in the Gulf of Lyons there are the same in the Gulf of Genoa. The strength of the southerly current is then increased in both gulfs, setting out at those openings at the rate of a mile an hour.

Completely the contrary takes place with opposite winds. When gales from S.W. to S.E. occur the water is heaped up in these two gulfs, producing a current more or less strong, according to the distance from their entrances. At Port Mahon, far as it is out of the gulf, the water subsides considerably with northerly winds and rises with those from the southward; the former, when it is very high, being mostly a sign of an approaching northerly wind after some days of calm weather.

The existence of southerly and northerly currents, produced by the winds of the gulf and their opposite winds, is proved by the differences in latitude to the southward and northward found by vessels which cross the Balearic Sea and the Gulf of Lyons with those winds. And under these effects navigators should make allowance for them, so as not to fall to leeward, risking their not rounding a cape as intended or being set to leeward of their port.

Nor would it be prudent to beat against a hard northerly or southerly wind in the gulf, excepting under great necessity, but rather to get over to one coast or the other. There have been many instances of vessels beating northerly off Cape Creux having been stopped by being drifted by the current and sea on the North coast of Minorca, and their crews lost by wreck when they supposed themselves far to the northward of the island. Fortunately, the establishment of a light on Cape Caballeria has saved many similar cases.

No less numerous are the instances of vessels, after some days' beating in the gulf, being obliged to take a port in Sardinia or the Strait of Bonifacio. And we advise all navigators who may meet with one of these Northers in the middle of the gulf which does not allow of their carrying sail against it, to make for Minorca before the sea gets up, as they can always run round the eastern cape and avoid the heavy

sea that runs in the Minorca Channel. They should, however, never attempt the port of Mahon with a northerly gale, on account of its dangerous entrance, but keep under small sail close under the lee of the island.

*Route by the Strait of Bonifacio.*—The passage of the Strait of Bonifacio, formerly considered as to be avoided, was not frequented by large vessels, which generally preferred to go North of Sardinia when bound to any one of the western ports of Italy. But since the construction of good charts, showing in full detail the limits of the channel, and the several points have been deprived of their dangers by good lights, vessels of all sizes now use the straits when passing from the Balearic to the Tyrrean Sea.

This passage is very convenient for all vessels from the eastern coast of Spain and the Balearic Islands bound to Civita, Vecchia, Gaeta, or Naples. Those from the Atlantic bound to the same ports also find it the best. It is equally so for vessels from the coast of Provence or Languedoc when bound to the ports of Palermo or Messina, and even to those of the Adriatic or Levant through the Strait of Messina.

Again, vessels from Naples and the Roman ports, and even the North coast of Sicily, going to the Gulf of Lyons, and the East coast of Spain.

It may be observed respecting the currents in the Strait of Bonifacio that they are the effects of the wind that is blowing, and set with more or less velocity according to its strength. They set eastward with a westerly wind, and westward with an easterly wind, and at a rate of about two miles an hour. A vessel should keep mid channel in passing the strait, as much for availing herself of the current as for keeping clear of the set through the channels between the islands. In fresh winds there is generally much sea running, producing breakers sometimes imposing, arising from the large body of water that is forced through the strait.

The Strait of Bonifacio being situated to the E.S.E. of the Gulf of Lyons, it is visited severely in winter time by the N.W. winds from it, and it is no trifling matter for the navigator to encounter the heavy sea which is got up by those winds. In summer these N.W. winds are neither so strong nor so lasting, and it often happens that while a N.W. wind is blowing in the western part of the strait a S.E. wind will be blowing in the eastern part, and this contrariety has often been very advantageous to vessels which have been unable to round the Island of Corsica with winds from North or N.W. to proceed to Leghorn or other ports of Tuscany; they have passed South of it, and with S.E. winds have soon completed their voyage.

Vessels from Barcelona or ports in the interior of the Gulf of Lyons intending to take the Strait of Bonifacio with N.W. or northerly winds should take care to keep a course as far to windward as possible, to allow for the effect of currents which will set them to the southward, and in order that they may be enabled to take the strait properly. The best point to make for is Cape Pertusato, well lighted at night,

and which, with Cape la Testa, mark the western entrance of the strait.

Vessels from the coast of Spain, with southerly winds, should adopt a contrary precaution, and should make for the Isle of Asinara, which is easily distinguished by its greater elevation, and which it is intended shortly to be provided with a light.

It happens also sometimes that vessels from the Italian coast bound to a port of Spain, entering the strait with a S.E. wind, meet a westerly or N.W. wind in the western part of the strait. If this should be strong the navigator has the option of dropping an anchor in the roads of Agincourt, or in any other of the many roadsteads among the Magdalena Islands, and there await a change of wind.

When S.W. or S.E. winds prevail in the Strait of Messina and the Malta Channel (or Sicilian Channel) they set towards the eastern shores of Sardinia and Corsica, some escaping by the Strait of Bonifacio and others with much more strength setting through the Piombino Channel and others formed by the Tuscan Archipelago, penetrating into the Gulf of Genoa, as well as that of Lyons, occasioning the great rise of water which then takes place in the latter gulf.

The Strait of Bonifacio used thus, as convenient, is much frequented by navigators, who have to pass between the Tyrhean and Balearic Seas, not forgetting that the Isle of Asinara is a port of refuge for vessels meeting with N.W. and northerly gales; while the several anchorages of the Magdalenas are no less harbours of refuge for those vessels which are met by S.E. winds from the Tyrhean Sea.

*Route South of Sardinia.*—The channel formed by the South coast of Sardinia and the North coast of Africa is, doubtless, the most frequented. It is adopted by vessels from the Atlantic, the South coast of Spain, the Balearic Isles, and Algiers, bound to Sicilian ports, Malta, the Adriatic, and Levant, without excepting the African coast, all of these returning by the same route.

Many ships are accustomed in summer, especially those from the straits, to navigate at a moderate distance from the African coast, so as to keep in the easterly current, passing north of Galita, and sighting it to correct their positions, making the coast about Zabib or Port Parina if destined for Tunis; or running on for Cape Bon and Pantellaria if bound to Malta or the Levant. If they are going to any of the Sicilian ports or Naples, they then make the land about Cape Teulada, run down the South coast of Sardinia and make for Maritimo, from whence they shape their course northward or southward of Sicily.

In winter, when the furious gales of the Gulf of Lyons are felt on the African coast, they keep off the shore and navigate (those from the strait), so as to sight the Balearic Islands, and then the San Pedro Islets on the coast of Sardinia, keeping along the coast of this island, and take their departure for Cape Bon or Maritimo, according to the destination of the vessel. When coming from the shores of the

Levant and Italy for Spain or the straits, a general course is adopted, passing South of Sardinia.

*Summer Winds.*—In the summer time the prevailing winds in the route above mentioned are from the eastward, with changes to E.N.E. and N.E., for some consecutive days, perhaps alternating to E.S.E., but seldom as far as S.E., unless it be at night and the vessel is well in shore. These winds in general are moderate, and follow the trend of the coast; they bring a light mist with them, which becomes thicker as they increase in strength and cover the coast so as to render it difficult to be seen at eight or nine leagues from it. Thus it is, that when the coasts of Barbary and Sardinia are not to be seen, it is a sign of a fresh easterly gale; and the more the land is concealed the stronger will be the wind, as the mist is then denser, the sky at the same time presenting a dull appearance. With easterly winds the dews are heavy, and even these in calm weather are signs of the approaching Levanter. When the atmosphere is quite dry the contrary winds may be expected.

Notwithstanding the foregoing, in summer time westerly and N.W. winds are not wanting, which vary to W.S.W., and even S.W. during the night, the atmosphere keeping clear when these winds are moderate and are preceded by the disappearance of the dews. But should they freshen up, or should the easterly wind get up suddenly, they are then accompanied by showers and squalls. And before this sudden contrast of wind takes place clouds will be seen rising from the West, and will pass against the easterly wind that may be blowing, this acquiring greater force when those clouds have reached the zenith. If the westerly wind establishes itself in summer time without such a contrasting wind, they are almost always clear, blowing by day and moderating at night, and along the coast being generally from S.W.

*Winds in Winter.*—Between Africa and Sardinia the prevailing winds in winter are those from N.W. to S.W. But in this heavy easterly gales, with dirty weather, are not wanting; and as soon as they shift to S.E. another change may be soon expected, which takes place by the wind going to South, S.W., and West with rain, and which only clears away at N.W., this being the direction of that circuit and the natural termination which the bad weather has in this part of the Mediterranean. The N.W. wind being once established (called by mariners the *Escoba del Cielo*), after some days of bad weather the atmosphere becomes clear, and it continues blowing for days and even weeks with more or less intensity. There have been many instances of vessels remaining at anchor for the space of a whole month in the ports of the South coast of Sardinia when they have been bound from the Levant to the Balearic Islands, without being able to get over this short passage, it being a common occurrence that when they have started with a S.E. wind they have been unable to reach the end of their voyage without meeting the contrasting N.W. wind, with which they have been obliged to get to Sardinia. For this reason navigators in this part of the Mediterranean distrust the S.E. wind, especially

when it comes from the gyrating movement or change from left to right that takes place with winds from the N.E. and S.E. quarters.

Westerly and N.W. winds are generally strong and accompanied with rain in the first months of the winter, and clearer in February, March, and April; but when they settle at North, which often happens, especially to the West of Sardinia, then a vessel may find herself on the African coast, for the heavy sea which this wind gets up is very distressing.

Southerly winds are far less common in the part of the sea we are describing, and when they are established are still of short duration.

From all that we can learn about the winds of this part, it appears that in summer time all vessels that have to pass between Sardinia and Africa, especially if they be bound to Tunis and Tripoli, or perhaps some port on the South coast of Sicily, or to those of Malta or the Levant, prefer working up along the coast of Barbary if the easterly wind is prevailing, in preference to that of Sardinia, and the contrary in winter. In this latter season they keep well along the South coast of that island, which, besides being clean, offers abundance of shelter for all weathers.

(To be concluded in our next.)

#### WAYSIDE WAIFS ON THE ROAD TO THE WEST. NO. II.

*West Indian and Pacific S.S. Belivar,  
1, India Buildings, Water Street, Liverpool,  
May 26th, 1864.*

Sir,—I have but little to add to the scanty remarks contained in my last letter, but the following may be of service.

Galera de Jamba (near Carthage) runs out much further than is marked in our chart.

Captain Leeds, of the *Tyne*, says that the Negrello Shoal also runs further out.

When approaching the land to the eastward of Santa Marta, I always observe numerous pieces of flat seaweed, of a dark green colour, floating on the surface.

In crossing the Caribbean Sea neither myself nor the commanders of the other steam ships of this line ever meet the current running so strong in the offing as it is marked in the charts.

Along the coast of New Granada, during the rainy season, it often runs to the eastward at the rate of four miles per hour. Forty miles off shore it is not felt, therefore in going to the eastward from June to December keep close in shore.

From December to May the Trade blows strong in shore, so that it is often impossible to steam against it. Under these circumstances stand off shore until to the northward of the thirteenth parallel, where the wind is always lighter.



In the chart of Navy Bay (Colon) the latitude and longitude are not given. The terminus of the railway (marked + in my chart) lies in  $9^{\circ} 21' 28''$  N. and  $79^{\circ} 53' 52''$  W.

I shall be glad to send this chart to you, if it will be of service, as well as a few others, if you would deem the rude sketches of headlands or newly introduced currents of any service to your department.

I passed directly over the vigia said to exist in lat.  $18^{\circ} 30'$  N., long.  $83^{\circ} 6'$  W. The sea was perfectly calm at the time, but nothing could be seen from aloft to lead me to infer that a danger exists in the above position. Eighteen miles S.E.b.S. of this I passed a long patch of ripples, the water around being smooth they showed with great distinctness. I have marked their position in my chart.

The Tribune Shoal to the North of Santa Marta may (in my opinion) be safely expunged from the chart. During four years these steam ships have been crossing the locality without seeing it.

In sheet I. Florida Strait at Bahia Honda is marked "Light proposed." In steaming through the strait in hazy weather I saw a revolving light in this position. I tried to time the intervals of eclipse, but owing to the haziness of the atmosphere at the hour (daybreak) I could not. The interval is very long.

In the general sheet of the West Indies, Vera Cruz is placed in  $96^{\circ}$  W. long. In the plan it is in  $96^{\circ} 8'$ , a difference which is calculated to lead ships astray, and I have personally known instances when it has done so.

By a rough meridian distance to Havanna, I make it  $96^{\circ} 8'$  W., and a comparison with another ship's chronometers confirms my reckoning.

Any one who will lay down the line of the edges of the Gulf Stream will render great service to navigation. The line of demarcation after leaving the Bemini Pass is so sharp for sixty miles, that I believe it possible for the head and stern of a ship to be in different temperatures.

On one occasion after passing Matanilla Shoal, twelve miles to the westward, I steered North (true), twenty miles, then N.b.E. (true), forty miles, and I got into the counter current. Ther.  $76\frac{1}{2}^{\circ}$ . Hauling up N.  $\frac{1}{4}$  W. (true), ship going ten miles an hour through the water, I tried the thermometer every hour, and found it as follows, viz.:—At the end of the first,  $76\frac{1}{2}^{\circ}$ ; the second,  $77\frac{1}{2}^{\circ}$ ; the third,  $79\frac{1}{2}^{\circ}$ ; the fourth,  $79\frac{1}{2}^{\circ}$ ; the fifth,  $80^{\circ}$ , noon,  $29^{\circ} 48'$  N.,  $79^{\circ} 25'$  W. Steering N.  $20^{\circ}$  E. (true),—the sixth,  $79\frac{1}{2}^{\circ}$ ; the seventh,  $79^{\circ}$ ; the eighth,  $78\frac{3}{4}^{\circ}$ .

These temperatures were taken by two thermometers, one by Cases-telli, the other by De Silva, I am induced to call your attention to this from the lowness of the temperature of the Gulf Stream at this season of the year. The general impression is that it is much higher, and I have seen it so marked in charts; at the same time, I have always been puzzled to understand why it should be above that of the Gulf of Mexico from whence it comes; indeed, I am doubtful of the fact.

In steering towards a berth off Cape Hatteras from the entrance of the strait, I found it running in its greatest strength through the fol-

lowing points, viz. :—Lat. 26° 48' N., long. 79° 24' W.; 30° 19' N., 79° 30' W.; 31° 49' N., 78° 30' W.; 33° 21' N., 76° 10' W.; 35° 17' N., 74° 34' W. During the prevalence of a N.E. gale in October this track was covered with lanes of Gulf weed; in June I did not observe much. At the latter point I had to steer in for the Capes of the Delaware, and on that line met the current running to the S.W.

I remain, &c.,

WM. W. KIDDLE.

*To the Editor of the Nautical Magazine.*

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DESTRUCTION OF THE CONFEDERATE SHIP "ALABAMA" BY THE UNITED STATES SHIP "KEARSAGE."

The *Alabama* and her doings are so well known all over the world that the following account of her destruction, which we glean from the daily prints, will be read with interest everywhere.

The *Alabama* arrived in Cherbourg on the 11th June, after two years' service, lately in the East Indies, for the purpose of extensive repairs. A day or so after her arrival the Federal steamer *Kearsage* arrived there also, and instead of coming to anchor, continued to cruise backwards and forwards just outside the breakwater, challenging the *Alabama* to fight. The *Alabama* immediately accepted the challenge thus given, only asking for a few days to complete a few arrangements prior to an engagement. On Sunday the 19th she was ready for sea, and left Cherbourg at about 10h. a.m., preceded by the *Deerhound* and followed by the French frigate *Couronne*; the latter remaining three miles from the land throughout the action, which took place some ten miles to the N.E.b.E. of Cherbourg. The *Alabama* made out the *Kearsage* soon after leaving the harbour, and all hands having been called to quarters, Captain Semmes made a short address to the men, cleared for action, and shaped his vessel's course for the Federal.

Having arrived within a mile and opened fire from her rifle gun, the *Alabama* soon afterwards opened her broadside on the enemy, who immediately returned the fire. An account states that the *Alabama* endeavoured to run into the *Kearsage*, which was successfully evaded by her. Both vessels fought the starboard battery, and in consequence of this the manœuvring on the part of both was confined to complete circles, seven of which were made during the action. These circles became gradually less, but during the action the two vessels were never nearer to each other than a quarter of a mile. The action lasted one hour and ten minutes, in the course of which Captain Semmes made another attempt to run into the *Kearsage*, but before he could do so a shot came crashing into the engine-room and broke his engine to pieces. He attempted to sheer

off, but the *Kearsage* poured a fearful broadside into the *Alabama*, smashing her side for a length of nearly twenty feet close to the water line, and water rushed into it. A few seconds after the *Alabama* was sinking. In fact, the *Alabama* having received at least from fifteen to twenty shots in her hull alone, and having some seven or eight killed and ten or eleven wounded, besides rapidly filling with water, was obliged to strike. Before giving up the action the *Alabama* endeavoured to reach the French shore, distant some ten miles, and hoisted what sail she had left—fore trysail and jib—but of no avail; the water was filling the ship so rapidly as already to cause her to heel over to one side, and was putting out the fires of the engines, all of which circumstances induced the *Alabama* to strike her flag. A boat was sent to the *Kearsage* to inform her that she was sinking, and to request assistance to remove the wounded men. The *Alabama's* crew, however, succeeded in removing their own wounded, together with a few who were unable to swim, in the first boat; the remainder were left on board. Before the boats could return the *Alabama* had slowly settled by the stern, elevating her bow high into the air, and gradually disappeared. All hands jumped overboard, and the sea presented one mass of heads floating about, upwards of seventy individuals being in the water, supporting themselves on gratings, slight spars, buckets, shell boxes, &c.

The yacht now rapidly steamed up, and with the aid of the *Kearsage's* boats picked up the survivors. The *Kearsage* picked up 62 men of the *Alabama*, and a French pilot boat 9. The *Kearsage* was found, after the action, to be iron-plated with heavy iron cables ranged up and down her sides, by means of which she necessarily resisted the *Alabama's* fire. In addition she was just out of dock from Ostend, and in good repair. She carried a heavier battery than the *Alabama*, and her firing was excellent.

The iron plating was very successful in resisting the Confederate shot, and it was frequently observed that shot and shell struck against the *Kearsage's* side and harmlessly rebounded, bursting outside, and doing no damage to the Federal crew. The chains extended from half-way between her fore and mainmasts to about half-way between her main and mizen, thus completely protecting her whole midships section. Another advantage accruing from this was that it sank her very low in the water, so low, in fact, that the heads of the men who were in the boats were on the level of the *Kearsage's* deck. The firing was much more rapid on the part of the *Alabama* than the *Kearsage*: The former fired ninety shots, while the latter only fired thirty, thus plainly showing the advantage of her plating with the cables.

The English steam yacht *Deerhound* arrived here on Sunday night, with Captain Semmes and some other of the officers and some of the crew of the Confederate war steamer *Alabama*.

The following is a statement of one of the petty officers of the *Alabama*:—The *Alabama* arrived at Cherbourg on the 12th inst., seventy days from Cape Town. The *Kearsage* arrived off Cherbourg on the 13th inst. Challenges to fight were reciprocated by the com-

manders of the *Alabama* and *Keersage*. The former having taken in coal and undergone some refitting steered out of Cherbourg at 9h. a.m. on Sunday. She was escorted by the French iron-clad *Couronne*, which was appointed to see the *Alabama* clear of the limits of the port of Cherbourg. The engagement took place about twelve miles from the port. The first shot was fired by the *Alabama* at the *Keersage* at 10.30 p.m. The latter had a chain cable triced along her sides, to break the force of the shot from the *Alabama*. The *Alabama* was about 1,000 yards from the *Keersage* when she fired the first shot. Being the fastest ship, she was able to steam round her antagonist in continually narrowing circles; when within five hundred yards of the *Keersage* the rudder and screw of the *Alabama* were shot away, and she was rendered helpless; her colours were shot away. The action lasted from 10.30 a.m. until noon. At the conclusion of the action nine badly wounded men of the *Alabama* were sent on board the *Keersage*. The crew of the *Alabama* when she went into action were 140 men, all told. After the action the *Keersage* appeared in a disabled condition. Four men were killed and ten wounded on board the *Alabama*.

In a second letter, dated last night, our Southampton correspondent says:—

The yacht *Deerhound* is lying off the quay. She brought home forty-one of the officers and crew of the *Alabama*. Mr. Lancaster, the owner of the *Deerhound*, belongs to Wigan, and is a large colliery owner. He arrived at Cherbourg last Friday, and hearing that the *Alabama* was going out on Sunday morning to fight the *Keersage*, he went in his yacht to witness the fight. He kept about three miles from the combatants, and saw by means of telescopes and other glasses every shot that was fired, and the effect of it. The two steamers kept going round one another in circles. The *Alabama* fired four shots to one of the *Keersage*. The broadsides of the latter were each 109lbs. heavier than those of the former. The *Keersage* was so damaged by the fight that she could not steam afterwards. Both vessels were about the same size. The *Keersage* was cased with thin iron plates, and over these were chain cables coiled about, and between the interstices formed by the cables was wood planking. When the battle was at an end the *Deerhound* steamed over to the *Keersage*, and Mr. Lancaster was asked by the officers of the Federal ship to try and pick up the scores of the *Alabama's* crew and officers who were floating and swimming about. He lowered his yacht boats, and one of them, commanded by a man named Adams, was steering his boat into a group of a dozen struggling persons, when he passed a drowning man at some short distance with an officer's cap on. One of the men in the boat cried out "That's Semmes," and the drowning man called out, "I am the captain—save me; I cannot keep up any longer." Adams went and dragged him into the boat. Semmes then said, "For God's sake don't put me on board the *Keersage*, but put me on board your yacht." Adams promised to do so, and laid Semmes down in the bottom, and covered him with a sail to conceal him from the

*Kearsage's* boats, which were evidently anxiously searching for him. When Adams had saved a boat load he took them on board the yacht, and Semmes was at once placed below. As soon as all that were seen in the water were picked up, Mr. Lancaster was anxious to get away, and began to steam out to sea. He expected that he should have been brought to by a shot from the *Kearsage*, but she was too disabled it appears to go after the *Deerhound* to overhaul her, and thus Semmes escaped being made prisoner.

The following are additional details of the engagement:—

Shortly after the action commenced, a shot from the *Kearsage* killed three men on board the *Alabama*, cutting them to pieces, and a second shot wounded three more men and killed another, while a third shot carried away the *Alabama's* fan and part of the rudder on her deck, disabling a gun and causing much damage. Below and forward her compartments were all carried away, and the fire room was filled with water.

The *Alabama* fought under sail, first using her starboard battery and afterwards her port battery. She continued the engagement until the muzzles of her guns were under water, and one part of her deck was covered with dead and wounded.

When found in a sinking state the *Alabama* ceased fighting, and lowered her boats, in which the dead and wounded were placed. Shortly afterwards the *Alabama* sank, the officers and crew jumping into the sea, when the *Kearsage's* boats came up to assist in saving the crew. The officer in command of the boats inquired for Semmes, and was told that he was drowned, whereas he had already been picked up by the yacht *Deerhound* and stowed away, the yacht having then steamed off with all speed, expecting the *Kearsage* would attempt to capture those on board.

Before the *Alabama* left Cherbourg to engage the *Kearsage*, Captain Semmes sent on shore an iron chest containing specie, sixty chronometers, and other valuables.

The officers of the *Alabama* estimate their loss in killed and wounded at from thirty to forty men.

From Liverpool it is stated that the American shipping in that port was never so profusely decked out with bunting as it was on June 20th. When the notorious Confederate cruiser made her appearance at Cherbourg there was a general opinion in Liverpool that the *Kearsage* (one of the swiftest sloops of war in the Federal service) would "fight" Semmes. The office of Messrs. Frazer, Trenholm, and Co., the Confederate agents in Liverpool, was invested, on June 20th, by people eager to learn the fate of the crew of the *Alabama*, and it was rumoured on 'Change that there was £180,000 in gold on board the ship when she went down. The yacht *Deerhound*, which rescued Captain Semmes and a portion of his crew, is owned in Liverpool, and Captain Lancaster is a member of the Royal Mersey Yacht Club.

A later account says further, in a letter to the *Daily News*:—

I returned late last night from Cherbourg, where I had been a witness to the fight between the *Kearsage* and *Alabama*. I regret to see that some of the London papers are perverting and falsifying the facts, so as to do great injustice to the gallant officers and men of the *Kearsage*.

The fight began about 11h. a.m., and ended a few minutes after 12h, lasting a little more than an hour. The *Alabama* fired about seventeen shots at the *Kearsage* before the latter fired a gun. The *Kearsage* fired 173 shots. She was struck in the hull seven or eight times, but has sustained no important damage at all, and is perfectly ready for active service. She has a crew of about 165 men, that of the *Alabama* being about 147. The *Alabama* had eight guns, the *Kearsage* only seven. The firing of the *Alabama* was very inaccurate, that of the *Kearsage* was excellent. A large pivot gun was particularly effective. The *Kearsage* is spoken of as being iron-clad; she was no more iron-clad than the *Alabama* might have been had they taken the precaution. She simply had a double row of chains hanging over her sides to protect her machinery. Two shots from the *Alabama* struck these chains, and fell harmlessly into the water.

The *Kearsage* picked up 63 men, one dead body, and two men who have since died on board. She also took five officers. Captain Winslow would now have all the officers and men of the *Alabama* as prisoners had he not placed too much confidence in the honour of an Englishman who carried the flag of the Royal Yacht Squadron. The club will be indelibly disgraced unless they take measures to repudiate and condemn the conduct of Mr. John Lancaster, owner of the yacht *Deerhound*. I have no doubt that this yacht was in the harbour of Cherbourg to assist the *Alabama* by every means in her power; that she did so I know; her movements before the action prove it. When the *Alabama* went down, the yacht, being near, was hailed by Captain Winslow and requested to aid in picking up the men in the water. The request was complied with, and the *Deerhound*, after having rescued, as supposed, about twenty persons, including Captain Semmes and First Lieutenant Kell, immediately left, running towards England. Captain Winslow says the reason he did not pursue her or fire into her was that he could not believe anyone carrying the flag of the Royal Yacht Squadron could act so dishonourable a part as to carry off his prisoners whom he had requested him to save from feelings of humanity.

Captain Winslow considers Semmes and his officers bound upon their honour to give themselves up as his prisoners of war. About five minutes before the *Alabama* went down a boat from her came to the *Kearsage* with an officer, who surrendered the vessel, and then asked permission to return with his boat, to assist in picking up the men. This was granted, when the officer left, and after rescuing a number—principally officers, I understand—he went on board the English yacht and escaped. Please excuse the hurried style of this letter, but I was anxious that while Captain Semmes and his party

are being fêted for their glorious conduct, you might be apprised of these positive facts.

P.S.—The *Alabama* hauled down her colours and ran up a white flag at least ten minutes, I should think, before she went down. Prisoners taken from the *Alabama* state that about three o'clock in the morning before the engagement took place, the chronometers in the *Alabama* were transferred to the English yacht *Deerhound*, then lying in the harbour, not far from the *Alabama*. The *Deerhound* was, in fact, acting as tender to the *Alabama* before the action.

Letters have been received in Southampton from on board the *Kearsage* at Cherbourg, which state that no one was killed on board that ship in her encounter with the *Alabama*; three of the crew were wounded. None of her officers were injured. The *Kearsage* received no material injury. There are sixty-eight *Alabama* prisoners on board of her.

Some account of the *Alabama* will be found in our March number. It was commonly supposed that paddlewheels and screws and funnels (not to speak of diplomacy) had put an end to all the romance and picturesqueness of sea life; the celebrity of the *Alabama* proves the fallacy of that apprehension. For, in what has that celebrity consisted, if not in being heard of here, there, and everywhere, and sometimes in half a dozen latitudes at once—in the Channel, in the Mediterranean, in the Atlantic, in the Pacific, in the Indian Ocean, in the China Seas, at the Cape, in the Channel again?

The following, it is believed, is a correct statement of the tonnage and armament of these vessels:—*Alabama*, 1,110 tons; one forward pivot 100-pounder rifle gun, Blakeley's make; one after pivot, carrying 8-inch solid shot, six 32-pounders, mediums, each gun weighing 42 cwt. *Kearsage*, 1,031 tons, two pivot guns 11-inch 120-pounders (Dahlgrens); six 32-pounders (Dahlgrens).

To make this account as complete as possible, we add the following last communication from the captain of the *Kearsage*:—

Sir,—There have been so many nonsensical publications on the engagement which took place between the *Alabama* and *Kearsage*, that it is my wish that a correction should be made.

In the first place no challenge was sent by Captain Winslow; to have done so would have been to have violated the order of the Navy Department. On the contrary, Captain Winslow received a request from Captain Semmes not to leave, as he would fight the *Kearsage*, and would only occupy a day or two in his preparations. Five days, however, elapsed before they were completed. The *Kearsage's* battery consists of seven guns, two 11-inch Dahlgrens, four 32-pounders, one light rifle 28-pounder. The battery of the *Alabama* consisted of one 100-pounder rifle, one heavy 68 ditto, six 32-pounders—that is, one more gun than the *Kearsage*. In the wake of the engines on the outside the *Kearsage* had stopped up and down her sheet chains. These

were stopped by marline to eye bolts, which extended some twenty feet, and was done by the hands of the *Kearsage*; the whole was covered by light plank to prevent dirt collecting. It was for the purpose of protecting the engines when there was no coal in the upper part of the bunkers, as was the case when the action took place. The *Alabama* had her bunkers full and was equally protected. The *Kearsage* went into action with a crew of 162 officers and men. The *Alabama*, by report of the *Deerhound's* officers, had 150.

The *Kearsage* steamed to sea in order that no questions of neutrality jurisdiction should be raised; when far enough she turned short round and steered immediately for the *Alabama* for close action. The *Alabama* fired, as she was coming down on her, two broadsides and a part of another; no one shot came on board of the *Kearsage*. The *Kearsage* then sheered and opened on the *Alabama*, trying to get nearer. The action lasted one hour and two minutes from the first to the last shot. The *Kearsage* received twenty-eight shots above and below, thirteen about her hull; the best shots were abaft the mainmast, two shots which cut the chain stops, the shell of which broke the casing of wood covering. They were too high to have damaged the boilers had they penetrated. The *Kearsage* was only slightly damaged, and I supposed the action for hot work had just commenced when it ended. Such stuff as *Alabama* firing when she was going down, and all such talk, is twaddle. The *Alabama* towards the last hoisted sail to get away, when the *Kearsage* was laid across her bows, and would have raked had she not surrendered, which she had done, and was trying to get her flags down, and showing a white flag over the stern. The officers of *Alabama* on board the *Kearsage* say that she was a complete slaughter-house, and was completely torn to pieces. This is all I know of the *Alabama*.

Yours, &c.,

JOHN A. WINSLOW, *Captain*.

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#### THE SWORD FOR CAPTAIN OF THE LATE "ALABAMA."

We could scarcely believe our ears, and can hardly yet believe our eyes, when we learned that a *naval officer* was busy with a subscription list (to which the name of a *British Admiral* was affixed, with his own) canvassing for others for the purpose of presenting a sword to Captain Semmes. There is no accounting for taste or obliquity of vision, and here are some questions the answers to which will serve to place the subject in a fair light. But let not the officer of volunteers suppose that such a measure was that of the royal navy.

*Carlisle.*

Sir,—I see by the *Morning Post* that certain officers of her Majesty's navy propose to present a sword to Captain Semmes, in place of the one which, according to the account of one of his officers, he threw into the sea, that it might not become the trophy of his victor.

As a volunteer officer, desirous of being instructed in the code of



honour, and looking respectfully to the naval service as perhaps the highest authority on the subject, I would like to ask one or two questions. 1. Had Captain Semmes, after having surrendered his ship, any right to throw his sword into the sea? Of course it is a very unpleasant thing for a man to give up his sword; but is it, or is it not, a part of the etiquette of honour that he should do so? If it be, then I would submit to these gallant officers that it is to Captain Winslow that the sword should be presented. 2. When a man surrenders his ship, does he not surrender himself with it? And has he a right after having done so to make his own escape?

I might ask a third question. Does the possession of sixty chronometers taken from defenceless merchant ships constitute a naval hero now-a-days? I trust that these gallant officers will pause in their design till they have answered all these questions satisfactorily.

I am, &c.,

AN OFFICER OF VOLUNTEERS.

#### THE CONFERENCE AND ALL THE REST OF IT.

Mr. Editor.—The following letter from Frankfort, in the *Daily News*, places matters in so clear a light that we hope from *our club* you will preserve it in a corner of your next.

ARGUS.

The telegraph reported yesterday evening that the Conference had been closed, and that England would most probably maintain its neutral position during this second phase of the Germano-Danish war. This will be good news everywhere but in Paris, where the whole press has been most anxious for England's honour, and highly gratified at the prospect "that something profitable might turn up." Here it has given general satisfaction, particularly to the English residents, who latterly became very uneasy, though all their friends advised them not to mind it, as their position would not be altered in the least if unfortunately it came to blows between the two countries. It will, perhaps, be for the better that such a situation has existed for a few days, as it has rendered manifest the infinite number of commercial and social interests between the two nations. There is no other country where there are as many English residents, as many English boys at schools, as many banking and trade relations.

The idea of a war with England struck with horror all parties, everybody was aware that ultimately it would only benefit France, and after all it would only be a fight between a shark and a lion. Germany is quite as poor at sea as she is numerous on land; her military means being almost without limits, and her pecuniary ones better than those of any other country; money being at three per cent., and every government exchequer, Austria's excepted, full of cash. In

fact, Prussia has now been waging war for half a year out of the surpluses of former years, and her reserve treasure of three millions sterling remains as yet untouched. There is no doubt that England could inflict great harm by stirring up passions in Hungary and Venetia, but how many victims would thereby be made? It would call the Russians again into the plains of Hungary and kindle a war in Italy which would put in jeopardy everything that has been so happily accomplished in that country, and which can only gain consistency by a long and uninterrupted peace. Every barbarous tribe in Turkey would be on its legs, instigated by one party or the other, and the whole continent would soon present a state of chaos, out of which there would be no other exit than by brute force. And all this misery would be encountered for the poor satisfaction of possibly keeping under the Danish rule 58,000 disaffected Germans, always on the alert for a new outbreak.

This was, in fact, the only question at issue when the conference broke up, a result foreseen by everybody who knew that Danish obstinacy would never admit that there were other interests in the world besides its own. There were particularly two things in the English pleadings for Denmark which appeared quite inexplicable—the supposition that conquest was meant, though no German government or individual had any particular interest in determining who was to be Duke of Sleswig-Holstein, while it never seems to have struck English common sense that there must be some intolerable grievance which could unite in one common sentiment all parties in this, in other respects, so much divided country.

Then there was the reluctance of the Danes to leave the decision with the population, under the fallacious plea that the Prussians had succeeded in four months in winning the affections of the people which they, the Danes, had tried in vain for four centuries to win. In Jutland the Danes would certainly not be afraid of a popular vote. As things now stand there is every probability of a bloodless war. The Danes will either evacuate Alsen and Skagen or be driven out in a few days; they might try some landings and be repulsed, and inflict some harm upon German shipping, to be compensated for by contributions in Jutland.

Meanwhile the Diet will take the affair in hand, instal a government in the duchies, deputies will be elected, volunteers for the ducal army will be called out, and then it will appear on whose side the sympathies of the people really are. After a few months of fruitless exertions, the Copenhagen demagogues will be at their wits' end, and will allow their government to agree to the severing of the German element from the Danish monarchy, by which Denmark would gain in homogeneity what she loses in size. Everything said in favour of a strategical frontier is mere bounce on the part of so weak a state as Denmark; neither Holland, nor Belgium, nor Switzerland has such a frontier, and no one in his senses considers their safety thereby impaired.

## WHAT OUR LIFEBOATS ARE DOING.

The communications from our friends of the Club have been so lengthy of late that we have been compelled to forego them; but our lifeboat proceedings always have a just claim to our attention, and we therefore insert the following, which we have received from the Secretary.

A reward of £6 was voted to the crew of the Withernsea lifeboat of the society, for going off and rescuing a fishing-boat and her crew of three men from destruction on the 16th May. There being at the time a very heavy surf and a strong easterly wind blowing, the fishermen found it impossible to make the land. On their making signals of distress, the lifeboat was immediately manned and launched to their assistance, and brought the men and their boat safely to shore. The cost of this valuable lifeboat was presented about three years ago to the National Institution by the late Miss Lechmere, of Hanley Castle Vicarage, Worcestershire.

A reward of £9 was also granted to the crew of the New Brighton tubular lifeboat, belonging to the institution, for going off and rendering important services to the bark *Corea*, of Guernsey, which had stranded, during squally weather, on Taylor Bank, Liverpool, on the 19th May. When the lifeboat arrived alongside, the vessel was making water at the rate of five feet per hour. With the assistance of two steam-tugs the vessel was afterwards safely brought into Liverpool.

It was reported that the institution's lifeboat at Southwold had gone off and saved from destruction two fishing-boats and their crews, who were in danger of being overwhelmed in a heavy surf off Southwold on the 16th May.

Rewards were also granted to the crews of three lifeboats of the institution for going off in reply to signals of distress, with the view of rendering assistance to vessels which did not, however, ultimately require the services of the lifeboat.

A reward of £15 was voted to the crew of a Caistor (Norfolk) yawl, for going off and rescuing nine men belonging to the brig *Alice*, of Newcastle, which, during blowing weather, had been wrecked on the Scroby Sands. The Caistor men found the shipwrecked crew in the ship's boat, and when taken out, the master stated that he never expected to see the land again.

A reward of £12 was also granted to the crew of a Scratby (Norfolk) yawl, in consideration of their laudable services in saving the crew of six men and one woman belonging to the schooner *Undaunted*, of London. The shipwrecked people had taken to their small boat, which was found in a most perilous position on the edge of the sand, over which the surf was breaking heavily.

A reward of £12 was likewise voted to a boat's crew for going off and rescuing in a terrific sea a fishing-boat's crew of five men, who were observed to be in a most dangerous position off Hilton, on the

Scotch coast. The boat reached them just in time, for the men were found benumbed with cold and perfectly exhausted, and had in the tempest lost all hope of life.

A reward of £5 was also voted to the crew of a fishing-coble for putting off and saving, at considerable risk of life, the crew of the brig *Jane*, of Wisbeach, which had foundered during a heavy gale of wind off North Sunderland, on the 23rd January last. The poor shipwrecked men had taken to their own boat, which, being leaky, they kept from sinking with great difficulty. When rescued they were quite exhausted, having had to lighten their boat of what things they could, and to bale the water out constantly to keep her afloat.

Various other rewards were also voted to the crews of shore boats for saving life from different wrecks on the coast.

The institution had sent, during the past month, new lifeboats to Berwick-on-Tweed and the Ferryside, Carmarthen Bay, in lieu of boats previously stationed there, which had been found unsuitable for the localities. It was reported that the French government had requested the favour of the institution to order for it three lifeboats, complete in every way, to be stationed on exposed points of the French coast. The lifeboat builders, Messrs. Forrestt, had also ready two lifeboats, to send to Holland and Bremen.

A report was read from the assistant-inspector of lifeboats to the institution, Captain D. Robertson, R.N., on his recent visit of its lifeboats on the Irish coast, all of which he found in excellent order.

It was stated that Captain Reed, R.N., of Marlborough, was collecting in Wiltshire the cost of a lifeboat-station; and that Mr. R. Affleck, of Manchester, and Mr. W. Bishop, of Boston, and other commercial travellers, were raising amongst themselves the expense of a lifeboat establishment. Legacies had recently been received by the institution from the executors of the following persons: the late Mrs. Ann Thompson, of Blackheath, £82 8s. 1d.; and Newman Smith, Esq., £45.

The institution decided on issuing some new instructions for the restoration of the apparently drowned, based on the combined principles of Dr. Marshall Hall and Dr. H. R. Silvester.

Payments amounting to nearly £1,200 having been made on various establishments, the proceedings terminated.

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#### A REMINISCENCE OF THE CAPE.

A party consisting of Messrs. Sederstrom, Hickey, Parker, Brittain, and others, ascended Table Mountain on Easter Monday, and while engaged in gathering bushes for the purpose of making a fire, pulled up a bush, which dragged to the surface a bottle, with a paper enclosed, and a penny-piece attached to the neck of the bottle. The following interesting particulars are very legibly written on the paper:—

“ On the 25th of February, A.D. 1803, the undermentioned ascended Table Mountain for the fourth and, most probably, for the last time in his life. The colony of the Cape Good Hope still in the hands of the English, but about to be given up to the Batavian troops, who already occupy the interior of the country. It is said they amount to about 2,800 men, and are principally a mixture from the different Continental Powers of Europe. The remains of our army here may be about the same number, the other part having been previously embarked for our possessions in the East Indies, amounting to about 6,000 British troops. The jurisdiction of the colony still remains with the English, and Lieutenant-General Dundas acting Governor. The remains of the British squadron lying in the bay, under the command of Sir Roger Curtis, Bart., Vice-Admiral of the Red, &c., consists of the *Lancaster*, 64 guns, bearing his flag; *Jupiter*, 50; *Tremendous*, 74; *Diomedæ*, 50; *Braare*, 40; *Hindustan*, store ship, 18; and *Penguin*, 18.

“ The *Spyan*, 18 guns, is the only man-of-war the Batavian republic has lying here, their squadron, consisting of three line of battle ships and one frigate, having left this a few days since for India, under the command of Rear-Admiral Dekker. The Batavian Governor-General Jans-en, for this place, arrived on the 23rd of December, 1802, as also General de Mist, a Frenchman, who commands the republic's troops.

“ England is now at peace with the whole world after a nine years' sanguinary war, in which, under God, by the bravery and ability of her seamen alone, she singly and without the assistance of any other power, braved the whole of the maritime nations of Europe combined, obtained victories on that element unparalleled in the annals of history, and now, after expending two hundred and fifty millions on the war, she remains with her commerce immense, her subjects rich, happy, and respected, her foreign territorial possessions vast, particularly in both the Indies; in the East alone eleven millions of the natives acknowledge her sway, and in the West the richest islands call her master; while the British flag is continually to be met with in all parts of the globe, and in every sea, either in pursuit of commerce or exploring the unknown; and, lastly, after founding in the United States of America a mighty nation, she is now (with the philanthropic wish of extending the milder influences of civilised life over the southern hemisphere, so long consigned to barbarism) expending large sums of money on the colony established in the South end of the extensive island of New Holland, now called Port Jackson, which may, although but now in an infant state, become in the revolution of some centuries as great and as powerful an empire as that from which she first received her birth.

“ Reader, whomsoever thou art, or by whatever chance this writing may fall into thy hands, ascribe not to vain motives what I have written in regard to my own country; for what shall its opulence or its victories avail me after a lapse of five or six hundred years? Where then shall the hand be which now traces these lines? What then may be the condition of his nation? Shall it not have felt in its turn with others a decline from a state of grandeur unexampled since the days of ancient Rome? May it not serve as a monitor to show that king-

doms and the life of man have but their time?—and that even at one day or another, as our own immortal bard so sublimely writes, ‘This globe itself shall dissolve, and, like the baseless fabric of a vision, leave not a wreck behind.’

“N.B.—Should this be discovered before the hand of time shall have rendered these characters venerable from antiquity, the writer requests the person into whose hands it may fall that he will continue it, if possible, where first taken from. Nor does any vain motive induce him to write this. The trifle may serve to show the ravages time may make on the fair face of the mountain, and how it may affect writing exposed in such an elevated situation.

“This was buried about a foot and a half under the surface on the top of Table Mountain, inclosed in a quart bottle, closely corked down, and spread over with rosin; a penny piece (copper) of English coin was fastened by some wire round the neck of the bottle, as well as several more scattered about near where my name is engraved on a rock adjoining.

HAYDON.

“Done on board His Majesty’s ship *Braare*, 20th February, 1803.

SAMUEL HAYDON,

E. B.—G. D.—A. J.

N. P. Exeter, Devon.

“The Cape was delivered into the hands of the Batavian republic on the 21st February, 1803.”

The original document and penny piece are in the possession of Mr. Sederstrom.

## IRON SHIPS IN THUNDER STORMS.

1, *India Buildings, Water-street, Liverpool.*

June 10, 1864.

Sir,—On the morning of the 27th of May, 1864, I saw in a remarkable manner the correctness of Sir Snow Harris’ theory regarding the immunity of iron ships from lightning.

It occurred 200 miles S.S.E. of Cape Hatteras. On the preceding evening the wind was blowing fresh from the southward, sky overhead clear, but a heavy bank of clouds extended from S.W. round by the West to N.N.W., from which incessant sheet and forked lightning with occasional peals of thunder burst forth.

Until 3h. a.m., the cloud rose but little; at this hour the wind fell light and veered to West; force 4. This appeared to get the dark mass underway. Slowly it advanced towards the zenith, still sending forth flashes of forked blue lightning. When nearly overhead the wind died away, and I could distinctly hear the heavy patter of the rain on the sea, not far from the ship; for up to this time none had fallen on board. Shortly afterwards the outer edge reached the ship,

and the cloud the zenith, while from it shot the most incessant stream of lightning I have ever seen. The rain drops appeared like countless myriads of fire flies, so incessant were the flashes for the space of a minute that no interval of darkness could be perceived. The port cable was ranged on deck, and an officer in walking forward trod over it. He informed me that he felt a sensation in his legs, as if some one had struck them sharply with the edge of a lath. Simultaneously with the lightning came the loudest peal of thunder I ever heard; it shook the doors violently, and when its effect had passed off the air appeared unnaturally still. In a few minutes the heaviest passed over, but for an hour it played about the eastern horizon.

No damage was done to the ship or spars, nor have I detected any alteration in the compass from its effects.

Yours obediently,

WM. W. KIDDLE.

#### PROPOSED ALTERATION IN THE LOG LINE.

*Port Warden's Office, Montreal, May 13th, 1864.*

Sir,—To insure greater accuracy in determining the distance by the log, I propose that the knot should bear the proportion to 14" instead of the 28"—that is, the knot to be four fathoms instead of eight. I will enumerate the advantages.

1st.—The fathom column on the log slate is easier added, the figures being 1, 2, and 3.

2nd.—Four is a simpler divisor than eight.

3rd.—A mark will never be more than a fathom from the officer's hand; in a dark night he will be less liable to make a mistake, and at all times he has less guess work.

4th. In the present system, using the short glass, any error is doubled.

5th.—Using the plan proposed with the long glass, any error will be halved.

6th.—I know of no disadvantages attending the change.

By giving this publicity in your valuable magazine will oblige

Your most obedient servant,

WM. GRANGE.

*To the Editor of the Nautical Magazine.*

#### FLOATING TELEGRAPH STATIONS.

We have received the prospectus of a company for establishing floating light stations in the entrance of the English Channel and off Cape Race, a project which has the recommendation of performing some portion of the duty of the electric cable.

There is much, in fact we may say, everything about it that addresses itself particularly to nautical classes; and having given it much attention, we consider it as very likely to realize the most sanguine expectations. We say this in our nautical capacity and maritime expe-

rience,—for we believe that vessels may safely ride at anchor in deep water provided that their ground tackle is what it should be.

It appears that the company's ships are to be fitted as complete telegraph stations, that they will be provided with steam power and lanterns for displaying a powerful light. Day and night signals, steam whistles, guns, lifeboats, are also to be on board with stores, water, and provisions for vessels in distress, as well as coals on shore near them, available at a few hours' notice. Steam tenders are to be attached to them for the conveyance of passengers, mails, specie, and merchandise, so that assistance may be rendered to disabled vessels.

We see no really sound reason why all these things may not be done as proposed, and we are satisfied that the important objects of the company will meet with success, thereby establishing another benefit which hereafter will become indispensable and be always maintained.

### Nautical Notices.

#### PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 328.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
23. Syracuse	Massa Point	37° 2-3' N., 16° 16-3' E.	F.	125	8	Est. 15th June, 1864.
Catania	End of Mole	.....	F.	22	2	Est. 15th June, 1864. <i>Red</i> , in lieu of present light.
Soukhoun Point	Black Sea	Circassia	R.	102	..	No particulars given.
24. Cape St Blaize	Africa, South	34° 11-2' S., 22° 9-5' E.	F.	240	10	Est. 15th March, 1864.
25. Lissan El Kalbeh	Karamania	36° 14-5' N., 34° 1-7' E.	F.	49	6	Est. May, 1864. Two vertical lights.
Karadaah Burom	Ditto	36° 32-7' N., 35° 25-3' E.	F.	131	8	Est. 15th May, 1864.
26. Grand Manan Island	Swallow Tail Point	44° 45-9' N., 66° 44-1' W.	F.	130	17	No particulars.
27. Isle Saghalin Dui	Tartary	Not given	F.	373	22	No particulars. (a.)

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

(a.) 27.—It stands on the slope of a hill between Dui and Cape Otsisi on the north and Cape Hoidji on the south, on the coast of Saghalin, in the Gulf of Tartary.

A reef extends N.N.W.  $\frac{1}{2}$  W. distant nearly six cables from Cape Hoidji, it is steep to on the north-west and south, but from the westward the soundings decrease gradually.

#### THE ROUTE FROM CHINA TO AUSTRALIA.

Hamburg, 16th May, 1864.

Dear Sir,—When I returned lately from a three and a half years'



voyage, and had put myself in possession of the *Nautical Magazine* for the years 1861 to 1864, I found in page 385 of the 1862 magazine that Robert L. Hunter misunderstood me entirely, and was surprised that I expected West winds in November. Therefore I beg you to let Captain Hunter and your readers know that I spoke of my voyage up from Sydney to Hongkong.

I left Sydney 16th December, 1861, was under the line 17th January, and arrived, 2nd February, 1862, in Hongkong; which, in page 279, I clearly said, viz.,—"From 10° S. to the line I had nothing but light northerly winds," &c., and not from the line to 10° S., as Captain Hunter wrongly states in page 385.

All sailors know the impossibility of laying down fixed rules for wind and weather, therefore Captain Hunter need not be offended that I did not find the West winds so far East that year as he states them to be; and when I have founded my letter mostly on hearsay opinion, as Captain Hunter says, I beg leave to say and to remind him that many pages of sailing directions, and even Maury's works, are founded greatly on information of whaling officers and their logbooks: from whence I derived mine, and of Captain Pockley of Sydney, who had cruized in this locality for three years.

At the same time I take the opportunity of thanking Captain Hunter for his information in general,—by which I shortened my passage more than a month; and to express my opinion again that I consider the *Nautical* a very useful work, which every shipmaster ought to possess.

Please correct the misprint, in page 115 for the year 1863, of sixty miles' current a day, instead of *ten*, and oblige,

Yours, &c.,

P. A. POLACK.

*To the Editor of the Nautical Magazine.*

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**NOONDAY ROCK.**—As this sunken rock is directly in the track of vessels bound from the islands to San Francisco, the following particulars regarding it, obtained from the captain of the wrecked ship *Noonday*, by our friend B. F. Durham, Esq., will be of service to shipmasters in the Pacific. "The rock bears East by compass from the N.W. Farralone, distant about seven miles, and has no breakers nor any indication of shoal water. The bearings and direction of the rock have been incorrectly reported in some of the papers. This you may depend on." We do not find the depth of water on the rock stated, but a clipper of 1,200 tons generally draws from sixteen to eighteen feet of water, and as the ship simply struck the rock, knocked a hole in the bottom, and passed off on as if nothing had happened, it may be inferred that the rock is merely a spur, which, however, must be a dangerous one to vessels drawing fifteen feet. Its exact locality and extent will probably soon be determined by the U.S. surveying schooners.

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### New Books.

**THE DESIGN AND CONSTRUCTION OF HARBOURS.**—By *Thomas Stevenson, F.R.S.E., &c.* Edinburgh, Adam Black. 1864.

This contribution to the library of the civil engineer may be considered as a series of important facts which should guide him in all his proceedings, for after all in dealing scientifically with any subject, whether in law, physics, or metaphysics, facts are the rule for guidance; like the leading marks for avoiding danger required by seamen, so are facts in science. The object of the engineer, for instance, is full often to coax nature to accede to his views, and if from ignorance of her ways he works diametrically opposite to her laws, she turns on him with all her vengeance, and sweeps away his works, however strong or costly. But that these are not always observed Mr. Stevenson bears witness. On the

“*Efficiency of Back Water Scouring*,” he observes, “there is probably no one subject connected with civil engineering on which there is so great a difference of opinion as that of the efficiency of *back water* in preserving the depth of our tidal rivers (and why not harbours). The profession may indeed be said to be divided into two great classes, one of which places a very high estimate on its value, while the other places reliance almost entirely on the importance of the due regulation of currents. The one preserves with the utmost jealousy every side lake or bay as being the recipients of what they regard as the grand *vis viva* of navigations; and the other are willing to convert indentations, as well as even the wider parts of the estuary, into solid land, by the formation of straight embankments, diverging slightly towards the ocean.”

The broad inference from the foregoing is that safety lies with the former of these two great classes and danger with the latter; that is, when these overstep the line of demarcation which nature has established as that of the preservation of a certain state of things. Follow the measures of either of the above classes to their extreme, the first is safe still, but where is the latter? A volume might be devoted to the subject, and even to enter on it would take us beyond our limits. But we may recommend the last class of our engineers to consult Mr. Stevenson's work.

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**GEOGRAPHY OF THE BRITISH EMPIRE.**—By *W. Lawson, Training College, Durham.* Oliver and Boyd, Edinburgh, 1864.

The author of this little volume of something over 300 pages, has forsaken the old system of geographical instruction and has adopted one entirely new and we think quite reasonable. He has first given a fair account of mathematical and physical geography, in which a great many facts are thrown in the way of a pupil of which he would otherwise know nothing about; secondly, that of the British Islands; and thirdly, that of the colonies. The system is the result of his own experience, and will be approved of; but it would be improved by the addition of a few maps; in fact, without them it is absolutely imperfect, and these would be sufficient even in the form admitted by the size of the work, which is small. We quite approve of the rivers of a country being given collectively in the direction in which they flow, as was done by the Diffusion Society, but a geography without a map is like the account of a voyage without a chart, simply shorn of half its value, an outrage which if from economical motives is verifying an old familiar adage.

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**OCEAN LAYS.** *Selected by the Rev. J. Longmuir, LL.D.* Edinburgh, Johnstone, Hunter, and Co.

A bouquet of poesy filled with choice selections of flowers from the parterre of the Muses is by no means an unwelcome companion. Here it is in its third edition, a tolerable proof that among the Sons of Ocean for whom it is destined there are those who, while ploughing the watery main, to which these lays are dedicated, are partial to the soft effusions of the lyric muse! The selections are apt and grouped in three divisions,—the Sea, the Ship, and the Sailor,—subjects on which abundance of lines of all kinds have been produced by our prolific press, and they have been arranged with becoming views as to order and character. For instance, the “Sea” part opens with the “Creation of the Sea,” followed by numerous pieces on its various natural aspects,—smooth and troubled; the “Ship” is then introduced from her cradle to her wreck after a variety of parts which she has played on the ocean; and then comes the “Sailor,” boy of course as he is at first, full of hopes and fears, passing through all the changes of “life on the ocean” till he becomes old and is consigned perhaps by wreck or may be by age to the home of eternity! There is ample subject for description of all this in the beautiful scraps of poetry to be found among our authors, although we do not see the “Ancient Mariner” among them nor the “Secret of the Sea.” In fact, we suspect that our compiler had some difficulty in his selection, for there is no bouquet of flowers in which there are not one or two that contribute to the superior charms of others by contrasting them with their own want of that quality. We agree with the remarks on the names of ships, and consider the “Ocean Lays” as a pleasant and amusing companion.

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**CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,  
ADMIRALTY, in June, 1864.**

Scotland, West Coast, Treshnish Point to the Entrance of the Sound of Mull, Commander E. Bedford, R.N., 1856 (3s.)

Gibraltar Strait, Gibraltar New Mole, W. H. Bradley, Esq., R.N., 1864 (6d.)

Mediterranean Sea, Ionian Sea, Corfu Harbour, Commander Mansell, R.N., 1863 (1s. 6d.)

Vancouver Island, Nanaimo Harbour, Captain G. H. Richards, R.N., 1862 (2s.)

Alderney Island Pilot, including Burhou, the Caskets, and for the Race, Swinge, and Ortac Channels, by John Richards, Esq., Staff-Commander, R.N., 1864 (1s.)

Persian Gulf Pilot, Commander Constable and Lieutenant Stiffe, I.N., 1864 (5s.)

China Pilot, 4th edition, J. W. King, Esq., Staff-Commander, R.N., 1864 (10s. 6d.)

New Zealand Pilot, 3rd edition, Captain G. H. Richards and F. J. Evans, Esq., Staff-Commander, R.N., 1864 (5s.)

EDWARD DUNSTERVILLE, *Commander, R.N.*

*Hydrographic Office, Admiralty, June 21st, 1864.*

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THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle.

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AUGUST, 1864.

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WANDERERS ON THE OCEAN.

Such is the name—"Wanderers on the Ocean"—by which the change of fashion enables us to designate our old friends, known to the readers of the *Nautical* of old as "Bottle Papers." They come to tell us all they can, where they came from, to whom they belonged, and where they were found. Unfortunately they cannot give us a history of their voyages,—the escapes they have had from birds and sharks, reefs and rocks,—the company they have kept among flying fish, young crabs, or the numerous inhabitants of drifting weeds,—what rough treatment of the winds and waves they have endured, or the perils they have escaped, till at length they have been cast on shore on a civilized or some unfrequented strand; where, in the latter case they lie neglected, or in the former, by luckily meeting the eye of some one passing by, they are secured from further molestation, and finally find their last resting place in the archives of the British Admiralty.

These are the lucky ones of those papers in their brittle prisons, but how many unlucky ones have come to some untimely end from the dangers abovementioned or other perils of the sea. Of the former, in the Atlantic Ocean alone we have laid down 201; and if we consider the latter as ten times that number we shall yet perhaps be short of the quantity that have never re-appeared. Still, as we go on receiving year after year, the bottle experiment may be fairly said to have succeeded. True it is the surface drift, but ships are influenced

by the surface drift, for what is their greatest draft—twenty or twenty-five feet—but a mere dip, which the wave in a gale of wind brings to the surface.

There are those among our readers who have taken a bath occasionally in the still surface of the Atlantic during a calm, and if it were from a boat, will perhaps have observed, as we have, how the ship and the boat have separated during the operation. How is this? Is the ship drifted from the boat or the boat from the ship? Possibly the latter and possibly the former. We remember, in the deep sounding voyage of the *Dolphin*, a case in which the boat, riding by a pitch-kettle sunk some 2,000 fathoms below the surface, was fairly drifted to windward against a light breeze at a rate of about half a mile an hour. This would show the existence of a current at the depth of her kettle, but on the surface how was it setting?

An experiment of this kind in the Strait of Gibraltar would in all probability produce some highly interesting results. The late Admiral Sir Francis Beaufort made some experiments with strips of different coloured bunting secured to the lead line at different depths, and the direction which each of these strips took showed that of the current at the depth at which they were secured to the lead line. We have not met with the result of the experiment, but the depth must have been trifling for the different colours of the bunting to have been visible at the surface. But it would be an experiment still worthy of trial to ascertain how far that current extends below the surface. The greatest known depth in the strait on the chart is over 500 fathoms: let three boats be abreast of each other in the middle of the strait, one to be riding with 50 fathoms, another with 75, and the other with 100 fathoms of line—each with a heavy shot secured to the end of it. If the boats all drifted eastward at the same rate it would show that the current extended 100 fathoms below the surface. Then a fresh experiment might be made from that depth, and the boats have different lengths again, varying to 200. Possibly, some result would thus be gained that would be highly interesting in the subject of currents of the ocean. But we will leave this where it is and return to our bottles.

We now record the results of seven more of these wanderers, and they are those of the following ships:—the *Himalaya*, in 1862; the *Evangeline*, in 1862; the *Wild Pigeon*, in 1861; the *Arachne*, in 1856; the *Agamemnon*, in 1862; the *Curaçoa*, in 1862; and the *Himalaya*, in 1859.

(*hv.*)

A letter dated Queen's Harbour-Master's Office, 6th March, 1863, encloses a bottle paper from the *Himalaya*, on which the following appears:—

H.M.S. *Himalaya*, 1st of September, 1862; lat. 49° 41' N., long. 30° 47' W. Bound to Quebec with wives and children of troops sent out in December,—1110 in number; three births since leaving Cork

on the 28th August. We have experienced strong West and W.S.W. breezes, with heavy West swell. All well.

JOHN THOMPSON, *Master, for Captain.*

This was picked up by John Higgins, A.B. on board the *Mercury*, tender to the Queen's Harbour-Master, between the buoys of the *Asia* and *Melampus*, Plymouth Sound, 4th March, 1863.

J. R. AYLEN, *Queen's Harbour-Master.*

After drifting about eleven hundred miles in an easterly direction before the "westerly breezes," the bottle carrying this paper turns up in Plymouth Sound about six months after it was thrown overboard. But an easterly direction, whether to the northward or southward of it as the wind may be, seems to be the course of all the bottles that have been left by ships in the vicinity of this starting place.

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(hw.)

The *Evangeline* paper comes with the following:—

*St. Croix, Danish West Indies, March 6th, 1864.*

Dear Sir,—On Saturday the 6th ult. a fisherman picked up a bottle, well corked, on the South Side Reef of this island, which was found to contain a small bit of paper, with the following words written on it with pencil:—

June 2nd, 1862, lat. 22° 40' N., long. 23° 30' W. On board the ship *Evangeline*, from Liverpool for Calcutta, out fourteen days. Experienced light easterly winds from 50° N. and densely clouded weather. In company with the *Solferino*, French ship, bound from Havre to Pernambuco. Are blest with a crew of the most *infernally ordinary* old shells that ever trod a plank.

Signed &c., &c., &c.

Having obtained the original of the above from the police station in the town of Christiansted, to which the fisherman carried the bottle, it is enclosed, to add to your bottle papers in your interesting *Nautical Magazine*, a publication which I have from its commencement to January last, inclusive, lately received.

I remain, &c.,

ANDREW LANG.

*Captain Becher, R.N., Hydrographic Office, Admiralty.*

This bottle takes the usual current drift of 2,400 miles, and terminates its voyage at the Virgin Islands. The interval of 641 days gives it a rate of 3.7 miles per day; which, however, is less than that usually accepted.

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(hx.)

Another, with a paper of Messrs. Blunt, of New York, comes from a ship called the *Wild Pigeon*.



*Current Bottle, No. 9.*

This bottle was cast into the ocean from the ship *Wild Pigeon*, P. N. Mayhen, Master, on the 23rd of November, 1861, in lat.  $11^{\circ} 33'$  N., long.  $40^{\circ} 31'$  W. The finder will please fill up the following and return it to Messrs. E. and G. W. Blunt, New York, by the usual mail conveyance; may be sent to the Admiralty, London, or to the Hydrographic Office, Madrid.

Name of the finder,—Charles Rodney, Postman.

Coast of Mayaro, Island of Trinidad, British West India Island, lat.  $10^{\circ} 3'$  and  $10^{\circ} 50'$  N., long.  $61^{\circ} 1'$  and  $62^{\circ} 4'$  W.

Date found,—22nd of February, 1862.

It would seem that this bottle has not been lying long unobserved, for the drift of 1,230 miles which it has undergone in 91 days gives a rate of 13.5 miles per day,—perhaps about the usual rate. It has been an effective bottle.

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(hy.)

The following bottle realizes the well known drift of the Old Bahama Channel, but it has been lying so long unobserved—being found in 1861—that no other result can be obtained from it:—

H.M.S. *Arachne*, April, 1856, lat.  $20^{\circ} 43'$  N., long.  $72^{\circ} 58'$  W.

V. O. INGLEFIELD, *Commander*.

Found on the 30th July, 1861, at Punta di Ganados, Cuba, nine miles from Maternillos Light, situated in lat.  $21^{\circ} 30'$  N., long.  $76^{\circ} 50'$  W. of Greenwich.

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(hz.)

A bottle from the *Agamemnon* seems to have taken an exceptional course.

H.M.S. *Agamemnon*, 9th of August, 1862, lat.  $22^{\circ} 14'$  N., long.  $64^{\circ} 58'$  W. From Halifax bound to Port Royal. Sailed from Halifax, N.S., 23rd July, 1862,

THOMAS HOPE, *Captain*.

GEORGE RAYMOND, *Master*.

Picked up at Norman Pond, eastern part of Virgin Islands, 19th December, 1862.

The route which this bottle has taken would form a curious history. The interval of 132 days, in which was included the hurricane months of the West Indies, would imply a curious tale if it could be revealed. But the general result is a southerly course of about 230 miles. A bottle a short distance N.N.E. of it went to San Salvador, and another East of it went to Andros Island.

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(ia.)

We preserve the account of finding this bottle:—

(Translation.) *Fajardo, September 13th, 1862.*

Sir—The enclosed document from H.B.M.S. *Curacoa*, Captain A. Phillimore, came into my hands to-day. It was found at midday on the 15th August last, in a sealed bottle, on the shore of a small barren island, called the Puerca, between the port of Machos and that of Ensenada Honda, in the territory of the Ceyba.

In accordance with the request contained in the document, I have taken the liberty of addressing you upon the subject, as the surest way of forwarding it to the Secretary of the Admiralty in London.

I have, &c.,

MIGÜEL ANTO. VEVE.

*H.B.M. Consul, Puerto Rico.*

H.M.S. *Curacoa*, 8h. p.m. on the 27th of April, 1862, lat. 12° 2' N., long. 40° 58' W.

A. PHILLIMORE, *Commander.*

*British Consulate, Puerto Rico, 22nd September, 1862.*

Sir,—I have the honour to enclose to you, for the information of the Lords Commissioners of the Admiralty, the translation of a note which I have received from Fajardo, in this island, enclosing a paper thrown overboard at sea from H.M.S. *Curacoa* on the 27th April last, and found in a bottle upon the beach at Fajardo on the 15th August.

I have, &c.,

H. AUGUSTUS COWPER, *Consul.*

*The Secretary of the Admiralty, London.*

The drift of this bottle confirms that of *hz*, Mr. Blunt's, as above, being about 1,500 miles for 110 days, or about 13·5 miles per day, in a direction about W.b.N.½ N., and is satisfactory.

(ib.)

Another bottle from the *Himalaya* says:—

H.M.S. *Himalaya*, Wednesday, 26th of October, 1859, lat. 44° 11' N., long. 23° 1' W. Eight days out from Bermuda. Weather fine. Wind easterly, nearly a calm. H.M. 26th Regiment on board (Cameronians). All well. Three children born since leaving the harbour, yesterday.

JOHN THOMPSON for J. SECCOMBE, *Commander.*

By a letter with it it appears to have been found on the 7th June, 1862, on the East end of Great Inagua, by Charles Johnson, Master of the boat *Amora*, of Inagua.

*Secretanal, Nassau, N.P., 23rd July, 1862.*

Sir,—I have the honour herewith, at the instance of his Excellency

the Governor of this colony, to forward to you the accompanying letter from the Collector of Revenue at Inagua, with the accompanying printed paper from H.M.S. *Himalaya*, found on the East end of Great Inagua, lat. 21° 30' N., long. 73° W., and delivered to him on the 13th June last.

I have, &c.,

C. R. NESBITT, *Colonial Secretary, Bahamas.*

*The Secretary of the Admiralty, London.*

This is another interesting document, showing first the great progress in her voyage made by the *Himalaya*, then the state of affairs on board, then the circumstance of its going to Inagua,—to which it must have found its way by being drifted down towards Tenerife in the calm mentioned, and then, taking the usual westerly course from thence, arrived at Inagua after a voyage of 968 days of wandering on the ocean.

#### WANDERINGS IN JAPAN.

(Continued from page 357.)

The bay of Yeddo is a magnificent sheet of water, extending about twenty-four miles North and South, and containing several very good ports, among which those of Yokohama, Kanagawa, and Yeddo, are often visited by foreign shipping. After passing a numerous group of islands the bay is entered, passing Cape Sousaki on the right, and Cape Sagami on the left. The entrance is nine miles across, but about the middle of it it is narrowed to six miles by a reef. A little further North and off Webster Island, a sand bank stretches off from the eastern shore to a considerable distance, that renders this part very dangerous and the cause of many accidents to shipping. Beyond this the breadth of the bay again increases, and at the head of it, where Yeddo is situated, it is not more than twenty-two miles from East to West. From here it resembles an immense lake, the shores of which are of the most picturesque description. But the principal object of this beautiful panorama is the mountain of Fusi-yama, the mountain unequalled, standing on the West side of the bay, which it towers over majestically at the height of 2,450 feet above the level of the sea. It is an ancient volcano, but for centuries has been extinct; and the irregular sides of it show abundant traces of the revolutions of which it has been the theatre. The inhabitants of the isle are proud of this mountain, the summit of which, according to their legends, is the abode of the superior divinities, which preside over the destinies of the empire: of course pilgrimages are made to it from all parts of the country, some to express their gratitude and others to propitiate the presiding deity.

Yokohama, which stands on the West side of the gulf, derives its

importance entirely from its commerce, which, from the last treaty, has been carried on with the Japanese. As recently as the year 1859 it was one of those insignificant little places on the shore of the gulf the presence of which was scarcely observable, and the name even of which was but little known a few miles away. The ministers of the United States and Great Britain, France, and Holland had considered it prudent to select Kanagawa as the place of residence for their several countrymen. Kanagawa, situated on the Tokaido or high road of Japan, at a short distance from Yeddo, in a safe and commodious little harbour, seems to unite all the qualities for the residence of a new foreign community; but these very qualities were changed to faults by the Japanese government. Princes and all high dignitaries took the road from Kanagawa on going to Yeddo, and the daily contact which would thus occur with the strangers they considered would be productive of quarrels and insults, or, which would be worse, it would lead to a too free intercourse between the Japanese and the strangers. Faithful to the system of isolation so much followed by the Japanese for centuries, the court of Yeddo resolved to keep them from Yeddo, the centre of population, and to establish them in a miserable village without consulting any one, which, distant from the Tokaido, without any importance or resources, would enable the Japanese to exercise over them an easy and complete system of espionage. Some buildings were hastily erected there to serve as dwelling houses, and it was insisted with other conditions of but little importance that the new comers on the 1st of June, 1859, should be established at Kanagawa according to the treaty. The ministers protested against this arbitrary proceeding of the Japanese government; but in waiting for an answer to their protest, it was necessary to lodge the negociators, who had brought with them merchandize of all kinds. They were obliged thus to be provisionally installed at Yokohama. Time passed on, the affair remained undecided, and when at length it was determined to give the strangers the liberty of residing at Kanagawa, they were thoroughly established at Yokohama, and demanded that they should be allowed to remain there. "The anchorage of Yokohama (they said) is worth more than that of Kanagawa." The isolation which they experienced where they were had its real advantages; it granted them personal safety, it protected their effects, and was favourable to the extension of their commerce, for the native merchants, always careful to conceal their relation with strangers, liked better to find them at Yokohama than to be seen in their company at Kanagawa.

Yokohama was thus by the force of circumstances made one of the three residences of the Europeans and Americans, and thanks to their activity this obscure village became in a short time a rich and flourishing town. At present it contains 3,000 or 4,000 inhabitants, all of whom, without exception, obtain their means of living from the foreigners, and who for that reason enjoy an important share in their country's regeneration. The trade of Nagasaki and Hakodadi is not great, consisting principally of articles of export, and if the revenue of Japan is to be augmented, they cannot be initiated into the secret of

European science and industry. At Yokohama, on the contrary, the importations are as varied as they are active, and the Japanese, on receiving the thousand productions of Western industry, are constantly learning, with their ready intelligence, lessons of which they well know how to avail themselves.

The port of Yokohama is most extensive, and would shelter hundreds of ships. To the North and West beautiful wooded hills and a fine cultivated country with villages form its limit, and against the fresh breezes from the South it is sheltered by distant mountains, surrounded by more villages. It is also sheltered from the West, but storms from this quarter are very rare, and up to the present time no disaster among shipping has occurred. The environs of the port present a great variety of picturesque views, in fact nature has been so bountiful of her favours here, that most strangers become attached to Yokohama as if it were their own country.

The town of Yokohama is composed of four distinct parts: the free quarter, the Japanese, the Bentin, and the Yaukiro. The European quarter contains about 250, most of them English; it is divided by five streets, wide, formed by handsome houses, and quite straight. The dwelling houses present a curious conglomeration of Japanese and European art; they are generally commodious, spacious, airy, and provided with verandahs that entirely surround them at the first floor, covered by enormous roofs of black and white tiles, and solidly built to withstand the effects of the hurricanes which sometimes visit the gulf of Yeddo. Earthquakes are also common at Yeddo, causing sad disasters. That for instance which took place in 1855, from which it is said about 200,000 people perished, At Yokohama these events are rare, and they never suffer there from these violent attacks. It is some years since, perhaps 1859 or 1860, many of these houses were furnished after the manner of the country: one might see there mats of bamboo, images, Japanese curiosities, and apartments formed by paper divisions. Now everything of this kind has disappeared. The foreign residents like to be surrounded by moveables which remind them of the West, and nothing is now seen in the arrangements of their dwellings that differs from the appearance of a French or English house.

Between the free quarter and the hills which are beyond it is an extensive plain, where at a considerable expence a race course has been formed. The European community is mostly composed of active young men, who are no friends to quietness and of Eastern heedlessness. Each of them has a horse, some indeed have two or three, and as soon as the sun becomes low and the day's work is over, they jump into the saddle and ride about the environs of Yokohama, whether in a small or a large cavalcade; but always riding fast, and stimulating the steps of their little ponies, with their handsome heads, lean flanks, and rapid pace. With such pursuits a race course was a matter of necessity at Yokohama: it has been two years in existence, and in spring and autumn fêtes are going forward there which amuse every one. Betting is of course the fashion, and thanks to the intelligence

of the English on the different kinds of sport, everything is done there according to the laws of science. The Japanese much admire the boldness and cleverness displayed by us in our equestrian pastimes, and with good grace acknowledge our European superiority in these matters. They make use of very clumsy saddles, which fatigue both the horse and rider, and their habit is not to go faster than a walk. Still there are some good horsemen among them, as I have remarked in my excursions from Yeddo, where, like all other foreigners, I was frequently escorted by a dozen Japanese on horseback.

Near the race course, but beyond the canal which surrounds Yokohama, is the foreigners' cemetery, at the foot of the hills, in a little quiet secluded valley. The most of those who lie there, far from their friends, died young,—at the age of twenty, twenty-two, and twenty-six years. There is no tomb there of wife and child, and only one aged person lies there, the unfortunate Captain Decker, who was massacred in the streets of Yokohama. The other Europeans are placed around him, all of whom have met with a violent death. The number is large, even excessive. There is first the graves of two Russian officers, assassinated in broad daylight, while walking the streets of Yokohama. The ornament which marks their grave is the handsomest of the whole cemetery, and has cost a large sum, the expence of which the Japanese government have been compelled to pay. The next is the more modest tomb of a servant of the French consul, stabbed with a dagger before the house of an English merchant. A large stone covers the collected remains of Captains Voss and Decker, cut to pieces in the great street of Yokohama. Another stone marks the place where lie the remains of two English seamen, who were traitorously murdered while on guard for the safety of the British legation at Yeddo. A madman, who killed himself after having consummated a crime, and died in the room of Colonel Neale, English chargé d'affaires. The last victim of the hatred which the patriotic party have for foreigners, is Mr. Lenox Richardson. His death excited the solicitude of the English government, and has been atoned for by the payment of a large sum of money.

After having visited this cemetery, where the short and melancholy history of our relations with Japan is chronicled, one cannot be surprised at the custom generally adopted by foreigners of carrying a revolver about them. In the daytime, even, one does not consider it safe to be much away from the European quarter without being armed, and in the evening one never goes out but with a revolver in hand. I have witnessed the day when none of us were without those important accompaniments, even at table; and many persons now, even, are not satisfied on retiring to rest without having taken the precaution of slipping a pistol under their pillows. This characteristic trait of our relations with the natives is explained by the complete revolution which our presence has produced in Japanese policy. A powerful party, rich and numerous—the patriotic party, in fact—is the avowed enemy of foreigners, and in order to be rid of them have recourse to the most violent measures.

Foreigners are by no means solitary sufferers from this state of things. On all sides acts of violence are spoken of—suicides and murders. We can remember the assassination of the Regent,—the attempt on the life of the Prime Minister Ando,—the tragic death of the Prince of Mito,—the suicides of the Governor Hori and the Ambassadors of the Tycoon, after the Mikado. Such facts prove that at the present time Japan has arrived at a painful crisis, an epoch of trouble and disorder. Every one suffers from it, and foreigners—the involuntary but immediate cause of the present revolution—must have their share in the midst of dangers always occurring, the common lot of all those who live in the empire of the Mikado.

The Japanese themselves express no surprise that none of us leave our dwellings without being armed, and more than once I have seen a domestic hand to his master the revolver which he had forgotten to take with him, as he would carry his cane or umbrella. A weapon of some kind is the usual finish to the costume of many of the Japanese, and there is nothing considered extraordinary in adopting the fashion, and we substitute the revolver for the sword, which is the favourite of the natives. So far is it from being considered offensive or threatening that they look on it as an act of precaution, or rather as a habit of western nations, and in their eyes it is less strange as it is always done openly.

The Japanese are so accustomed to see us do things that to them seem strange or useless, that they have come to the conclusion to consider it natural that we should do what we like. We may suppose that they consider us as very extraordinary beings at home, whom nothing would surprise. It is a common bit of pleasantry with us to do all kinds of eccentricities in their presence, but nothing obtains a smile from them. We see them sometimes thinking how to account for something new that they observe, but as they are unable to discover it they generally prefer letting it pass, as they have commonly done with others. One of my friends told me once that he would pay me a visit mounted on a cow, which should be harnessed with saddle and bridle like a horse. He had ridden through the whole town on the animal and had only excited the laughter of the foreigners whom he met: the natives had seen him pass without paying the slightest attention to him.

As I have spoken of the *kotzkoi*, who holds the place of the Chinese boy, I have yet to allude to the *comprador*, the *betto*, the *momba*, and the *simdo*,—persons who generally form the domestic establishment of a foreign merchant. The *comprador*, the principal of these persons, is the confidential man of the house. He fills the office of a superintendent—the steward, in fact. He has the keys of everything, he regulates the accounts, attends all the markets, and his opinion has great weight in all matters. He is mostly a Chinese: speaking and writing English, and knowing sufficient of Japanese to be able to treat with the natives without the assistance of an interpreter. Most of the *compradors* are as clever as they are honest, and they are quite *à fait* as to the articles to be purchased.

The *kotskoi* is a kind of *valet de chambre*. He is neither so clever nor so well dressed as the Chinese boy, but he has an amount of zeal and good will for his master, and a very sincere attachment for him. The *betto* or groom is generally a young man, who always accompanies his master out of doors. He has constantly occasion to be near him, to be occupied about him in small services, and he is generally treated with indulgence and some familiarity. He is careful of his master's horse; but the quality most appreciated in him is being a good runner. Wherever his master goes and whatever journey he undertakes, the duty of the *betto* is to precede him on foot—to be, in fact, at the horse's head. If the journey is long he generally catches hold of the saddle to assist him when he takes longer strides; but it is only in cases of great fatigue that he does this, and generally displays an amazing vigour. But he is not an amiable subject; he loves drink and play, and is quarrelsome among his companions. All the *bettoes* of the same town form a society, the chief of which exacts from each a tolerably large sum, on the condition of providing them with food and lodging when out of place, and this contributes to make them very independent domestics.

The *momba* (guard) sleeps during the day and walks during the night in the *hong*—the walled enclosure which contains the dwelling-house and storehouses—to keep improper persons away. He carries about two pieces of a hard wood, which he beats against each other; and this noise, constantly going on, is an assurance to his master, if by chance he is awake, that the guard is at his post. The *scindos*, or watermen, are only kept by large houses of merchants, or by consuls or foreign ministers, who are obliged to have boats ready for any business on which they may require their use. These men are faithful, robust, indefatigable workmen, and, when required, are good pilots; their wages, like those of other domestics, vary from two or three to fifteen or twenty shillings the month, with which they find themselves in everything.

Among the Japanese the custom is for masters to provide their servants with most of what they require: they even provide them with tobacco. Still, the whole wages are nothing like what are paid to European servants. A good Japanese servant does not receive more than twenty-five or thirty shillings the year; a common servant less.

There are few Europeans in Japan who are not surrounded by a little crowd of servants, which consists of a *kotskoi*, a *betto*, and a *momba*, who are to be found in the smallest of establishments. Thus the master, whoever he is, soon assumes the air of a commander and, before the natives especially, adopts the grand signor, a trait of character which is common among the residents of distant colonies. In fact it is a habit which degenerates into a ridiculous hauteur, and even to brutality. But the generality of Japanese domestics have nothing to complain of in the houses of their European masters, and even prefer them to being in the service of their countrymen.

Foreigners at Yokohama form a society of themselves, nearly all



consisting of young persons. This society is not without the failings of young men, nor yet without their good qualities. If it is a little quick and headstrong, it is generous and brave, and as far as it goes is excusable. I have resided for a whole year at Yokohama, and have received from every one a cordial welcome, and I protest against the severe and ill founded opinion which travellers have formed of the feeling of the foreign society of this place. This feeling is neither bad nor corrupt; it is simply that of a society scarcely formed or developed, and which wants the experience of maturer years. One finds recklessness there, but along with amiable and obliging manners, and more than this, an energy which contrasts favourably with the carelessness and *nonchalance* of tropical regions. At Yokohama every one is ready to work, to be amused, or to complain. It is there that plenty of money is made; parties of pleasure are plentiful, and there are factious divisions of society, the quarrels of which are incessantly renewed and canvassed by the journals of the place in language which would appear strange in Europe, but is highly interesting to the disinterested spectator.

The Japanese town of Yokohama, which since it became a city in June, 1859, has been twice burnt from end to end, is separated from the European town by a large causeway. It is composed of three large streets parallel to the shore and several others crossing them at right angles, and thus forming a number of blocks or masses of houses. Each of these blocks is separated at night from those adjacent to it by strong wooden gratings, from which the police are on the watch. This prudent measure has been adopted since the assassination of Messrs. Vos and Decker, the murderers of whom have not yet been discovered, although the crime was committed in the great street of Yokohama about an hour after sunset. Since the formation of these police stations no fresh crime has been committed in the town.

The Japanese, as well as the foreign part of the city, has also had a canal cut round it, which can only be crossed at points guarded by soldiers. No person, therefore, can enter or leave Yokohama without being subject to questions, which when applied to a Japanese bearing arms are very searching. He is obliged to state where he is from, what business brought him to Yokohama, what part of the town he lives in, when he returns, and he is not allowed to go freely about the town without having a small piece of wood to serve as a passport, and which he is obliged to carry in his hand or to fix on the guard of his sword. Thus Yokohama is entirely isolated from the rest of the empire; the government of the tycoon exercises a complete and easy surveillance, and it is not without reason that, in reference to the old Dutch colony, it has been surnamed the Decima of Yeddo.

The greater part of the Japanese houses are slender wooden constructions, and nearly all change into bazaars. It is here that the beautiful lacquered wood carvings and ivory and bronze figures are seen exposed on stalls, and which have made so much impression in Europe and gained so much reputation for the industry and skill of the Japanese. These people are first-rate shopkeepers, inasmuch as

they generally triumph over the patience of European purchasers. They often make unconscionable demands, and as time to them is of no importance they persist in their demands for hours, even for days, being to all appearance quite indifferent and caring nothing about the sale of anything. Their theory of business is very simple—to sell as dearly as possible; they are not satisfied with a reasonable profit. Our merchants, however they may be exasperated, who trade on good honest principles, have good reason to complain of having to deal with persons who are both faithless and uninformed of their business. But this is partly explained by the fact of the position which merchants occupy in Japanese society. They belong to a most degraded class, and one must not expect to find among them any good principle or any of those extended and liberal views in which the great commerce of the West takes so much to its glorification. And yet, notwithstanding the difficulties and drawbacks which the government of the tycoon throws in the way of the freedom of trade between his subjects and Europeans, the commerce of Yokohama is rapidly increasing and has become very considerable. In the course of one year there has been exported four millions sterling of silk, and with the incalculable resources of Japan it is probable that this amount will go on increasing for many years to come.

Twenty-one Japanese provinces, forming part of Nippon, produce silk. They are situated between 30° and 41° N. lat. and 137° and 143° E. long. The richest in the article of silk is that of Ossio, in 36° to 41° lat. and 141° to 143° E., with an area of about 2,500 square miles. The entire produce of twenty-one provinces amounts to a quantity more than double the produce of France, and equal to that of Italy and Spain together. The principal collection of silks is at Kioto, the residence of the mikado. This town is situated at a small distance from Osakka, a large commercial town, which, according to accounts, should be accessible to foreigners, but the opening of which has been delayed for several years. Since the opening of the port of Yokohama (1859) the price of silk has been doubled, and the total produce has increased about twenty-five per cent., or one-fourth.

Besides silk, Japan exports other articles:—tea, copper, birds' nests (*algues marina*), vegetable wax, raw cotton, camphor, charcoal, iron, saltpetre, verdigris, curiosities, porcelain, oil, dried fish, root of ginseng, and other eatables. Of all these articles, tea alone deserves special notice. It is of good quality and is becoming much appreciated in America; in Europe it is considered as having too much scent. Their imports are of less interest than their exports. The Japanese, however, like certain productions of British manufacture, and have lately purchased large quantities of zinc. They have also bought firearms and several steamers; but these articles—to which others of secondary importance might be added, watches, optical instruments, books, charts, prints—are not sufficient to establish a balance between the exports and imports. They must receive large sums of money for their silk, and the teas of Japan go to London, Lyons, and New York;

As in China, the Mexican dollar is current at Yokohama; but the native merchants reckon by itzbués, a little silver coin value about the third of a dollar, but in consequence of the very defective system of exchange one is obliged to pay much dearer for it. Instead of having 300 itzbués for 100 dollars, one generally has from 210 to 240.

The third quarter of Yokohama, the Benten, already of itself nearly forms a village apart. It is at the North end of the town, and obtains its name from a venerated temple called Benten-sama-no-mia. It is peopled by artisans and fishermen, without including a multitude of monks who do duty in the temple of the goddess Benten-sama. This idol undertakes frequent journeys across the province, in order to receive the homage of the faithful. When she returns to her temple the madzouris, those solemn feasts, are celebrated at Benten. On these occasions the entire village is transformed into a complete fair, at which attend the various wrestlers, the theatres, the curious animals, mountebanks, and the rest. Benten contains but one single European dwelling, the residence of the Dutch consul. In 1862 this was the largest and handsomest residence of all Yokohama.

The Yaukiro, the quarter of the town containing the tea-houses, has been banished to the exterior of Yokohama, where it now occupies the site a marsh which has been drained at a great expense. A narrow embankment leads to it, the two ends of which are guarded by soldiers. The Yaukiro has been, in the course of a few years, twice destroyed by fire, but it contains at present the handsomest houses to be found in Yokohama. It forms the residence of nine hundred young women, singers, dancers, and attendants, who have a right to stay there by the day, the week, or the month. When a Japanese gives a grand feast it is customary to have a certain number of them, whose business it is to play, dance, and sing. The Yaukiro is of European origin. It was instituted on the formal demand of a foreign consul, who hoped thus to put an end to the bloody feuds which took place between the Japanese and European sailors, and were once common in the streets of Yokohama. Scarcely was the Yaukiro finished when the proprietor hastened to make its opening publicly known. One morning every foreigner, the consuls first, received a little packet containing a porcelain saucer, a paper fan, and a band of blue cloth. On the saucer was written, in Japanese letters and also in Latin, the word Yaukiro; the fan disclosed the drawing of a bird flying from this establishment; and on the band appeared, in English words, "This place is designed for the pleasure of foreigners."

Japan is a strange country, and even Europeans who live there some time cannot conform to its peculiar customs. The invitation took, and many availed themselves of it. One night there was a grand *fete* at the Yaukiro, which lasted the whole night long. The whole establishment, formed of some forty of the party of lodgers, was magnificently illuminated with large lanterns of coloured paper. In the handsomest room of the principal house a long table was laid out, and supplied with every delicacy which the Japanese *cuisine* could furnish. Here were seated the distinguished foreigners at Yokohama, smoking, drink-

ing, eating, and laughing, listening to the noisy concert proceeding from about twenty singers, enjoying the dancing, and waited on by women dressed in their richest attire, performing with silent punctiliousness the orders which they received from their own chief, who gracefully presided at the head of the table and gave forth her orders with all propriety. The several servants remained about the doors, looking for orders from their own masters and passing observations on the strange scene at which they were allowed to assist. In the vestibule were assembled the watermen, grooms, and palanquin-bearers; some crouched around a brasero, and under the influence of the sakki which had been largely bestowed upon them, were keeping up a noisy, rapid, and laughing conversation. Paper lanterns, suspended from long poles in all directions, and decorated with the arms of their proprietors, contributed a glorious light and added to the hilarity of the company.

The day had succeeded the night (to use a phrase) when we quitted this noisy quarter and, crossing the Japanese town, found all deserted at the early hour at which we arrived at the port. We observed the European ships with their dark hulls as they lay at their anchors, the tall masts peering into the gray sky reminding us of our distant homes.

A few weeks' voyage along the coasts of Japan served but to remind us of the scenes we had witnessed on her shores. As we began to lose the old oriental civilization of which we had seen such strange specimens as the Yaukiro in Yokohama, we thought of the revolution which, sooner or later, Japanese society must undergo, and which the western nations, if happily they may perceive it, are destined in the hands of Providence to bring about.

#### THE "LION'S" HURRICANE OF MARCH, 1864.

Extract from the log of the ship *Lion*, of London, from Falmouth to Rangoon, Charles Gribble, Master, 1864: from the southern tropic to the equator, in the Indian Ocean, commencing—

*Wednesday, March 2nd.*—At noon, lat. obs.  $24^{\circ} 44'$ ; long. by chron.  $75^{\circ} 48'$ ;  $\odot \ll 75^{\circ} 43'$ ; bar. 29.65 in.; ther.  $79^{\circ}$  P.M.—Steady fresh breezes at E.N.E., with fine weather. All sail set. We had a great dampness in the atmosphere, the paint work in the shade becoming quite wet. immediately after noon, the wind continuing steady, with clear weather, throughout. Bar. at 6h., 29.57; 12h., 29.60.

*Thursday, 3rd.*—A.M.—Steady fresh breeze at E.b.N., with clear weather, throughout. All sail set. Bar. 6h., 29.60; 29.57; ther.  $80^{\circ}$ . Noon.—Steady breeze E.b.N., with clear weather. Lat. obs.  $21^{\circ} 55'$ ; long. chron.  $74^{\circ} 53'$ ;  $\odot \ll 74^{\circ} 42' 15''$ . P.M.—Fresh breeze at E.b.S., with clear sky; we had a great dampness in the shade, as

yesterday. Bar. 6h. 29·57. Midnight.—Fresh Trade, with a squally appearance.

*Friday, 4th.*—A.M.—Brisk Trade, hauling to the S.E., with passing clouds; in royals; bar. 4h., 29·50; 8h., 29·52; 29·47; ther. 82°. Noon.—Brisk Trade, with passing clouds; wind S.E.b.E.; lat. obs. 19° 32'; long. chron. 75° 33'. P.M.—Strong Trade, increasing; in top-gallant sails. A great monsoon in the air, for days past the paint-work and decks in the shade being quite wet immediately after noon. Sunset.—More moderate; out topgallant sails. Bar. 6h., 29·43; 29·40. Midnight.—Steady brisk Trade, with passing clouds; wind S.E.b.E.

*Saturday, 5th.*—A.M.—Strong Trade from E.N.E. to East, with passing clouds. Daybreak.—Squally; in topgallant sails. At 8h. sharp squalls; in cross-jack, main-course, and jib. Bar. 6h., 29·35; 8h., 29·40; 29·33; ther. 83°. Noon.—Strong Trade at E.N.E., with squally unsettled weather; shortened and made sail as requisite. Lat. obs. 16° 44'; long. chron. 76° 25'. P.M.—Steady increasing breeze from S.E.b.E., with gloomy, cloudy, unsettled weather and a confused sea from the N.E., the barometer falling and considerable moisture in the atmosphere. At 1h. in first reef of topsails. At 3h. increasing gale, with a dark, cloudy, overcast sky, with a heavy confused sea from the N.E. Stowed upper topsails and sent down royal yards, and made all secure for an approaching hurricane. At 4h. handed fore course; gale increasing; wind steady at S.E.b.E., with increasing and confused sea.

At 6h., supposing a hurricane to be in a N.E. direction and travelling to the West or S.W., in lower mizen topsail and wore ship to the S.S.W.; gale increasing; handed fore topsail. At 7h. wind coming in heavy gusts, with thick, gloomy, overcast sky and spitting rain; clewed up main topsail and set main trysail. In clewing up main topsail it split to shreds—although well girt with spilling lines, but managed to secure the rags to the yard.

At 8h. hard gale at S.E.b.E., with dark, gloomy, overcast sky; wind blowing in fearful gusts, with small rain, the sea running from the eastward; ship heading up to S.b.W. Midnight.—Same weather, wind veering to the southward, ship having headed off gradually to S.W.b.S., with a heavy confused sea from the eastward.

Bar.: 1h. 29·30; 2h. 29·25; 3h. 29·24; 4h. 29·22; 5h. 29·20; 6h. 29·21; 7h. 29·20; 8h. 29·20; 9h. 29·17; 12h. 29·17. The lowest reading of the ship's bar. 29·67 at 11h.

*Sunday, 6th.*—A.M.—Hard gales, with a gloomy, murky, overcast sky, with violent squalls and showers of rain; wind S.b.E., hauling gradually to S.S.W., ship heading off to West, with occasional heavy showers of rain,—the air having become so dry that immediately the showers ceased the decks dried up. At 4h. same weather, with a furious sea from the S.E.; ship heading West.

At 5h. 30m., supposing the centre of hurricane to have passed to the S.E. of ship, wore off to the N.E.b.N.; set the fore course and lower fore topsail, and bent new main topsail and set it. At 7h. set

single reefed fore and main upper topsails. Here I cannot help expressing my opinion on the good results of having double topsails, above all other patents, they being so easily handled in stormy weather. At 8h. hard squalls, with heavy showers of rain; wind hauling W.S.W., stood off E.N.E. Noon.—Strong gale and squally; wind West, the sky breaking out to the N.W. and over head; lat. obs.  $16^{\circ}$ ; long. chron.  $76^{\circ} 51'$ .

Bar.: 1h. 29-13; 2h. 29-13; 3h. 29-13; 4h. 29-15; 8h. 29-23; 9h. 29-26; 10h. 29-27; 11h. 29-27; noon 29-25; ther.  $81^{\circ}$ .

P.M.—Continued strong gale, hauling to W.N.W., and squally, with many showers of rain; sky clearing by the northern board and settling down to the South and S.W.; a heavy confused cross sea running. At sunset, gale moderating off and sea going down; made all plain sail. At 8h. strong breeze from N.W., with a heavy sky and passing clouds. Midnight.—Steady from N.W., with fine weather; sea subsided.

Bar.: 1h. 29-23; 4h. 29-25; 5h. 29-27; 6h. 29-30; 8h. 29-35; 10h. 29-40; 12h. 29-40.

*Monday, 7th.*—A.M.—Steady fresh breeze at N.W., with fine weather; all plain sail set. At 5h. saw the moon beautifully clear, it being in perigee, alt.  $7^{\circ} 20'$ , dec.  $6^{\circ} 40' S.$ , and in its last day. At daylight set fore top and lower studding sails, and sent up royal yards; altered the course to N.E.  $\frac{1}{4}$  E. Noon.—Steady N.W. breeze, with fine weather; all sail set; lat. obs.  $18^{\circ} 30'$ ; long. chron.  $79^{\circ} 30'$ .

Bar.: 2h. 29-37; 6h. 29-40; noon 29-42; ther.  $78^{\circ}$ .

P.M.—Fresh N.W. winds and squally, with showers of rain; in studding sails, and shortened and made sail as requisite. At sunset, steady breeze, with fine weather. Midnight.—Light breeze at N.W.b.N., with a clear sky, a heavy dew falling.

Bar.: 4h. 29-37; 6h. 29-40; 8h. 29-45; 12h. 29-45.

*Tuesday, 8th.*—A.M.—Light W.N.W. breeze, inclining to calm, with clear weather. Daylight.—Increasing breeze. Noon.—Short N.N.W. breeze, with fine weather; lat. obs.  $11^{\circ} 47'$ ; long. chron.  $80^{\circ} 58'$ ; a set to W.b.S. 24 miles. Bar.: 6h. 29-47; 29-45; ther.  $82^{\circ}$ .

P.M.—Light N.W. airs, with fine weather. Midnight.—Calm and clear. Bar.: 6h. 29-50; 12h. 29-50.

*Wednesday, 9th.*—A.M.—Calm and clear. At 9h. 30m. a light air sprang up from the S.W. Noon.—Light S.W. airs, with fine weather; lat. obs.  $10^{\circ} 53'$ ; long. chron.  $81^{\circ} 54'$ ; set eastward 22 miles. Bar.: 6h. 29-47; 8h. 29-52; noon 29-48; ther.  $84^{\circ}$ .

P.M.—Light airs, with fine weather. Midnight.—Light S.S.W. breeze and fine. Bar.: 6h. 29-40; 12h. 29-48.

*Thursday, 10th.*—A.M.—Light southerly airs, with fine weather. Daylight.—Cloudy and showery. Noon.—Moderate S.W. wind, with cloudy, showery weather; lat. obs.  $9^{\circ} 14'$ ; long. chron.  $82^{\circ} 8'$ . Bar.: 6h. 29-52; noon 29-50; ther.  $83^{\circ}$ .

P.M.—Moderate and variable South and S.W. winds, and cloudy. Midnight.—Steady light S.W. breeze and fine. Bar.: 6h. 29-45; 12h. 29-50.

*Friday, 11th.*—A.M.—Light, variable South and S.E. winds, and cloudy, with passing showers. Noon.—Same weather; lat. obs.  $7^{\circ} 21'$ ; long. chron.  $81^{\circ} 55'$ . Bar.: 6h. 29.48; noon 29.48; ther.  $84^{\circ}$ .

P.M.—Light, variable south-easterly airs and showery. Sunset.—Light airs, inclining to calm. At 8h. wind variable, northerly, and squally; tacked ship to the eastward; much lightning and thunder, with heavy showers of rain. Midnight.—Moderate N.W. breeze and fine. Bar.: 6h. 29.48; 12h. 29.45.

*Saturday, 12th.*—A.M.—Light north-westerly winds, with fine weather. Daylight.—Squally. Noon.—Steady breeze N.W.b.W., with fine weather; lat. obs.  $5^{\circ} 51'$ ; long. chron.  $82^{\circ} 30'$ ;  $\odot$   $\ll$   $82^{\circ} 28'$ . Bar.: 6h. 29.45; noon 29.40; ther.  $84^{\circ}$ .

P.M.—Moderate N.W. winds, with fine weather. At 8h. squally, with showers of rain, lightning and thunder to the N.W. Midnight.—Light, variable north-westerly winds and fine. Bar., 12h. 29.45.

*Sunday, 13th.*—A.M.—Light, variable north-westerly winds, with passing clouds and occasional lightning to the N.W. Daybreak.—Same weather. Noon.—Light, variable north-westerly winds, and showery; lat. obs.  $4^{\circ} 37'$ ; long. chron.  $83^{\circ} 16'$ . Bar.: 6h. 29.45; noon 29.48; ther.  $84^{\circ}$ .

P.M.—Light, variable north-westerly winds and squally, with showers of rain. Sunset.—Same weather. Midnight.—Light N.W. airs and clear. Bar., 12h. 29.40.

*Monday, 14th.*—A.M.—Light, variable north-westerly winds, with fine weather. Noon.—Squally, with passing showers of rain; lat. obs.  $3^{\circ} 38'$ ; long. chron.  $84^{\circ} 12'$ ; a set eastward 30 miles. Bar. 29.40; ther.  $84^{\circ}$ .

P.M.—Light, variable north-westerly airs and showery. Midnight.—Light airs and fine. Bar., 12h. 29.40.

*Tuesday, 15th.*—A.M.—Light, variable north-westerly airs and showery throughout. Noon.—Light airs and calms, with heavy showers of rain; lat. acc.  $2^{\circ} 19'$ ; long. chron.  $85^{\circ} 32'$ ; set eastward 14 miles. Bar. 29.42; ther.  $85^{\circ}$ .

P.M.—Squally, with variable north-westerly winds and a cloudy, unsettled sky. Midnight.—Calm and clear.

*Wednesday, 16th.*—A.M.—Light westerly airs, inclining to calm, with clear weather. Noon.—Light S.W. winds, with fine weather; lat. obs.  $1^{\circ} 21'$ ; long. chron.  $85^{\circ} 14'$ ; set westward 18 miles. Bar. 29.45; 29.44; ther.  $85^{\circ}$ .

P.M.—Light south-westerly airs, with fine weather. Midnight.—Same wind and weather. Bar. 29.45.

*Thursday, 17th.*—A.M.—Light W.S.W. airs and cloudy. Daylight.—Variable, light South and S.W. airs. Noon.—Same weather, with passing showers; lat. obs.  $14' S.$ ; long. chron.  $85^{\circ} 10' E.$  Bar. 29.42; ther.  $86^{\circ}$ .

P.M.—Light, variable winds from S.b.W. to North, with cloudy, showery weather. Midnight.—Same weather, round S.W.; lat. acc.  $40' N.$  Bar.: 12h. 29.50

CHARLES GRIBBLE, *Master.*

*Note.*—The readings of barometer are by an aneroid I have had some years, which I compared carefully by standard for some weeks before leaving London. It agreed with the ship's in Falmouth, but only on one occasion since, in high southern latitude, with steady southerly wind. Throughout the tropics it has ranged about  $\frac{1.0}{100}$  below ship's, a much greater difference than I have ever noticed on any former voyage.

*April 3rd.*—At 9h. a.m. anchored off Rangoon light, that added for error of chronometer 14 miles.

[The *Lion* did well by keeping on the North side of this hurricane, by which she secured her fair wind and made a good run.—ED.]

### MAPS AND THEIR CONSTRUCTION.

(Continued from page 130.)

Whether the earth is a perfect sphere—as was supposed by the ancients, or an ellipsoid revolving on its axis—as admitted by astronomers of the last century, or an ellipsoid of three unequal axes—according to the theory suggested by late observations,—it is not the less certain that it is impossible to represent faithfully on a plane any extensive portion of its surface. The curvature of that surface does not admit of the real distance between places far from each other being correctly shown on a plane. The form or extent of countries is necessarily altered on geographical maps. Geometricians have invented an infinity of methods to remedy this defect, and have traced curved lines on maps with this view; all of which methods, however, have their disadvantages as well as their advantages.

Thus, for the planisphere especially, the orographic projection invented by Hipparchus is employed; who reduced thereby the borders of the map and enlarged those of the middle. It is seldom adopted by geographers, although it represents the spherical surface of the globe with rather a winning veracity. Then there is the stereographic projection, no less ancient and in general use in these days, which produces a misrepresentation precisely the contrary; and the homolographic projection invented by the geometrician Mollweide, and which has obtained a well merited patronage of late years, for it includes in the interior of an ellipse the whole of the sphere, which was formerly separated in two circles of a map of the world. This last method preserves, it is true, the relative extent of the parts of the globe; but on the borders of the map there is an evident deformity, to which the eye does not easily accustom itself. The tracing of the curves on maps is a question purely theoretic, interesting especially to mathematicians.

The proper course is to choose for each region of the globe that projection which least alters its form and dimensions. For the map of the world it is of little consequence that the polar regions are not shown in their true proportions, provided that the torrid and temperate zones are faithfully represented. For maps of small extent, a mode of



projection favourable to France and England might not be so to Russia. Thus, the Depot de la Guerre of France, for the large map of that country, has now chosen a particular projection which cannot be appropriated to limited countries without some modifications.

Whatever may be the kind of projection adopted the lines of the draft have to represent meridians and parallels, which divide the surface into quadrilateral portions by curved or other lines, between which the whole character and feature of the country is to be displayed. These details must be proportioned to the dimensions of the map. But in principle all the places should be found on large maps, and small maps, which are but a reduction of them, can only preserve such details as will avoid confusion. Large scale maps are therefore the most correct pictures of geography, and representations of the territories which we inhabit.

At the commencement of the present century the Emperor Napoleon, the first who attached the importance to topography which it deserves, on account of its value to military operations, determined on having a map of all France constructed on a large scale. He intended that the surface of the country should be as faithfully represented as the plan of a garden, and with the most rigid accuracy that astronomical observations could attain. The only large map then extant was Cassini's, a remarkable work for details at the time it was executed, but which details were in a great measure obtained from ancient plans of very dubious authority, and therefore untrustworthy, although very fair on the whole,—but it was very imperfect in the lines of *roads*. But the method had been established at this period of good topographical drawings. There was a corps of geographical engineers attached to the army in the field, for making plans in countries little known where war was going on. During peace these officers could be employed in works of the same nature, affording from their experience all the accuracy required. This project, originating thus from the course of political events, was deferred until 1817, at which time the French government, desirous of encouraging such works, confided the consideration of the whole subject to a commission, at the head of which was the celebrated savan La Place. It was composed of fourteen members from different branches of the public service interested in such matters, relating to the topography of the country; and it was decided that the new map should be constructed without any assistance from any old works, all of which were of doubtful authority. The plans which had been made in any part of the country since 1808, could only be used as slightly contributing towards the topography of a few places, and obtaining a fresh plan of the ground. The great trigonometrical scheme had for its base the meridian measured by De Lambre and Mechain, between Dunkerque and Barcelona; from which triangles were thrown off in every direction for the principal triangulation, and this was done with the most perfect instruments. From this first work a secondary triangulation was carried on with smaller instruments, forming lesser triangles, which would again become the sources of smaller triangles of a third order, and from these the topo-

graphical features would be introduced. Thus each part of the work had its own calculations, and each had an amount of exactness proportioned to its importance in the whole scheme in regard to others depending on it. In fact, the map of a whole country should constitute one grand work.

The operations for forming this map of France were commenced in 1818, and have been going on until the present time, at first by civilian geographical engineers only, but in 1831 these were joined by the officers of the army. The great triangulation was concluded in 1845, after twenty-seven years of laborious occupation. The topographical part would be complete now if since 1860 it had not been necessary to include the three annexed departments. The first engraved sheets appeared in 1833, and the last will not be published for seven or eight years, and thus more than fifty years were required to construct the map of France, although often as many as eighty officers have been employed on it.

The most important and the most delicate operation in the construction of the map of a country is the main triangulation, one of the objects of which is to link together the most remote parts of it. We have said above that to perform this we commence from a base measured on the surface of the ground and proceed, triangle by triangle, measuring the angles only to the furthest part of the country, where a new base is measured for the purpose of verifying the correctness of the whole operations. This mode of proceeding rests on the principle that the remaining sides of a triangle may be computed when one side and two angles are known. The sum of the angles of a triangle being  $180^\circ$ , two angles need only be measured to obtain the third; but in the net work of a large triangulation the habit is acquired of measuring the third angle of each triangle, with the view of making a first verification, from which the general correctness of the operations may be inferred. A geodetical work requires the measurements of the bases and the angles, but we will endeavour to show that these operations are not so easy as they might appear:

The correctness of the whole work depends on the exact manner in which the base has been measured, this base being the only distance measured direct. For the measurement on which the French meridian depends, Delambre and Mechain made use of four platinum rods, which are still preserved as standards at the Bureau des Longitudes as a means of comparison with similar rods employed in any future works of this nature. These rods were placed end to end on supports along the line to be measured: but as the expansion of the metal would alter the length of the rods, it was necessary to observe the thermometer at each operation and correct the amount for every change of temperature. Afterwards, two metals were used of different kinds, copper and iron, which expanded unequally, and thus constituting a veritable metallic thermometer. In the trigonometrical survey of England, glass tubes were thus employed, as having the advantage of expanding as little as possible. In France, common deal rods have been used, prepared with oil and varnished; they were thirteen feet

long, terminated by moveable ends, with the view of counteracting the effect of any sudden blow which might damage their length. Many other precautions were necessary to ensure success: thus, the horizontality of the rods must be perfect, and the sun's rays must not be allowed to come near them. Hence the measurement of a base with such means is a most tedious and delicate operation, even where the ground is favourable. Should such an operation ever be required in a civilized country, the lines of railways would furnish good long straight lines, which would much simplify the work; but it has been found that the bases may be much shorter than was supposed. At the commencement of this century it was considered indispensable to measure bases of from nine to twelve miles long; but in recent operations in Spain for a map of that country a mile and a half to two miles have been considered sufficient to work from; and as a reward the correctness of the work is more perfect. It was expected that the hundredth part of a yard would be the amount of error; but it has been found to be only about the thousandth part. To judge of the great accuracy attained, one instance will suffice. It was necessary lately in Spain to measure a base of 9,311 feet, by means of a rod constructed by M. Brunner. The operation first performed in one place was then to be carried out in another. The two results obtained agreed within an inappreciable quantity. Such an agreement was really marvellous, and proves how much geodetic works have been improved in the course of the last half century.

The measurement of angles, an operation which is so common in geodetical and astronomical observations, has also been carried to a degree of precision which it would be difficult to imagine, and no one would suppose, without having done it himself, what excessively delicate precautions are required in using the instruments employed for this purpose. These instruments consist of a telescope to observe alternately in the two directions between which the angle is to be measured, attached to a circle divided, on which the number of degrees, minutes, and seconds are read off by the aid of several verniers distributed on the circumference. Such was the principle of Borda's repeating circle, which after much use has been replaced by the theodolite, an apparatus entirely different, the invention of Ramsden. The English engineers used an instrument of this kind made by the inventor himself, and which is found, after seventy-five years of service, as good as on the first day it was used. But Ramsden's theodolites are of colossal dimensions, and both in their use and carriage are inconvenient. It was Gambey's good fortune to reduce these instruments to proportions better adapted for service in the field. The numerous instruments constructed by Gambey have contributed much to geodetical operations. Their great strength in preserving form under severe trial has been a cause of admiration and is yet unrivalled.

The errors to which the process of measuring an angle is liable are of many kinds. First, there is the error of direction. Although the telescope for this purpose carries cross wires in its field of a very fine nature, by which the object is covered, it is admitted that with a theo-

dolite of common dimensions, the telescope of which covers the object twenty or thirty times, the result will err two or three seconds to the right or left of the truth. Again, in reading off an angle, an error of two or three seconds may be made: and again, the divisions of the circle itself may not be quite regular; perhaps they are either a trifle more or less than they should be. The extent of the error in the result is nearly known from the character of the instrument in use by the observer, and in the best theodolites of Gambey this error would amount to five seconds. In considering these three sources of error, which may increase the whole, it will be seen that it is impossible to measure direct an angle with a less error than nine seconds approximately. But this defect in obtaining extreme accuracy must not be in great geodetical operations, where the principal triangles must be known to the fraction of a second. Astronomers, who employ for their observations large circles of six or seven feet in diameter, with telescopes which multiply 250 times, easily attain the greatest precision. But the gigantic instruments which they use could not be transported to all the observing places of a large trigonometrical survey. Hence it was necessary to supply other methods for attaining the required accuracy.

Borda, an astronomer as well as mariner of the eighteenth century, in order to remedy this amount of error, had recourse to the method of repetition, which had been invented by a German astronomer, Tobias Meyer, and made it the principle of all geodetical instruments. The method is very simple. When an angle is measured, the error is only made at the two limits of the angle, whatever may be its magnitude, so that, if it could be increased by itself a great number of times, the measure of the angle would be neither more nor less than the exact measure of the real angle. Suppose it attainable, for instance, to about nine seconds nearly: but to have the real angle it is only necessary to divide the sum of the whole of the angles measured by the number of times which it has been repeated, and the error would be then divided in the same proportion, and of course would be no more than 0.9 seconds if the angle had been repeated ten times. This method was acknowledged to be good for some time, and the geographical engineers employed it perseveringly, notwithstanding the tiresome monotony which it imposed on them. Even some angles of the great triangulation of France have been repeated thousands of times, and yet after some years it was found that the accuracy of the measurements was not increased in proportion to the time devoted to the method. The errors made were some of them accidental; in fact, that they influenced more or less the result, and there the repetition decreased indefinitely: but there are other errors also, called systematic, which have more or less influence always, and cannot be corrected by repetition. Such errors may be those of the instrument or the observer himself. For instance, an observer from aberration of sight or from some bad habit of the visual organ, will always see a little to the left of the truth.

The desire of avoiding these systematic errors has led to the abandonment of the method of the repetition of angles in geodetical opera-

tions for that of reiteration. This consists simply in recommending ten times, or a hundred times, according to the precision required, the measure of the same angle by changing a little each time the position of the circle, to avoid the same cause of error. These processes of repetition and reiteration, by means of which the observer can correct his own errors, are in reality nothing more than the rational application of principles of which every one avails himself to correct his own work. Every material work which man with his imperfect organs performs, is liable to regular or accidental errors. To eliminate the one by reiterating or repeating the operations, to annul the other by employing methods or convenient instruments, are processes which may be considered as purely instinctive, and which are often practised without one being conscious of it. Astronomers have systematised the principles of observation. Cannot we get rid of the effect of aberration in making observations with our own instrument by looking a little into the laws by which these are regulated. It is by such a process that astronomy and the sciences depending on it have arrived at a most refined state of perfection.

But it is admitted, nevertheless, that the precision of measurement depends above all things on the closest attention to the instrument, and the most scrupulous sincerity in the register of the actual individual observations. The eye, provided with a telescope, is in reality the most perfect of our senses; it is an organ of wonderful subtlety, which surpasses perhaps the limit of our wants. The least movement cannot escape it. Here are some proofs. It has been possible to measure by experience the quantity which a cannon suspended by its two ends bends in the middle. There are no other means of finding immobility in nature. The astronomer Bouguer desiring one day to repair one of the vertical lines of the dome of the Val de Grace, observed with astonishment that the dome turned like a heliotrope with the sun: it is true it was but very little, but such rotation was appreciable. What would it be now in Paris with the constant moving of heavy vehicles. It may be truly said that there is not in the middle of the capital a monument sufficiently solid to escape the continual agitation of the public thoroughfare, sufficiently firm to give an immovable support to a geodetical instrument. Thus men who were initiated in geodetical operations when some years ago they were at different elevated points of Paris from which it was necessary to observe for the plan of the city, soon found out that the trembling of the ground would render their measurements impossible.

In the country it is not so difficult to fit up an observatory where instruments may rest on a solid foundation, and observations obtained worthy of confidence. The points generally chosen by the engineer as the vertices of his triangles are mountain peaks, the height of which give him a view to a considerable distance. He has first to consolidate the subsoil, which is often found too loose, and then to construct a temporary house a few feet high to serve not only as a shelter to himself but also to be visible from afar. These observatories are by far the best, because nothing disturbs the instruments; but in mountainous

countries it is a very trying time and even dangerous for the observer, who passes perhaps several weeks in it for the sake of science and for duty. The privations may be imagined of officers who have passed some months in tents among the Alps at elevations of 8,200 and even 9,800 feet above the sea, surrounded by mountain torrents, glaciers, and precipices. In countries where the mountains are not high, where the view is interrupted by trees, it is necessary to build a scaffolding some sixty or seventy feet high, sometimes composed of two parts, one inside the other, without this touching the first, for it has to hold the instrument and the other the observers. They must necessarily move round it freely, and frequent it without shaking the instrument. At other times they are placed on the top of some public monument or the summit of a church tower.

In the table of geographical positions published every year in the *Annuaire du Bureau des Longitudes*, the position is given of every town in latitude and longitude that has served as a mark in the triangulation. At Paris, although the Observatory is the point from which longitude is reckoned in France, it was the summit of the lantern of the Pantheon that served as the point in the triangulation. It is important also that the position of all the temporary observatories should be carefully preserved, for it is not improbable that they may hereafter be required to verify a part of the triangulation. In towns the place of these stations on buildings would be easy to find as long as the buildings remained; but in the country the place where observations have been made is distinguished by a mark on a stone, in the upper surface of which two lines crossing each other are cut, the intersection of which corresponds mathematically to the point which has been plombed by a weight from the instrument. Under the same point is buried a small quantity of charcoal, a substance that will not undergo change, and serves for recognizing it, and not likely to be displaced. In spite of all these precautions it has been ascertained on a recent occasion where it was necessary to find the apex of some primitive triangles, that everything had disappeared. Bells have been displaced or demolished without the architect being able to detect even their original places; the stones have been removed by the agricultural labourer, who of course considers them as clogs to his work. But the Depot de la Guerre, at the instance of the Academy of Sciences, is taking steps for the better security of the surface of the ground that contains these marks of geodetical operation.

In the first great triangulation places are chosen for the vertices of the angles where the sides should have a length of twelve to thirty-one miles. But it seems that accuracy would be more easily obtained by increasing the number of triangles, although at the expence of diminishing the length of their sides. Sometimes the character of the ground requires that they should be much more extended than elsewhere. When Biot and Arago extended the French meridian to the Balearic Islands from the Spanish coast to Iviza and Formentera, there was a large triangle, one side of which was more than nine-nine miles long. In the English triangulation the stations of Snowdon, in

Wales, and Berule, in the isle of Man, were more than seventy-four miles apart. In countries where the atmosphere is foggy, as in England, for example, it is scarcely possible to recognize a station at such distances even when powerful telescopes are used. On such occasions a machine called the heliostadt is then employed, consisting of a mirror which can be turned in azimuth to reflect the sun's rays on to the distant station at which the observer is looking for it. By means of this machine the coasts of England, France, and Belgium have been connected by throwing the reflection across the strait of Dover. But the surface of the sea is mostly covered with misty particles that require some hours of fine weather to disperse, in order that the observer may do his work. Confined in his small observatory for whole days, he is obliged to wait for clouds to clear away ready to avail himself of any moment that the fog will admit of the luminous ray from the distant station to be seen with his telescope.

But what, after all, are the results of these long and delicate operations? Is the precision gained in keeping with the minute pains that have been bestowed for it? Of this a few figures will enable us to judge. On a chain of triangles extending from Brest to Strasbourg three bases have been measured. One of these only being necessary for calculating the sides of all the triangles, the two others serve for verification. If, adopting the base of Melun, which is in the midst of the parallel in question, we go from summit to summit as far as the base of Ensisheim, in Alsace, we find that this latter should be 20,827·28 yards: direct measurement has given 20,827·58 yards. Then from Melun towards Brest, the Plousecat base, near Cape Finisterre has been found by calculation to be 11,512·18 yards; and by actual measurement it is 11,513·03 yards. All the other chains of triangles of the French work have been controlled by the same kind of bases of verification, and have given results equally as satisfactory. Such an approximation might be considered sufficient, but with the instruments in use now for some years it is considered that even a more perfect result than this is attainable; therefore it has been considered necessary to recalculate several geodetic determinations made twenty years ago.

The latitude and longitude, then, of all the points which form the great triangulation are known to nearly within three feet. We know exactly what are the proper positions which Paris, Brest, Strasbourg, Bordeaux, &c., should occupy on the map, and places, in fact, to the number of two or three hundred that spread over the surface of the country. The spaces between these original points have been filled by a secondary triangulation, which probably would not require such scrupulous care, because the distances are less and the errors of observation do not accumulate from them. The rigid precision abovementioned not being necessary, more expeditious methods have been adopted; the repetition of angles is not so frequently made, and more portable instruments are employed. It may be observed that in a very small portion of France only has it been found difficult to carry on the triangulation: this was on the level ground between Meaux, Chalons,

and Rheims. As it was necessary to raise stations to a great height, and at an exorbitant cost, a void has been left there which is not important to the general triangulation. The secondary triangulation has here included about four hundred points very exactly; and from these all the towers that are visible have been fixed with less trouble and more rapidly still, the churches that could be seen, and all remarkable points, which serve for the final introduction of the ground features.

One might be surprised at the rigid exactness of these proceedings, and consider it unnecessary, if we did not know the errors of those maps which have not had the advantage of being founded on good trigonometrical operations. There are but few countries which have undergone these kinds of operations, for most of the maps in use have been formed by methods far less perfect. When so much accuracy is not necessary, we are contented to commit to the map the details of a country by means of their latitude and longitude, such as can be had, perhaps, by star observations. By such methods seamen determine the positions of sea ports, capes, lighthouses, mouths of rivers, heights of mountains,—in fact, everything that is seen by the voyager; indeed, the maps of continents and planispheres are only formed of such data.

The navigator wandering on the ocean may well be content with approximate determinations, because an error of a few miles even is more or less insignificant to him as long as he is on the sea, and when he is near land he can rectify his position by means of it. But it is easy to perceive that on shore matters are very different, and that an error of 100 yards in the distance from Paris to Orleans will not be long before its importance is evident. Not but that astronomical observations are excellent when they are made with good instruments and with plenty of time. The latitude, which requires only a measurement comparatively easy—that of the sun's height, or a star's, above the horizon,—is generally sufficiently well determined. But in the longitude, on the contrary, the errors are very often serious. It has been discovered recently that there is an error of 30 to 35 seconds—that is to say, of 728 to 875 yards—in the difference of longitude between Madrid and Paris in modern charts.

The time at two towns, one of which is further to the West than the other, does not agree, as is well known; and the difference is greater the further one is to the West of the other. The progress of railways, which gives Paris time throughout France, has made this evident to all. At the Rhenish frontier the French railway time at Wissembourg is twenty-seven minutes slow, and at Rehl thirty-two minutes slow of time on the German lines. In the same manner the time at Berlin is fifty minutes fast of Paris, and that of Petersburg one hour and seven minutes fast of Berlin. To measure this difference of time is one of the methods employed to determine the longitude; and one of the simplest means of doing it is, like the mariner, to take a well regulated watch to different places. He has with him at sea chronometers, which check each other and supply each other's place in case of accident, and when great precision is required the greatest



pains are taken. Thus, when it is required to know exactly the difference of longitude between two distant and important places, a chronometric expedition may be adopted. The Russian government, in 1843, made such an expedition between the imperial observatory of Pulkow, near Petersburg, and the Danish observatory of Altona. Fifteen voyages were made, and sixty-eight chronometers embarked each time from one station to the other.

The longitude may also be determined by observing at two places the time when a certain phenomenon takes place, which is itself instantaneous at every place on the earth. The eclipses of Jupiter's satellites are thus of service to navigators; but these phenomena do not recur sufficiently often for geodesy, and therefore artificial means are substituted for them, such as a gun fired at night between two observatories, at each of which the time it is seen is noted. This method was used in France in 1824 and 1825 by the engineers on the large survey, who determined longitudes thus on the mean parallel and on that from Paris to Brest, and also between Paris and Greenwich.

In these days the guns are replaced by the electric telegraph. There is, perhaps, no method so perfect as that of the electric telegraph for giving instantaneous signals between two places, however distant they may be. It is not only the most expeditious method, but one far less expensive than triangulation. The Americans of the United States have not employed any other method in the survey of their immense continent, and they consider that they know their longitudes quite as well as they do their latitudes. In Europe, where geodetic operations were executed before signals by electricity were established, the only use of these is to confirm the former operations. In France the electric signal method has been applied; but the former operations undertaken by the two departments (the Bureau des Longitudes and the Depot de la Guerre), which persevere in the wholesome use of geodetical operations, renders the method by electricity unimportant, being more adapted to show the advantages of that system than to exercise any control over the calculations of the old triangulation.

Engineers avail themselves of the several methods best adapted for the measurement of the triangles which they have thrown over the country. Geodesy, which gives the latitude and longitude of every station, has besides the advantage of giving the altitudes of those stations,—that is, their heights above the mean level of the sea. The heights of mountains are thus ascertained with as much accuracy as they would be by the most rigorous system of levelling. In constructing the map of the British Islands, the height of one of the principal mountains of Scotland, Ben Macdhuì, was found by the survey to be 1,420 yards; and two levelling operations on the same mountain, one from the foot to the summit, and the other from the summit to the foot on another side of the mountain, gave precisely the same amount to four or five hundred parts of a yard nearly.

The measure of altitudes is one of the most important points of geography, for it is not sufficient to mark on the map the positions of towns, the courses of routes and rivers; it is necessary also to repre-

sent the inequalities of the surface, and to place in an intelligible manner that addresses itself to the eye the troughs of valleys and the elevations of mountains. The heights extending to large distances have besides another interest. They afford the means of comparing the relative heights of different seas. It has been long considered that the Mediterranean is higher than the Atlantic Ocean. The triangulation of the map of France has shown that these two seas (supposing them to be in an absolute state of repose) have one and the same level of surface. This surface, if one can imagine it to be extended under the surface of the ground of France, is the level to which are referred the heights of all the several summits of that country.

When the geographical co-ordinates of the principal points of a country have been fixed by geodetical operations, it is then that the work of topography, properly so called, begins; first the general outline, which the engineer forms in exploring the country and commits to paper; then the model of the ground that is to be represented, the slopes of the mountains and the undulations of the plains. Such work, necessarily less perfect than the triangulation to which it is applied, should nevertheless give the features of the country as correctly as possible. It is on the ground itself that the plans on a large scale are formed. But to represent on a sheet of very limited dimensions the infinite variety of features in the ground, it was necessary to establish conventional signs, a kind of figurative drawing, the meaning of which is not sufficiently known to be easily read. In fact, to read maps and to understand all the meaning which they contain requires a preliminary study and the knowledge of signs employed in topography.

*(To be continued.)*

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#### THE WESTERN DIVISION OF THE MEDITERRANEAN.—*Currents.*

(Concluded from page 373.)

In winter time, if a vessel making the passage from the Balearic Islands to Sardinia, and when off the South coast of this island meets with an easterly wind, the best course to pursue is to keep to the northward, so as to gain latitude; and in the opposite voyage not to go much South of the parallel of Cape Teulada; for, besides obtaining thus some shelter from the sea under the lee of Sardinia, the only wind to be expected on the easterly wind subsiding is from the North or N.W., with which a ship would be to windward, and would be sure of making her voyage. If from the Balearic Islands a vessel has to cross to Sardinia with a wind from the gulf, a weatherly course should be adopted to allow for the influence of the current which, with those winds, sets a ship to the southward often at the rate of a

mile an hour. And the contrary should be adopted in making the same passage with S.W. or S.S.W. winds.

A ship from the Levant having to pass South of Sardinia should always make for the land on the South shore of that island, whether it be in summer or in winter, and after obtaining her position from it and bound through the straits, or to ports on the South coast of Spain, should shape her course for the South of the Balearic Islands ; and if going to Catalonia or France should pass North of Minorca. This course has for its object the avoiding of the general current which runs to the eastward along the African coast, as well as that of securing a port of Sardinia in winter time in case of meeting a hard north-wester.

With northerly, N.E., and easterly winds in the Mediterranean, the barometer rises, and it falls with those from S.W. to N.W., especially in winter, at which time the latter are dirty, and load the atmosphere with clouds and rain.

*Currents.*—With the exception of the general easterly current which flows along the African coast, there is no constant current in the Sardinian Channel, for the water generally obeys the impulse of the prevailing wind, although that current may be sometimes overcome, especially when at a short distance from the land. Hence, no fixed rules can be laid down to meet the effect of the current. On which account the more vigilance is necessary from the commander of a vessel when navigating the narrow channels alluded to, taking care to correct her reckoning by means of bearings of the land as often as opportunity offers.

*Route through the Sicily and Malta Channel.*—The Sicily (or Malta) Channel is that part of the Mediterranean which lies between Cape Bon and the western part of Sicily, including an extent of about seventy-six miles.

*Sicily Channel.*—This channel, occupied by a bank which connects the two continents of Europe and Africa with great inequalities of depth, has in the middle of it the dangerous reefs of the Esquerques and Keith, which are on the same N.W. edge of the bank and the shoals of Saqlia and Graham, which are on the S.E. edge of it ; so that the Esquerques especially divide the channel into two nearly equal parts, by which vessels pass indiscriminately to and from the Levant by the South coast of Sardinia. In certain definite cases, however, it is not an indifferent matter which of these channels is adopted.

A ship, for instance, with a fresh S.W. breeze, bound from the Sardinia Channel to Malta, or a port of the Adriatic or the Levant, should pass along the African coast rounding Cape Bon, and when North and South of Pantellaria should make for Malta or Cape Passaro, thus obtaining some shelter from the sea, which she would not do if she was to go between the Esquerques and Sicily, where the sea gets up considerably with those winds. Another ship which has to go from the Sardinian Channel to Malta, or the Adriatic or Levant, with a fresh northerly or N.W. breeze, should keep the Sardinian

coast, then make for Maritimo, and run along the South coast of Sicily.

With strong easterly or westerly winds there is a very considerable sea in this channel, sometimes producing disastrous consequences; and as the Sicilian coast is most plagued with banks and shoals, in such cases Cape Bon and Pantellaria should be preferred, which route has deep water. When a ship has to beat up by night through the narrow part of this channel with bad weather, or by day, she should be very careful of her boards over the reefs, because the current there is always stronger, tending to set the vessel to leeward. In these circumstances it would be most prudent to keep to one coast or the other according to the wind—either to get shelter under Cape Bon if the wind is in the S.W. quarter, or under the Sicilian coast if in the N.W. quarter, or on the western coast of this island if the wind should be to the eastward.

*The Malta Channel.*—The Malta Channel is clean and navigable, and a ship may take either the coast of Sicily or that of Malta. Vessels bound to the Adriatic and the Grecian Archipelago, generally adopt Cape Passaro as their point of departure, and again make for it when coming from those seas. Although the cape is low it is well marked by a flashing light at night, seen at a distance of fourteen or fifteen miles.

Of vessels bound to Tripoli and even those destined for Alexandria, especially in summer, the first of these take their departure from Pantelleria and sight Lampedusa; the others for Alexandria would sight Malta, passing North or South of it, according to circumstances, and make for Cape Razat, then continuing along the African coast at a regular distance. But this route would not be advantageous in winter, because the northerly and N.E. winds are severe on that coast, and they should not adopt it; for it would be far better from Malta to steer for Candia, and from thence to make for Africa, shaping their course for Alexandria.

*Winds and Currents.*—The Sicilian Channel being the great road of communication between the eastern and western part of the Mediterranean, the winds agglomerate in it from the two parts with more strength than they have each in its own part, so that the S.E. wind assumes there greater force; and it is the same with the westerly and N.W. wind, each driving the waters before them, and producing a current of even two miles an hour, which current, however, decreases in proportion as the distance from the channel is increased. For the same reason, this channel occupying a position between the two portions, the winds in it are most variable, especially in summer, producing strong contrasts or contending winds and calms very frequently. When the easterly winds prevail in summer they tend to N.E. with clear, and when westerly winds prevail they draw to N.W.; but in winter the former haul to S.E. and the latter to S.W., which are always dirty.

At the time of the equinoxes, and particularly in autumn, calms and waterspouts are common; in fact, on the coast of Sicily these

take place every day, where the atmosphere is highly charged with electricity.

*Passage of the Strait of Messina*—Situated as the island of Sicily is at the southern extreme of Italy, it leaves a narrow but deep channel for the use of navigators by which they may have easy communication with the Tyrrhæan and Ionian Seas, without which they would have to make circuitous voyages. Thus, vessels from the western ports of Rome and Naples having to go to the eastern coast of Sicily, or to the Adriatic or Levant, make use of this channel, which very much shortens their voyage; and it would be also of much use to those from the Gulf of Genoa and coast of Tuscany bound to Malta, Tripoli, or ports on the South coast of Sicily, the Adriatic or Levant, that cannot get round West of that island. Vessels also from the Levant and Adriatic to the western ports of Italy adopt it.

*Winds and Currents.*—In the Strait of Messina it may be said that two winds predominate, which are those of the N.W. quarter, which, blowing on the North coast of Sicily and West coast of Italy, acquire considerable strength when they pass down the narrow strait with those from the N.E. quarter. During the summer or fine season, the winds draw towards North and South, according as they are from N.W. or S.E., the prevailing winds outside of the strait falling calm at night, yielding to a land wind. In winter time, contending opposite winds are frequent, while in the Tyrrhæan Sea northerly or N.W. winds are blowing strong. In June there are Levanters and south-westers, their dividing line being the Strait of Messina. In these cases the clouds which are brought by them collect in the strait while a complete calm prevails there, until one of them overpowers the other, and penetrating the strait with strong squalls dissipates the clouds.

The passage of the strait sometimes offers considerable difficulty, vessels having to remain at either of its entrances until the wind goes down that opposes their passage, or, at least, allows them to beat through. And it would be imprudent in any navigator who has not an experienced pilot to attempt to pass it at night, even when the wind is established fair. Even by day a pilot is almost always indispensable, this being a class of persons who know how to use the counter currents and timely avoid the eddying currents, the situation of which they know by experience.

In conclusion, the short portions of sea, of which the currents and winds have formed the subjects of consideration in the foregoing pages, and the narrows of the channels, the greater part of which are studded with islands and rocks, and the uncertainty of the strength and direction of the current which prevails in them, require, on the part of the navigator, the utmost vigilance in passing them, especially at night or in cloudy days. Thence it is that, in conclusion, we caution them to lose no opportunity for determining the position of the ship by means of bearings of the land, or by the use of the lead when near it.

Such rectifications are doubly valuable at nightfall; the navigator then knows what he has to do should he come across a foul wind in the dark. There are channels in which a vessel may keep under moderate sail at night as well as by day; but the opportunities which daylight affords of this nature should not be lost. A navigator, for instance, who in the Malta Channel meets with a sudden westerly or S.W. gale, may lie by on either tack. But it would not be prudent to persist in doing so in the channel, because, before twenty-four hours are past, he would be so far to leeward that when he wanted shelter he would be too far to leeward to get it, and it would not be possible for him to find it, and he would have to run for some port of Greece; while, if he had availed himself of the opportunity, he might have taken shelter under Cape Passaro, and saved much wear and tear and straining of his ship.

Again, should he in the same channel be overtaken by an easterly gale or one from S.E., he must not attempt to carry sail against it on any account, for the result would be that the current would rapidly set her over to Graham Shoal or the Esquerques, or she might be drifted on some part of the coast of Sicily, while availing herself of the shelter of some port at a favourable moment when she could do so she would avoid all danger of such an end, as well as tearing the vessel to pieces in the tremendous sea that would be up.

The same observations apply to other channels when a gale from a foul quarter assaults them while they may be in with the land which a change of wind has made a lee shore. Should this occur anywhere on the coast of the Roman States, with winds from South or S.W., the vessel should make for Port Ferrajo, because if the gale continues her loss would be seriously endangered.

From all these considerations it may be concluded that the navigator in the Mediterranean must be constantly on the alert, and watchful and vigilant for the safety of his ship, especially in cloudy, dirty weather, so bad for its narrow channels, and which a timely recourse to some harbour will secure, and thereby prevent an unfortunate loss, or, at least, the misfortune of being roughly treated by the gale and the ship unnecessarily distressed.

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#### THE AMERICAN MONITORS.

The opinion of the Russian Admiral Lesoffsky on the Monitor system of the United States forms an important article in a semi-official publication at St. Petersburg that is always devoted to these matters. It will be seen that the original faults of these vessels were observed by the Russian officer, who was purposely sent to America for the purpose of reporting to his own government on the subject.

The reports of the Admiral and Captains of the American iron-clad squadron of the bombardment of Charleston have offered a new occasion for expressing different opinions as to what system of iron-clad shipbuilding generally preference is to be given, and what system is best suited to our navy.

Supposing that those opinions (founded upon a special knowledge of the subject) will assist in clearing up this important and entirely new thing, especially in Russia, we present below two articles on this subject; the first of them, by its clearness and general accessibility, will probably attract attention, even of those who, not belonging to the naval profession, are interested in the question of maritime defences adopted in Russia.

The principal problems which had to be solved in armour-plated shipbuilding were the following:—

First.—The protection of vessels as much as possible from the danger of fire and sinking, wooden vessels being inevitably exposed to that from the destructive nature of the artillery of the present time; and

Second.—The preservation of the lives of the crew from the terrible effects of firing, the common wooden vessels generally in use not offering them that protection at all.

The affair at Charleston demonstrated that both of these problems were most successfully solved by the Monitors. They came out of a terrible and unprecedented fire without a hole in any part of the vessels under water; their entire loss of men was confined to one man killed and a few wounded. The losses and injuries sustained by them were of such a nature as could be easily guarded against in future, and there was no necessity to take them into dock, as the repairs were all done in Port Royal, one of the most insignificant ports in North America.

Until the present internal struggle called for extraordinary exertions, the Federal army and navy were neglected. Public opinion in the United States looked with doubt and derision upon the trials and experiments that were made on a large scale by the European powers for the solution of the question of armoured vessels. In 1861, in view of the rebellion taking enormous proportions, the public mind became impressed with the importance of the subject, and on the report of the Secretary of the Navy, presented during an extra session of Congress, a competition was offered for the best system of construction of iron-clad or invulnerable vessels.

The commission of naval officers to whom was entrusted the examination of projects gave preference to three different systems; the vessels built according to those systems were named *New Ironsides*, *Galena*, and *Monitor*. The *New Ironsides*, constructed on the same main principles as most of the iron-clad frigates and floating-batteries of the European powers, did not present anything new: this vessel is acknowledged generally to be a success, except, however, in regard to speed and turning. The *Galena* also presented nothing new. Co-

vered with a light iron armour, supported by a weak backing, she proved very unsatisfactory. (Afterwards her armour was taken off, and she remained a common wooden vessel.)

The *Monitor*, invented by Captain Ericsson, was built on entirely new principles; she was a covered box or raft, on which was placed a revolving turret. Any one who has observed the action of the waves on a common raft will understand the idea of the inventor. A raft does not rock on the waves, because the waves break over it; and if its parts can be bound together so firmly and effectually as to resist the destructive action of the waves, and not allow the box itself to be filled with water, such a craft may be conveyed even through an open sea. An example is known that a large wooden raft, made in Canada, was successfully taken to England, though certainly, in going across the Atlantic, it must have been most of the time submerged, as it happens now with the *Monitors*.

Rejecting the high sides of vessels, to cover which thousands of pounds of iron would be required, the inventor of the *Monitor* has gained, in comparison with other armoured vessels, the following advantages:—

First.—A comparative cheapness in construction.

Second.—The insignificance of target presented to the enemy's fire.

Third.—The safety of the submerged part of the vessel from shots.

Fourth.—The possibility of using guns of the heaviest calibres, and capability to give great thickness to the turrets and side armour easier than it could be done on armoured vessels of other systems.

The system of Captain Ericsson must not be confounded with the turretted system of Captain Coles. The latter places his turret on a common vessel with pretty high sides, for the protection of which by armour, as was mentioned before, an enormous weight of iron is required. Those are the advantages presented by Captain Ericsson's system. In relation to the execution of details, the first *Monitor* presented an extensive field for improvement. The famous action in Hampton Roads at the beginning of 1862 compelled the government of the United States to choose this system of vessels for coast defence in preference to others. Five large vessels of war very nearly became victims to the *Merrimac*, but were rescued by the timely arrival of the small *Monitor*, which forced the *Merrimac* to leave the field of battle. In reference to artillery, the choice of the American government fell on the 15-inch Rodman gun. Up to that time the largest guns used in the navy were 11-inch Dahlgren guns, but the *Monitor* system is able to use the largest guns, the defeating force of which is more effectual than that of the 11-inch guns.

From that time it may be said that this class of vessels is sufficiently tried in America. We will briefly bring forth some of the most noted occasions on which their merits were exhibited. In order of time the following favourable news concerning *Monitors* transpired. First was the report by Commodore Rodgers of the storm encountered by him on the Atlantic Ocean, on board the *Monitor Weehawken*. This renowned naval officer went to sea in tow of a steamer in the same way



as all Monitors generally make their sea voyages. Near the Capes of the Delaware, perceiving the approach of a storm, Commodore Rodgers sent his companion to the nearest port, determining to remain at sea himself to test the Monitor under these circumstances.

In his report he praises the qualities of the *Weehawken* observed by him during the storm. The other Monitors have repeatedly made sea passages during the tempestuous winter time. Out of their number only the first Monitor was lost, and that from causes more or less accessory.

After this we have the intelligence of the action on the Ogeechee against sand batteries. The distance was from 400 to 600 fathoms, impediments preventing a nearer approach. Several other vessels, armed partly with mortars, participated in the action. The fortifications were completely demolished, though repaired during the night. The absence of land forces prevented the driving the enemy out of the forts, as the execution of the artillery alone at a distance of 400 fathoms was insufficient for that purpose. One of the enemy's cruisers, the *Nashville*, attempted to break through the Monitors, but a 15-inch shell decided her fate.

Thereupon follows the attack on Fort Sumter. A careful study of this affair shows that the injuries sustained by the Monitors were more or less of a light character. Many weak points were discovered, also many defects requiring alterations in the vessels already built, and some changes in those that were in process of building; but the main principle on which the system of building these vessels was founded came out of this effective trial with a complete triumph.

The next trial was of a real naval character, a combat between two iron-clads, the Monitor *Weehawken* against the *Atlanta*. On both sides much was expected from the issue of this battle, but almost the first shot from the 15-inch gun of the *Weehawken* decided the affair in her favour.

The Monitors continued to play, if not the principal, still, however, an important part at the siege of Charleston. Continually exposed to the fire of the enemy, for several months they obstinately occupy their position in an almost open roadstead, maintaining a successful blockade of Charleston. All these circumstances certainly speak a great deal more for the usefulness of the Monitors than against them. The last accident to the *Weehawken*, which unexpectedly foundered in the midst of a whole squadron of similar vessels, while at an anchorage at which those vessels have remained so long a time with impunity, is not investigated, and it may be will only show that these vessels require particular precautions and care, and that it is impossible to treat them as common vessels.

Such, in short, is the substance of the knowledge we have of the Monitors.

In Russia, the Navy Department, in the person of his Highness the General Admiral and his nearest assistants, did not cease to follow from the beginning the trials of armoured shipbuilding in other states, but with prudent caution it was decided not to do anything until the

new vessels had been sufficiently tested. In consequence, after the first battle between iron-clad vessels in America, the Navy Department immediately sent out there several officers belonging to different branches of the naval service, to study those new vessels on the spot. Those persons fulfilled the commission with which they were charged in the most successful manner. Their reports confirmed the Navy Department in its conclusions that out of all known systems of iron-clads the Monitor was preferred for our coast defences, especially in our shallow waters. The protection of Cronstadt, our principal naval port, an object of constant and particular solicitude of our Navy Department, presents besides such local conveniences for the use of those vessels as cannot be found everywhere. In consequence of all this several vessels were commenced on the exact model of the American Monitors. These vessels, destined exclusively for the protection of Cronstadt, rapidly and successfully move to completion. All the improvements, the necessity of which has been proved by experience in America, will be introduced in our vessels, and it is expected that those vessels will be a very effective and necessary addition to our land defences of Cronstadt.

At the same time the Navy Department did not neglect to adopt all measures to provide the new vessels with the most perfect artillery, and we hope that our single turreted vessels, representing the exact copy of the American Monitors, will be armoured with formidable artillery, combine all the new improvements, and give satisfaction to all the demands of contemporary military science.

In addition to this, we did not stop on one system exclusively. With prudent calculation, concentrating all our efforts on means exclusively defensive, we shall have at the same time, besides the Monitors, a few iron-clad vessels representing models of all the principal systems now in use, and which could be adapted to our exclusive and local condition.

In conclusion, we may say we have before us an extensive and vast road for the further study of this question and investigation of those improvements which are called forth by numerous imperfections of all the systems of iron-clad vessels known at the present time.

In examining the reports of the Captains of the Monitors which participated in the bombardment of Fort Sumter, knowing exactly the kind of battle the Monitors were engaged in, the injuries received by them, and remembering that notwithstanding a severe concentrated fire from the numerous Southern forts, the Federal fleet had only one man killed and two wounded, we come inevitably to the conclusion that the attack on Charleston positively proves the Monitors capable to compete, and probably with chances of success, with the best iron-clad vessels of the French and English navies.

It is true that, from injuries received in this battle, the *Keokuk* was sunk, but it must not be forgotten that having been constructed on a different system, she was fastened imperfectly in comparison with her companions, the injuries of which, though important, were for the

most part of such a character as will be easily provided against in the Monitors that are now being built in our yards and factories.

For instance, on board the vessels that participated in the action of the 7th April, 1863, a great many bolts that fastened the turret plates were broken. In the pilot houses and turrets, where there was no inside iron sheathing the captains and the men at the guns were exposed to great danger from the nuts and ends of bolts rebounding inside. Those nuts and pieces of bolts falling between the foundations of turrets and decks, prevented the turret from revolving. The fire of the Monitors also was not so very effective from continual stoppages of the guns. Finally, there was some few more or less important defects and errors.

A well considered new system of fastening iron plates in turrets, taken from experience, a large iron ring covering the space between the lower part of the turret and the deck, and the 9 inch cast steel gun are the means from which we expect a great deal.

Notwithstanding the defects of the American monitors, the strength shown by them during the bombardment is truly astonishing. The Southerners were firing from guns of the heaviest calibres at distances which probably were carefully measured before the commencement of the action; these distances being smaller than half the distance of an ordinary pointing fire, and yet not one of the monster charges penetrated the turrets; the strongest experience of this kind was sustained by the *Passaic*, and what was the result? A shot from a gun of a heavy calibre struck the upper edge of the turret, broke eleven plates, but did not penetrate the turret, though the strength of the shock was such that the projectile rebounding upwards made an indentation of 2½ inches in the pilot house, and bent it on one side; and notwithstanding all this, in the turret proper of the *Passaic*, as well as in the turrets of the other Monitors, there was no one killed or wounded: a result certainly very important and which confirms the great superiority of the Monitor system over all other systems of armour plated vessels.

The fighting test through which the Monitors have passed is certainly more effectual and decisive than the experiments made on plates representing the sides of a *Warrior* or a *La Gloire*; 4½ inch plates of those were fractured by occasional shots.

We may well ask what would have become of the vessels covered by such plates, and their sides presenting a larger target, and if (as it happened with the *Nahant*) they would be exposed for some time to a concentrated fire of 100 guns at a distance less than 1,500 feet! It is not difficult to answer. Not only the *Warrior* with *La Gloire*, but all those *Minotaurs*, *Northumberlands*, *Magentas*, and *Solferinos*, constructed on improved models, would be sunk in such circumstances; while the *Nahant* got out of the action with injuries comparatively not very important.

In examining the reports of the captains we can find several other places confirming the solidity of the Monitors. With the exception of the *Kookat* and *Passaic* all the vessels of the squadron were in a

condition to continue the fight, and it was only the signal of the admiral (to stop the battle) that made them stop the attack. The Monitors, *Weehawken*, *Montauk*, *Patapsco*, and *Catskill*, after a hot action of forty minutes, had no serious injuries, not only in their turrets, but in any other parts of the vessels. In one word, from whatever side you look upon the results of the battle, they are positively favourable to the Monitor system of constructing vessels, inasmuch as the same is subject to improvements which can be partly adopted on the Monitors building at the present time, and unconditionally on those that are to be built.

Passing to the reproach of slowness of fire from the Monitors, it is easy to prove that taking into consideration the present state of artillery, the number of projectiles fired within a certain specified time is not so very important as is the degree of destruction they produce. Five shots from the *Weehawken* were quite sufficient to force the *Atlanta*, a beautiful iron-clad corvette, which cost the Southerners a million of dollars, to strike her flag. And it is certain that nine shots from a 15-inch gun fired by the *Passaic* in forty-five minutes would do a great deal of harm to the *Warrior* or *Black Prince*. In three quarters of an hour the Federal squadron let out 139 projectiles, excluding three shots that the *Keokuk* made, and remembering that the admiral's ship, the *New Ironsides*, scarcely participated in the fight, it appears that the mean number of shots fired from the fourteen guns of the remaining seven Monitors, during the action, was nine, or one shot for every five minutes, a result, if not particularly brilliant, still very satisfactory, if we remember that the continual stoppages in firing are partly explained by inevitable accidents in first experiments, and for the most part are set aside by another system of artillery, possible improvements in loading guns, and port stoppers.

In conclusion, it will not be amiss to remark that in examining the reports of the captains who participated in the bombardment of the 7th of April, we are far from affirming that their vessels were perfect. No, certainly not. Monitors, like all other specimens of shipbuilding, have their defects. They are not easily managed; they are unsuited for passages of long duration; for fight against fortresses they are nearly useless; and notwithstanding this, it can be boldly asserted that not only eight months ago, when we commenced their construction, but at the present time, after all the experiments and latest inventions, it is difficult to designate any other system for constructing coast vessels more useful for the defence of Cronstadt from an attack from sea, to navigate narrow and shallow channels, and particularly is there no other system more suitable to the means of construction we had in Russia in the summer of 1863.

The Monitors that are being constructed at the Petersburg yards undoubtedly are not in a condition to cope with Cherbourg or to take Portsmouth; but they will perform their part of duty, and will be of such use as to prevent an unmolested bombardment of the fortifications of the port of Cronstadt, which are so important to Russia.

### CRUISE OF THE "MORNING STAR" AMONG THE PACIFIC ISLANDS.

We find the following interesting account of the cruise of the *Morning Star* in the *Pacific Commercial Advertiser*, by Captain James, her commander.

Dear Sir,—In the following report of the *Morning Star's* cruise, you may find something that will interest you. Sailing from Honolulu on the 7th of November, 1863, we arrived at Apaiang on the 24th. The passage was for the most part pleasant. Found Mr. and Mrs. Bingham in usual health and good spirits. We lay in the lagoon until the 29th and left for Tarawa. Having a head wind we did not get to anchor until the 1st of December. Found the Hawaiian missionaries well, but out of food. Having no supplies for them on board, gave them some *poi* and flour from the vessel's stores. On the 4th, having finished our business here, started for Apaiang at 1h. p.m., anchored on the reef. Mr. Bingham came on board from the *Evening Star*, and left his mail and packages; he expressed himself much pleased with his printing press, and hopes to do much good with it. At 4h. p.m. parted from Mr. Bingham and started for Pitt Island, arriving at 10h. a.m. the next day, and anchored inside the lagoon, near the residence of Mr. Randall. That gentleman being absent, we were kindly received and assisted in our work by his agents.

Having completed our work here, we left the lagoon on the 10th, and shaped our course for Millii Island. At 8h. 30m. the following morning saw the S.E. point of Millii, passing through the passage on the N.E. point of Attole at noon. We sailed through this beautiful lagoon and anchored off the station on Millii Island at sundown. Our steward, Frank Sylvia, who had been sick most of the time since leaving Honolulu, was discharged here at his own request. His disease was the dropsy in one of its worst forms, and being sick he would be kindly cared for by the men at the oil stations, and be more comfortable on shore than on board the vessel. We landed him with such articles as would conduce to his comfort. Concluding our business here, we left for Jalinet on the 16th, where we arrived on the 18th; on the 20th left for Ebon, arriving on the 22nd, and anchored inside. Found Mr. Snow and family all well, also the other foreigners residing here.

The King and Chiefs were all on a cruise to the North, consequently times were very quiet, and no roguery going on. It is much to the credit of the common natives here that when their chiefs are absent they are hardly ever known to steal, but when all are here, they are the greatest thieves in the group.

On Friday the 26th, Mr. Snow and family came on board, bound for Strong Island. We left Ebon for Namorik, arriving there the next morning, leaving the same night for Ocean Island, and on the 31st made the island. Saw the barque *Harvest*, of Honolulu, had taken two blackfish. At 10h. a.m. started for Pleasant Island, arriving

January 2nd. Found the people here very noisy and turbulent. Stopped to trade with them for an hour or two and went on our way for Strong Island, arriving on the 5th. Here we landed Mr. Snow and family at their old home on Dove Island. The natives seemed much pleased with their arrival.

At 3h. p.m. we left for westward, touching at M'Askill on December 8th, and at Wellington on the 11th. Here we found an honest industrious race, for which much credit is due to the foreigners residing on the island for teaching them these qualifications. They indeed are a pattern colony of natives, and probably not matched by any other in Micronesia.

Leaving this island we arrived at Ascension the 12th, and anchored in Kitti Harbour. Mr. Sturges came on board and reports himself and family, excepting Mrs. S. who was then unwell, in good health. Mr. S. was much pleased with the bell, which was landed the day after. Its welcome chimes came off, reminding us of him and friends far away.

We remained in Kitti Harbour for some time, finding the natives a graceless set of scamps. They did not steal the mainmast or the anchors for the simple reason that they could not carry them off. Outside of the few who are under the influence of the mission, a more vicious race cannot be found in the Pacific. The barque *Vickery*, on her way here a short time ago, touched at Bordelaise Reef, and there saw the wrecks of two vessels, and found in a box on shore a communication from Captain Bush, of the *Liholih*, dated December 29th, 1861, the particulars of which you will receive from Mr. Sturges.

On the 26th we took our departure from Ascension, touching at Wellington Island on the 30th, and left for Providence Island, where we arrived on the 4th of February. Cruised along its southern shore without seeing any signs of inhabitants from the vessel. Went in shore in the boat and found on an island about midway on the southern reef, a few houses having quite recently been inhabited, and by articles left behind in an apparently hurried departure, they were doubtless a band of Marshall Islanders who had made this their temporary home. On attempting to cross the island, a cause for their hasty exit was seen. Quite a large space in the centre of the island had lately been the scene of some convulsion of nature, apparently volcanic; the earth was thrown up in confused masses, and the trees in and around were broken and blasted as if from the effects of great heat without actual fire. The wanderers, who doubtless witnessed this strange scene, may yet be heard from, and more particulars gained in regard to it. Providence Island is in form an irregular parallelogram, in extent E.b.S. and W.b.N. about twelve miles; its width, five to six miles; long. of its centre  $160^{\circ} 56' E.$ , lat.  $9^{\circ} 52' N.$  There are on its reef ten islands, the largest of which is on the East end. There are two passages into the lagoon on the South shore, the best of which is about five miles from the East point. On the lagoon shore of the island, where the houses were, was seen a portion of the top sides of a vessel which has been many years a wreck. Scattered along the

outer shore were many red wood logs, some of them of great size. We saw but few cocconut trees, but pandanus were more plenty. We saw no breadfruit, but there may be some on the larger island.

At sundown we shaped our course for Strong Island, where we arrived in the afternoon of the 6th, and made an attempt to get in the lee harbour; but not succeeding, we worked around the East part of the island, and went into South harbour on Sunday morning. Here we lay until Saturday morning, when we left, having on board Mr. Snow and family. We were much pleased with the conduct of the natives, particularly the Christian part. Thursday, February 18th, arrived at Ilinglablab (Elmore of the charts). Here we found Time-tar, the King of Ebon, with his principal chiefs of the group. This island is very irregular in its form, its greatest extent is N.W. and S.E. twenty-five miles. In productiveness it is one of the poorest in the group. There is one passage on its South side and several on its eastern and northern sides. The long. of its centre is  $168^{\circ} 48' E.$ , lat.  $7^{\circ} 29' N.$  It offers no inducement to vessels. Leaving this place we arrived at Namorik on the 22nd; leaving the same night for Ebon, where we arrived and anchored the next morning on the shelf near the mission.

During our absence to the westward there had been much sickness and many of the people had died: the disease was described as an influenza. On the afternoon of the 23rd, one native killed another with a spear, stabbing him through the neck, producing almost instant death. The only excuse made by the murderer was that the other had some time previous refused to share a fish with him. The two parties belonged to different ends of the island, and when we left all were under arms, the one side threatening vengeance, the other to defend.

Arrived at Jaliuet on the 28th, and being Sunday went in and anchored under the lee of Imurott Island, in the same spot where the ill fated M'Kenzie met his death. On Monday morning we sent divers down to the wreck and succeeded in making fast to the keel, and having a strong gang of natives on board, we soon hauled up about fifteen feet of it, which was very much decayed and perfectly honey-combed by the worms. While we were stripping off the few sheets of copper that still remained on it, the natives stood or sat around it in seeming unconcern; many of them no doubt were actors in the sad tragedy that sent the ill fated schooner and her murdered crew to rest in their coral beds. This is one of many such scenes that have occurred in the Pacific, and what of it? The birth of a prince is the signal for expending millions in powder and bunting; but not one charge of powder, not one chivalrous arm in all the navies of the world is raised to protect or avenge the poor traders that go forth boldly into strange waters and develop the commerce that pays for all. On our first visit we learnt of the death of George Cunningham. He came here at the head of a gang of pirates from Ebon, and succeeded in robbing the station once, and in the second attempt was shot by one of the men belonging to the station. He was the instigator of the rob-

beries committed on the night the *Maria* was wrecked, and afterwards robbed the storehouse of Mr. Cappello, of Ebon. On the death of his protector, the old King Kiabooke, he and his gang ran away in the night and landed at Jaliuet, where he ended his career of crime. His antecedents in Japan and New Bedford mark him what he was, a desperate villain.

On the 1st of March we left Jaliuet for Millii, where we arrived on the 7th. Here too death had been busy with the inhabitants, many of whom had died from the same disease that was raging at Ebon. The brig *Kohala* was here a short time after our first visit, having taken no oil since leaving Honolulu. Frank Sylvia, the steward, died five days after we left. He left no message of any kind. We obtained from the natives here a small copper tank with screw top, such as is sometimes used as cabin magazine on board merchant vessels. The natives say they found it on the beach a number of years ago.

A black barque was seen off the South side of the island a few days before our arrival; she was cutting in a sperm whale at the time.

Sailed on the 10th of March for Honolulu. With the exception of the first three days we have had light unfavourable winds the whole passage. Crossed the meridian in lat. 32° 40' N., and on the 1st of April; sighted Oahu at noon on the 17th. At half past one on the afternoon of the 18th, anchored outside of the harbour of Honolulu.

I have not remarked on the work of the different missions we have visited, knowing that from the missionaries themselves you will receive reports. To their unvarying kindness and hospitality I can cheerfully attest, and if a good modest deportment is any sign of a bettered condition among the natives under their influence, their labour has not been in vain.

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#### THE JAPANESE.

It appears that the Japanese steamer *Kandinmarrah* has arrived at Kanagawa, eighteen days from Honolulu. The Americans who came in her say that the Japanese conducted themselves admirably on board, taking the position of the vessel daily by the sun, and brought her, in seamanlike manner, into the bay without accident. The appearance of the steamer from America with news from the ambassadors created a great excitement both amongst the Americans and Japanese. The foreigners were anxious to hear how the Japanese had been received in America, and the Japanese were fearful lest the ambassadors would not survive the great trip across the pond. However, all doubts were dispelled when the great mail was distributed.

A letter from Richard H. Dana, Jun., in Japan, gives an interesting account of the religion of this peculiar people:—

“The two great religious systems of Japan are Buddhism, an East



India exotic, but the most influential, and the Sin Syn, the ancient national faith. These are said to exfoliate into thirty or more sects. The number of points presented has probably dissipated the electricity of theological controversy. They do not indulge in polemics, but agree in demanding the utter exclusion of Christianity. I saw none of those signs of decay and neglect about their temples which one so often meets with in China. The buildings are in good repair, the floors well matted, the worshippers numerous, and the worship decent and grave. Neither here nor in China have the idolatries any traces of bloody or obscene rites. There is no instruction connected with public worship. It consists in unbloody offerings, a chanting of a few words of almost unknown signification to the priests themselves, counting of beads on a rosary, accompanied by dull beating of gongs, kneelings and prostrations, and processions, and burning of tapers and incense sticks. They have fasts and festivals for all ages, classes, and purposes, which, I suspect, possess a strong hold on the people.

“Missionaries, strictly speaking, there are none. Since the utter extermination of Christianity in blood and fire, in the seventeenth century, missionaries have been prohibited. By the late treaties, they allow foreigners to build churches and practise their worship within the limits assigned for their residence; but they tolerate no preaching or teaching to the natives, nor the circulation of religious books. The people at home must not delude themselves into the belief that any strictly missionary work is doing or can be done in Japan. No clergymen are of any service here but scholars and gentlemen; men who can master the language and literature of Japan, get an insight into the genius of its institutions, gain personal influence, remove prejudices, and prepare the way for the future.”

[The foregoing entirely coincides with the opinion expressed in the interesting papers which we have just concluded on Japan.—ED.]

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#### AN ACT FOR REGULATING THE PROVING AND SALE OF CHAIN CABLES AND ANCHORS.

Whereas it is essential, for the better security of lives and property afloat in sea-going ships, to make provision for the proper testing of chain cables and anchors: be it therefore enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1. Any corporation, public body, or company may erect and maintain proving establishments, apparatus, and machinery suitable for the testing of chain cables or anchors, and may, notwithstanding the provisions of any previous Act limiting the amount of money to be raised by such corporation or public body, or company, raise money for that

purpose by way of loan, secured by mortgage of such establishments, apparatus, and machinery, and of the income to be derived therefrom, or of other property of such corporation, public body, or company: provided always as follows:—

(1.) Nothing in this Act shall relieve any corporation or public body from the necessity of obtaining for any borrowing by them under this Act the consent of any authority or person whose consent is by law requisite to any borrowing by them otherwise than under this Act.

(2.) Where the consent of any authority or person is not by law requisite to any borrowing by any corporation or public body otherwise than under this act, the consent of the Commissioners of Her Majesty's Treasury to any borrowing by that corporation or public body under this Act is hereby made requisite.

(3.) Nothing in this Act shall empower any company to borrow money under this Act otherwise than in such manner and subject to such restrictions as are prescribed in relation to any borrowing by them for purposes other than the purposes of this Act, and if none are prescribed, then in such manner and under such restrictions as may be prescribed by resolution of the company adopted by three-fifths at least of the votes of the shareholders of the company present (personally or by proxy) at a general meeting of the company specially convened for the purpose.

(4.) Any mortgage or charge created or to be created under any power existing at the passing of this Act on any property of any such corporation, public body, or company, other than such establishments, apparatus, and machinery as aforesaid, shall have priority over any mortgage created under the powers of this Act on the same property.

2. The Lords of the Committee of Privy Council appointed for the consideration of matters relating to trade and foreign plantations, hereafter in this Act called the Board of Trade, may from time to time grant to any corporation, public body, or company, person or persons erecting any proving establishment, apparatus, and machinery suitable for the testing of chain cables or anchors licence to test chain cables and anchors under this Act, and the board may suspend or revoke any licence so granted, if the board shall see occasion; and the expression "Tester" in this Act applies to every corporation, public body, or company, person or persons to whom such licence shall be granted, so long as such licence continues in force: provided, that such a licence shall not be granted in any case unless and until the proving establishment, apparatus, and machinery erected have been inspected by an inspector appointed as by this Act provided, and have been certified by him as proper and efficient for their purposes.

3. The Board of Trade shall, as soon after the passing of this Act as the services of an inspector for the purposes of this Act appear to them to be required, and afterwards from time to time as vacancies occur, appoint a fit person to act as inspector of proving establishments, apparatus, and machinery under this Act, and may from time to time, at pleasure, remove from his office any person so appointed;

and such inspector shall, in the execution of his duties, conform to any regulations from time to time made by the Board of Trade.

4. Any licence granted as aforesaid shall be renewable annually, and the same shall not in any case be renewed in any year unless and until the proving establishment, apparatus, and machinery in respect whereof such licence was granted have been inspected by the inspector within that year, and have been certified by him as proper and efficient for their purposes.

5. On the original grant of every such licence, and on every annual renewal of every such licence, there shall be paid such fee not exceeding fifty pounds as the Board of Trade from time to time appoint; all such fees to be paid to the Board of Trade, and to be by them paid into the Receipt of her Majesty's Exchequer, and to be carried to and form part of the Consolidated Fund of the United Kingdom.

6. The inspector shall receive such salary and allowances as may from time to time be directed by the Board of Trade, with the consent of the Commissioners of her Majesty's Treasury, out of money to be provided by Parliament for the purpose.

7. Every tester shall, with all reasonable despatch, subject every chain cable or anchor that shall be brought to the proving establishment of such tester for the purpose of being proved, and (unless the parties interested may otherwise agree) in the order in which such chain cables and anchors respectively shall be so brought, to the same tensile strain as that to which chain cables and anchors respectively of similar size, weight, or description are or shall be subjected before being received for the use of her Majesty's naval service, and shall stamp every five fathoms in length of every such chain cable, and also every such anchor, with a stamp or die to be provided for that purpose by the tester, and approved by the Board of Trade, denoting that such chain cable or anchor has been "proved," and which shall bear the mark of the tester.

8. Every tester may make such charges for the testing and stamping with proof mark any chain cable or anchor as such tester may think fit, not exceeding the scale of charges authorized by the Board of Trade; and such tester shall affix upon some conspicuous part of the proving establishment a table of the charges so authorized to be taken by such tester; and such table shall be painted upon a board or boards in distinct black letters on a white ground or in white letters upon a black ground, or may be printed in legible characters on paper affixed to such board or boards; and it shall not be lawful for such tester to make any alteration in such table or in any of the charges therein specified until such alteration shall have been approved by the Board of Trade, and the tester shall have caused notice in writing of the intended alteration to be written or printed on paper, and such paper shall have been, for a period of not less than three months, affixed to such table, so that the same shall be clearly legible by all persons who may consult such table.

9. Any tester may detain any chain cable or anchor which shall

have been so tested until such charge shall be paid; and if such charge shall not be paid within three months after the testing of such chain cable or anchor, the tester may cause such chain cable or anchor to be sold by auction, and shall out of the purchase money deduct the expenses of such sale, and all other expenses incurred by such tester with respect to such chain cable or anchor, including all lawful charges on the same, and shall pay the surplus thereof (if any), on demand, to the owner of such chain cable or anchor, or to the captain or master of the vessel, or other person on whose application the chain cable or anchor had been tested.

10. When any tester shall have tested and stamped any chain cable or anchor, such tester shall, if requested by the person on whose application the same was tested, within one month after such testing, make out and deliver, free of charge, to such person a certificate of such testing.

11. From and after the first day of July one thousand eight hundred and sixty-five it shall not be lawful for any maker of or dealer in chain cables or anchors to sell or contract to sell for the use of any vessel any chain cable whatever or any anchor exceeding in weight one hundred and sixty-eight pounds, unless such chain cable or anchor shall have been previously tested and duly stamped in accordance with the provisions of this Act; and if any person acts in contravention of this provision he shall for every such offence, upon a summary conviction for the same before a justice of the peace, or in Scotland before any sheriff, justice, or magistrate, be liable to a penalty not exceeding Fifty Pounds.

12. If any person shall stamp or assist in stamping any chain cable or anchor with the stamp of any tester, or with a stamp or mark purporting to be the stamp of any tester, without the authority of the tester whose stamp shall have been so used or counterfeited, or with any other stamp or mark, for the purpose or with the intention of passing such chain cable or anchor, or of allowing or assisting in the same being passed as a chain cable or anchor duly tested and stamped under the powers of this Act, or if any person, knowing any such chain cable or anchor to have been so wrongfully marked or stamped as aforesaid, shall sell the same, or shall deliver the same to any person to be taken or used as part of the equipment of any vessel, or if any person shall write out and deliver to any person any certificate or document purporting to be a certificate under this Act, that any chain cable or anchor has been tested and stamped under the provisions of this Act, knowing that the chain cable or anchor referred to in such certificate or document had not been so tested or stamped, every person so offending shall be guilty of a misdemeanor, or in Scotland of an offence, and for every such misdemeanor or offence shall be liable, in the discretion of the Court, to be imprisoned for any term not exceeding Two Years, with or without hard labour, and with or without solitary confinement.

13. No maker of, or dealer in, chain cables or anchors, shipowner, or other person, shall by reason of this Act, or of anything done there-

under, be relieved from any responsibility in respect of any chain cable or anchor made, sold, or used by him to which, but for this Act, he would have been subject.

14. Nothing in this Act shall affect any contracts which may be made by the Lords Commissioners of the Admiralty for the supply of any chain cables or anchors to any of her Majesty's dockyards or for the use of any of her Majesty's ships.

15. This Act shall continue in force to the first day of July one thousand eight hundred and seventy-two, and no longer.

### HABITS AND CUSTOMS OF THE SANDWICH ISLANDERS.

At a short distance beyond Kaneohe the path leads along the sea shore. The whole scene is highly picturesque. The beach is composed of a very fine coral sand of a dazzling whiteness, interspersed with long veins of basaltic rock in low and smooth beds. On the land side, and near the surge, stand a few native dwellings, over which the cocoonut tree suspends its fantastic and beautiful foliage; seaward, the foam-crested breakers come rolling in with the speed of the swiftest racehorse and a voice of thunder, as they break on the beach close to the feet of the traveller.

While journeying along this shore I met a singular looking object. His face was bronzed by a tropical sun, his eyes were blood-shot, and a short woollen shirt was his only garment. His haggard face, his matted hair and beard, his rapid steps, almost induced me to believe he had just escaped from a retreat for the insane. He was once a white man; but a four years' intercourse with the most debased and wretched of the natives had turned him into a complete savage. He could hardly read, much less write his own name. The poor man was a libel on the enlightened state of Connecticut, for from that part of the United States he originally came. He refused to tell his name. At this, however, I was not surprised. His downcast eyes indicated a senso of shame of his abject condition. His personal mien and appearance established more firmly than ever in my own mind the theory that the white man, severed from the civilizing influences of society, is capable of becoming a more debased wretch than the savages or aborigines among whom he lives. Such a scene is calculated to draw tears from the eyes of angels, and to fill the bosom of any living man with sorrow for the brutal condition of many of his species. I have witnessed many such scenes in the Sandwich Islands; and they are numerous in the islands scattered over the wide Pacific Ocean.

This portion of the shore abounds with a large number of singular coral reefs. They are of a circular form, and vary from a few rods to a mile in diameter. They are usually elevated to within a few inches of medium tide, at which time the natives reach them in canoes, and wade over them to procure shell-fish. Although these circular reefs

are located near the shore, and are raised near the surface of the ocean, they retreat so precipitately that their bases can hardly be fathomed; and there is sufficient depth of water around them for any purpose.

Beyond these reefs there are numerous fish-ponds. Their dimensions range from one to a hundred acres. Their relative size is indicative of the wealth and power of their respective owners. The smaller ponds belong to the poorer of the native subjects: the larger are owned by the king and his principal chiefs. They are formed simply by extending a wall of coral over a portion of the reefs lining the shore. The huge walls inclosing the largest are of ancient date, and were raised when feudal chieftains could command the bodies, souls, and lives of the common people; but now portions of them were beaten down by the ever-rolling tides. Many of these ponds are located at some distance from the shore, and supplied by fresh water from the neighbouring mountains. Over all the shores of the group these fish ponds abound. Next to their taro plantations they are prized by the natives, for their contents are highly valued as an indispensable article of food, and sacredly guarded; but, after all their precautions, some thievish native will sometimes come along in the night and extract a few of their finny tenants for his own immediate use. Almost invariably, however, he gets detected. With most of the Hawaiians, as with the old Spartans, the crime consists in detection, not in the theft.

These fish-ponds are not unfrequently a source of much gratification to the fatigued and hungry traveller. On entering a native house just at sunset, and after a day's hard riding, it is not uncommon for a good-natured old dame to step up to him, pass her hand across his chest, and ask him, with a maternal solicitude, "If he is full?" On receiving a negative reply, out runs a young girl, or one of her sons, and launches a small canoe on the waters of the pond. It is easy to guess the nature of their errand. In an incredibly short time, having been baked amid ample folds of the dark green ti leaf (*Dracæna terminalis*), a huge calabash of fish, accompanied with boiled taro and poi, as the taste of the traveller may be suited, is spread before him. Some twenty pair of black eyes may be glancing at him, but it only remains for him to lay aside his fastidiousness and satisfy the demands of the inner man. No class of people on earth can be more generous to the foreigner than the very poorest of the Hawaiians. He may partake of their best fare, such as it is, and they will make no demand upon his purse. But this does not intimate that they are ungrateful for a "consideration."

While pursuing my way towards Kualoa, a rather novel scene presented itself. Five or six women, up to their waists in mud and water, and nearly nude, were cleaning out an old taro patch, with the intention of converting it into a fish-pond. The Hawaiian women are almost amphibious. Almost incredible statements may be made of their wonderful aquatic exercises. Strange as it may seem to a foreigner—an American especially—to see a woman almost buried in mud like an eel, to herself it is nothing, for she is fond of dabbling in

water. And although these women looked as if they might have been born the tenants of this very slough, or just risen up from the Arcadian Styx, they were merely forming a fishpond for the reception of a few of the finny tribe that their brothers, husbands, or fathers were then catching on the reefs.

If the Hawaiians cannot be strictly termed a labouring people it is certain that the women do their part. But, whatever may be said of them as a people, it is also certain that they do not compel their women to subservise the same serfdom that brutalizes many of the women of the common Arabs, the Caffres, and even the North American Indians.

Although the duties of the Sandwich Island women may not be very arduous they are much varied. One of their most tedious and favourite duties is sometimes to drive stock to market. During these engagements some of the most ludicrous scenes occur. On ascending an eminence just beyond the fishponds, I noticed a group of native women squatting down under the shade of a wide spreading and beautiful pandanus tree (*Tectorius et odoratissimus*). On coming up with them I found them surrounding an enormous hog. The day was unusually warm, and the beast lay panting as if he were about to breathe his last. To his welfare this female group bestowed the most assiduous attentions. Their dress was scant, but several of them had evidently taken off their only garments, soaked them in water from their calabashes, and spread them over his swinish majesty for the express purpose of keeping him cool, while a few others were employed in fanning him.

The usual method of conveying pigs to market is to tie the four feet together and run a pole through them, each end being supported on the shoulders of two natives, who trot off at no very despicable speed. But this brute would probably have weighed nearly five hundred pounds. The silly affection these women displayed towards their favourite convinced me that they cherished not the least respect for the prohibitory laws of the Jewish Scriptures, much less those of the Koran; and yet they were trying to drive him to market for sale. An old adage tells us that "a good man is merciful to his beast;" but it may not be argued that mercy to a brute is always indicative of "goodness." Such was the construction I placed on this old passage in its application to these women. They were simply taking their pet to market. Already had he been driven several miles. His guardians would have to conduct him over the brow of the fearful Pali, and then they would be six miles distant from Honolulu. It would occupy at least thirty-six hours to accomplish this purpose; but it would be achieved, for the Sandwich Islanders—the women especially—have a large share of patience where little exertion is required. They would watch his movements by day, and sleep by his side at night. They had fixed his price in the market, and they wished to get him there in a condition as good as possible.—*Sandwich Island Notes.*

## THE PEACOCK TESTIMONIAL.

About twenty-four years ago Captain George Peacock took the first ships that ever navigated the Pacific by steam through the Straits of Magellan,—viz., on the 18th of September, 1840, and arrived in Chile after a most prosperous and expeditious voyage. This of course was hailed at that time by the enthusiastic inhabitants of Valparaiso with the liveliest satisfaction and joy, and is now celebrated not only in the historical annals of Chile, but also in those of Bolivia, Peru, Equador, and New Granada, as the commencement of a new era in the political and commercial prosperity of those enlightened republics, followed up as it has been by the modern improvements of railways, electric telegraphs, gas, waterworks, &c., in a manner unequalled by any other countries in the world.

But in effecting this important service there is no doubt that Captain Peacock sacrificed his commission and high standing in the British navy, thus transferring the advantages of his scientific attainments and ingenious resources with his characteristic zeal and untiring perseverance to the overcoming of all difficulties as Marine Superintendent of the Pacific Steam Navigation Company, as well as when in personal command of one or other of the steamers on the coast. He was also Chief Superintendent in the absence of Mr. Wheelwright, and obtained the estimation not only of the several governments themselves, but of every one who had the pleasure of his acquaintance on the West coast of South America. In fact, his urbanity of manner and impartial conduct, combined with an intelligent, straightforward, and gentlemanly demeanour to high and low, rich and poor, won him the golden opinions of all. But after the line was established he proceeded to England in charge of the first mails across the Isthmus of Panama under the royal mail contract, reaping no advantage or reward whatever from the sacrifice he had made or the position he had held, and returned to England a poorer man, in a pecuniary point of view, than when he left its shores, besides the loss of his commission in the royal navy.

These facts, and the high feeling of respect and esteem with which he has ever been regarded by those who knew him in the Pacific, have induced a few friends from the West coast now residing in Europe to initiate a movement in London, with a view to its being responded to by all the admirers of Captain Peacock's enterprise, as well as in the principal cities and seaports of the respective republics of Chile, Bolivia, Peru, Equador, and New Granada particularly, to present him with a testimonial which they trust will be worthy of the occasion. With this object a committee has been formed, consisting of the following gentlemen, and as, from a personal knowledge of Captain Peacock, we sincerely wish success to the undertaking, we add the names and addresses of these gentlemen, and shall be happy to forward their object all in our power.

Committee:—Admiral J. A. Duntze, Woolwich; R. Heatley, Esq.,



(Messrs. Heatley, Cowan, and Co.,) London; J. Henderson, Esq., F.R.G.S., Conservative Club, London; Sor Don Manuel M. Cotes, Paris; J. Brice, Esq., Marley Lodge, Devonshire; T. R. Grav, Esq., Kingsgrange, Dalbeattie, Dumfries; C. Rowe, Esq., (Messrs. Graham, Kelley, and Co.,) Liverpool; T. Jump, Esq., Haverstock Hill, London; W. Lyon, Esq., The Hermitage, Woking, Surrey; J. Whitehead, Esq., Brock Hill, Devonshire; Messrs. Thomas, La Chambre, and Co., Paris; General R. Herrera, Florence; H. Bland, Esq., Hillfields, Berkshire; Sor Don Francisco G. De Luzarraga, Paris; J. Duncan, Esq., 59, Pall Mall, London; H. Wyman, Esq., Ryde, Isle of Wight; with power to add to the number. Honorary Secretary: Sor Don Manuel de la Quintana, 37, Russell Square, London. Treasurer: Richard Heatley, Esq., (Messrs. Heatley, Cowan, and Co.,) Great St. Helens, London.

### Nautical Notices.

#### PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 389.)

Name.	Place.	Position.	F. or R.	Ht. in Feet.	Dis- seen Mls.	[Remarks, &c. Bearings Magnetic.]
28. Canea Mole Head	Candia Isld.	35° 30' 8" N., 24° 14' E.	F.	75	10	Est. 15th June, 1864. Old light discontinued.
Buda Islet, Fort	Suda Bay	35° 28' 8" N., 24° 43' E.	F.	89	6	Est. 15th June, 1864. Green light.
Cape Drepano	Near extr. of Cape	35° 28' 2" N., 24° 14' 6" E.	F.	107	15	Est. 15th June, 1864. Flashes every minute.
Retimo Mole Head	Port, North side	35° 22' N., 24° 20' 2" E.	F.	50	10	Est. 15th June, 1864. Old light discontinued.
Candia Mole Head	Ditto	35° 21' N., 25° 8' 8" E.	F.	52	10	Est. 15th June, 1864. Old light discontinued.
29. Cape Seskio	Gulf of Volo	39° 22' 5" N., 22° 56' 5" E.	F.	82	6	Est. 15th June, 1864. Stands on West side of entrance.
Cape Kavou- lia	Ditto	39° 0' 2" N., 23° 3' 5" E.	F.	65	6	Est. 15th June, 1864. N.E. side of entrance of Gulf.
Acra	Syrian coast	32° 55' 4" N., 35° 3' 7" E.	F.	46	10	Est. 15th June, 1864. Red light.
30. Monach Isles	Hebrides	Scotland, W. coast	F.	62	12	Est. 15th June, 1864. Red light. (a.)
31. Cape Paul	Black Sea	45° 18' 2" N., 36° 29' 7" E.	F.	78	14	Not asid.
Soukhoun Point	Ditto	.....	R.	121	17	Interval one minute; a bright flash. See No 23. (b.)
32. Portsdown Hill	.....	.....	..	..	..	Windmill is removed and will not be replated.

P. Fixed. Ff. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.

(a.) 30.—Visible from seaward when bearing from S.E.b.S. round by South to S.W.b.W.

(b.) 31.—The light shows white when bearing from N.¼ E. to N.b.W.¼ W., and red from W.b.N.¼ N. to W.b.S.¼ S. The white light shows over the channel between the reef extending from Cape Takli on the West side, and Panaghia Reef on the East; the red light shows over the channel between Tosia Bank on the South side, and the Ak-Boarnu Reef on the North.

**WEST INDIES.—Punta Brava Light and Puerto Cabello: Caution.**

7, Clifton Villas, Camden Square, N.W.

Sir,—Having read in the Book of Directions on the West India Islands and the N.E. coast of South America, also seen on the Admiralty charts of that coast, that there is a fixed light on the island of Punta Brava, off Lucacas Point, elevated 30 feet above the sea, and to be seen nine miles.

Now having commanded the steam yacht *Midge* on that coast for some time, I beg to state, for the information of the public, that there is no such light on Punta Brava, nor is there any appearance of there ever having been one on that spot.

I also think proper to state that the revolving light at Puerto Cabello is only lighted occasionally but not regularly, so that no dependence can be placed upon it by ships navigating those waters. Trusting the publicity of this will prevent future accidents.

I have, &c.,

W. C. M. COULOHER, R.N.R.

*To the Editor of the Nautical Magazine.*

**PACIFIC.—Newly Discovered Rocks and Shoals.**

We find the following in the *Pacific Commercial Advertiser*, and preserve it for reference.

**NEW ROCKS.**—In the track of vessels bound from this port to San Francisco, lie what are called on some charts Reed Rocks, on others, Falmouth Shoals, having been discovered by the U.S. sloop of war, *Falmouth*, Captain Reed, in 1850. These rocks lie, according to the statement of the discoverer, in N. lat.  $37^{\circ} 24'$  and W. long.  $137^{\circ} 27'$ , and about five days' sail from San Francisco. But though lying thus directly in the track of vessels bound to that port, it is somewhat remarkable that they have never been seen by others. In 1858, Captain Baker, of the barque *Whatcheer*, steered directly for the locality named, and run very close to the spot, if not exactly over it, without finding any sign of land or shoal water. Last August, the barque *Yankee* (on which at the time we were) also ran within two or three miles of the spot, without observing any indications of shoals. In October, Captain Redfield (whom our readers well know as formerly master of the *Olivia*) reports having observed the rocks about mid-day, but gives their locality *eleven* miles further North and *three* miles further West. Now if, as he states, there are only *ten feet* of water on them, they are very dangerous, and ought to be surveyed by some government vessel at once and the exact position laid down, to prevent shipwrecks. In the *Bulletin* we find Captain Redfield's report referring to these rocks, which is important to captains:—

From Captain Redfield, of the whale ship *Susan Abigail*, we learn of the discovery made by him of some very dangerous rocks ~~west~~;

lying about eight hundred miles nearly due West from this port, right in the track of vessels bound in from the Sandwich Islands, &c. Captain Redfield sailed from this port on the 25th of May, and on the 6th of June, at time of afternoon observation, saw the rocks, the wind being light and the sea very smooth at the time. Their position, as taken by him, was in lat.  $37^{\circ} 35' N.$ , long.  $137^{\circ} 30' W.$  He had just taken his afternoon observation and had had an excellent noon sight. On seeing the rocks he repeated his observation and found the result of the two agree. As his chronometer proved correct in all of his landfalls afterwards, he feels certain that the position of the rocks, as above stated, is perfectly correct. The rocks were passed by Captain Redfield within the length of his vessel. The largest one he judges to be about fifty feet broad and one hundred and fifty feet long; S.S.E. of which, by compass, about a quarter of a mile, he saw a discolouration of the water, it having the appearance of there being another and a smaller rock. On passing the larger rock, all of the boats being on deck repairing at the time, Captain Redfield did not stop to sound; but from the colour of the rock and long ribbon kelp growing on it up to the water's edge, he judged it to have probably ten feet water, and in a heavy sea to break badly. Reed Rocks, as laid down on the charts, have never been found by vessels arriving at this port, many of whom have reported sailing over the location. The rocks seen by Captain Redfield are in the same longitude, but eight miles further South. He believes that they are most dangerous to shipping, both on account of their not being seen until close on them, and from the general disbelief of sea captains in the existence of Reed Rocks.

When speaking of shoals, we may suggest an expedition to determine whether the shoal laid down on the Admiralty charts in N. lat.  $27^{\circ} 40'$ , W. long.  $140^{\circ} 49'$ , really exists, or is only a myth. It lies in the track of vessels bound from San Francisco to this port, and it may have been on this or some other unknown shoal that the U.S. sloop of war *Levant* was lost three years ago.

#### SHEATHING TO PREVENT IRON SHIPS FROM FOULING.

On the important subject of a cure for the fouling of iron ships, we find the following in the *Shipping Gazette*.—

There are few subjects on which a greater amount of thought has been expended than on the means of providing an effective preventive against fouling of the bottoms of iron or iron plated ships. We have before us a metal sheathing, that is, a sheathing of copper applied by means of the interposition of a wooden skin. This plan, which is denominated Mulley's method, after the original patentee, has the sanction of the present chief constructor of the navy, and is further endorsed by the authority of Sir W. Snow Harris. The method, as described by the patentees, is sufficiently simple. The wood sheathing is attached in short lengths

—say three feet—to the ship's bottom without external fastening or any additional rivets. At the bows or quarters and turn of the bilge the sheathing may vary in length and breadth. The whole is 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. For vessels navigating tropical climates it is suggested that the wooden portion of the sheathing should be of teak. Once the sheathing according to this plan is completed, no dampness can reach the ship's skin, and the plates and rivets will, it is said, last for an unlimited period. The method is, however about to undergo a trial. A ship is, we are informed, now being sheathed on this plan in the Great Western Dock at Plymouth, and we shall shortly be in a condition to judge of the result.

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#### THE NATIONAL LIFEBOAT INSTITUTION.

At a meeting held July 7th, Thomas Chapman, Esq., F.R.S., V.P., in the chair, a reward of £5 10s. was voted to the crew of the institution's lifeboat stationed at Drogheda for saving the crew of three men from the schooner *Maria*, of Milford, wrecked on Drogheda Bar, on the 9th June. A reward was granted to the crew of a fishing-boat for rescuing six persons from another boat, capsized in a heavy groundswell near Castletown, Berelhaven, on the coast of Cork. A reward was also voted to a boatman named P. Connor, of Cahirciveen, county Kerry, for plunging into the sea, and saving a lad who had fallen off the quay at that place on the 7th June. A reward of £2 10s. was also granted to the crew of a fishing coble, for rescuing the crew of four men of another boat, which was capsized some time since in a heavy sea off Cullercoats. A reward of £3 was likewise voted to the crew of a shore boat for saving, at considerable risk of life, two men whose boat was capsized, during a strong westerly wind, in Yarmouth Roads on the 27th May. Various other rewards were also voted for saving life from different wrecks on the coasts of the United Kingdom; and the meeting sanctioned payments amounting to upwards of £2,200 on various lifeboat establishments of the institution.

It was reported that the institution had recently sent new lifeboats to Teigamouth, Padstow, Holyhead, Blackpool, and Dover; and that benevolent persons had presented the cost of new lifeboats to be stationed at New Brighton, near Liverpool; Donna Nook, on the coast of Lincolnshire; Tramore, near Waterford; Poole, Dorset; and Sennen Cove, Land's End. The Hon. Rustomjee Jamssetjee Jejeebhoy, member of the Legislative Council of Bombay, had presented £500 to the society through R. W. Crawford, Esq., M.P.; and a contribution of £20 had been forwarded by the officers of H.M.S. *Styx*, at Bermuda, being the proceeds of some amateur entertainments given by them for the benefit of the institution. The late George Wheelhouse, Esq., of Dentford Bridge, had left £250 to the institution.

**SAXBY'S WEATHER SYSTEM, 1864-65.**—*List of Days on which the Weather may reasonably be suspected as liable to change, most probably towards High Winds or Lower Temperature, being especially periods of atmospheric disturbance.*

1864, AUGUST :—5,—13,—19,—25.

„ SEPTEMBER :—2,—9,—15,—22,—29 & 30.

„ OCTOBER :—6,—13 to 15,—19,—26.

„ NOVEMBER :—2 & 3,—9,—15,—23,—30.

„ DECEMBER :—6,—13,—20,—27.

1865, JANUARY :—3,—9,—16,—24,—30.

N.B. The 29th & 30th may prove a troublesome period with very high tide on the 29th.

„ FEBRUARY :—5,—13,—20,—26.

N.B. February 24th to 26th will be a very specially dangerous period, with a very high tide on the 27th.

„ MARCH :—5,—12,—19,—26 to 28.

N.B. March 26th to 28th will be a dangerous period, with high tide.

The above apply to all parts of the earth's surface—even (in a diminished degree) to the Trade belts.

#### THE BRITISH FLAG.

So we've done with the Red, White, and Blue,  
Yes, we've done with the red, white, and blue!

For we hear from Lord Clarence  
That the nautical Barons

Have made an arrangement that's new!

Her Majesty's ensign is White,

Yes, Her Majesty's ensign is white!

And ships of all nations  
Must make salutations

Whenever that flag comes in sight!

But what have we done with the Blue?

Aye! what have we done with the blue?

That colour is handed  
To vessels commanded

And manned by Reserve men so true!

And who shall display the bold Red?

Aye! who shall display the bold red?

Bold merchants, whose story  
Is England's true glory,

Shall hoist the proud flag! Go to bed.

We quote the foregoing from our facetious friend *Punch*. But what of the squadrons under the different flags when they meet at sea as in former days? The Blue and Red merchant ships must have their border we presume, and ships under a Blue or Red Admiral must carry a blue or a red ensign. Surely Mr. Punch is no man-of-war's man!

THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle.

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SEPTEMBER, 1864.

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SKETCHES IN BRAZIL:—*Pernambuco and its Society.*

If any one desired to form an opinion of the contrast to be found in the equatorial regions between the interior of towns and their picturesque appearance when seen from a distance, let him visit Pernambuco. On coming near this town I was charmed with the splendour of the whole landscape. Scarcely had the look-out man announced land, when we saw a dark line on the horizon, although here and there interrupted. Gradually the coast became defined, and to the bluish tint of distance succeeded some more definite forms; and soon afterwards the appearance of handsome villas, shaded by palm trees, on verdant terraces bordering the sea, announced to us that we were approaching a considerable town. Soon afterwards some dark specimens of population, of athletic proportions and loosely clad, greeted our arrival in little canoes laden with oranges, bananas, &c., for passengers.

The sea is often stormy in these parts, and he who would land safely is not altogether satisfied with the heedless manner in which the boatmen hurry passengers into their boats, which seem scarcely fit to brave the waves,—these threatening every moment to throw them against the rocks which form the entrance of the harbour. Perhaps the passenger commences his descent in an easy chair, by the assistance of ropes, &c., to the level of the boats. Here, however, he remains suspended over the water for some few moments, until a boat dashed along by a wave is ready to receive him. A stout black

fellow then seizes him in his lusty arms, deposits him in his boat, and by sheer force of his oars keeps her from being dashed against the granite wall on which the waves are breaking. In fact, he plays with them in a marvellous manner, and suddenly slips his boat into an opening in the middle of this gigantic wall of granite which protects the city and entrance of the harbour. But one must be resigned to the arm-chair, the black fellows, the skiff, the sea and its rocks, and at the end of about half an hour he is safe and sound in the inevitable custom-house.

Scarcely is he landed than, as a matter of course, the visitor hurries into the city with the feverish haste of a man who is determined not to lose the sight which he has long been anticipating, and here commences the deception. The mass of constant verdure which he has admired so much before coming on shore disappears suddenly, and he is exposed to a broiling sun. Streets full of negroes and redolent of ammoniacal perfume assail his perceptions, and remind him that he is treading a soil where free labour is proscribed as dishonourable. Have the people lost or gained by the change. That long file of slaves which you meet, almost elbowing you, each bearing a pack of goods on his head, affords the most eloquent answer that could be given to the inquiry. These unfortunate people are some twenty slaves, employed in doing the work which one European would accomplish with his horse and cart; but of what good is so simple a means when one has black men to do the work.

But the negro is not the only cause of surprise to the visitor. If you take a walk in the port you will soon meet with another, who is not without some resemblance in colour to the African himself, and who will no less excite your attention, and this is the *urubu*. The whole country venerates this bird as the visible instrument of St. Anthony, the responsible patron of public hygienes. In this choice land of Omnipotence, as it is called by the Brazilians, man—that is the white man—has nothing to do but to be still, with his arms folded, and everything comes to him from heaven. What is the use then, he asks, of the magistrate or scavenger?—the *urubu* is at his work and costs him nothing,—all is profit. Who, then, is this *urubu*? He is a winged biped—the turkey buzzard—somewhat larger than a crow, badly feathered, black, offensive in smell, and abounding in vermin. But the municipal functions of this bird render him as precious to the Brazilians as the ibis or the ichneumon to those who dwell on the banks of the Nile. The work that is done by the former at Pernambuco is but the repetition of what the latter do at Thebes or Memphis. The animal that destroys the locust or the eggs of the crocodile—the two plagues of Egypt—is adopted, caressed, and carefully preserved. It is, in fact, a saviour and worshipped. Such is the case with the *urubu*.\*

\* Mr. Sells remarks that this bird is abundantly found in the island of Jamaica, where it is known by the name of *John Crow*; and so valuable are its services in the removal of carrion and animal filth that the legislature have

No sooner has the visitor crossed a street in Brazil than he is half suffocated with its pestilential odour. Very soon he will discover a regiment of these winged scavengers busy over the putrefying carcass of a mule. Thus are the protectors of the public health in request, and here they are, now and always, so intent on their duty when thus employed, that they pay no attention to the approach of man, and will even allow themselves to be examined. The bird may be seen crouching round the carcass enjoying the feast, retiring a few paces with his choice morsels to finish them, while his place is immediately filled by another, each returning to the meal as they have consumed their pieces. In this off and on way the repast is continued until nothing is left but the skeleton of the animal. There is no noise, no dispute among them; everything goes on in an orderly manner, as if they had really been disciplined to the work. This done to rid the atmosphere of putrefaction and its source, vermin, the sun and some few flappings of wings does the rest, and they are off for their *siesta*, or to renew their meal elsewhere should they not have been already satisfied.

Notwithstanding the privileges enjoyed by this jackal bird, he is not always sufficient for the wants of his business. If we may trust the first page of the daily papers, the people of the towns are obliged to complain to the inspectors of police, who, having no electrical apparatus at command, cannot transmit their orders for these winged scavengers to attend. It is not that they shrink from their work;

imposed a fine of £5 upon any one who destroys it within a stated distance of the principal towns. Its ordinary food, he says, is carrion, but when hard pressed with hunger it will seize upon young fowls, rats, and snakes. He notices the highly offensive odour emitted from the eggs of this species when they are broken, and then relates the following instance, from personal observation, for the purpose of proving that it possesses a very acute sense of smell.

“It has been questioned,” says Mr. Sells, “whether the vulture discovers its food by means of the organ of smell or that of sight. I apprehend that the powers of vision are very considerable, and of most important use to the bird in that point of view; but that it is principally from highly organized olfactories that it so speedily receives intelligence of where the savoury morsel is to be found, will plainly appear by the following facts. In hot climates the burial of the dead commonly takes place in about twenty-four hours after death, and that necessarily, so rapidly does decomposition take place. On one occasion I had to make a *post mortem* examination of a body within twenty-four hours after death, in a mill-house completely concealed, and while so engaged the roof of the mill-house was thickly studded with these birds. Another instance was that of an old patient and much valued friend, who died at midnight. The family had to send for necessaries to Spanish Town, distant thirty miles, so that the interment could not take place until noon of the second day, or thirty-six hours after his decease; long before which time—and a most painful sight it was—the ridge of the shingled roof of his house, a large mansion of but one floor, had a number of these melancholy looking heralds of death perched thereon, besides many more which had settled in the vicinity. In these cases the birds must have been directed by smell alone, as sight was totally out of the question.”



far from it, their gluttony is absolutely insatiable. But their numbers are by no means sufficient. Often has it occurred to me, on returning from a journey, to find the carcass of a mule left to rot and poison the atmosphere. But I am rather inclined to think that this bird has its secret enemies, which destroy its eggs; and perhaps its gluttony may render it careless of its young.

It is not to the negro nor to the urubu that I am inclined to attribute the peculiar character of the Brazilian city; it is rather to the entire absence of women abroad,—at least white women, who never leave their houses, but remain shut up in them in pitiless jealousy. The effect of this custom on the physiognomy of the citizen ladies strikes every traveller who is accustomed to the manners of the Spanish ladies whom they may have seen on the other side of the Andes or in the Banda Oriental. In Brazil, thanks to a long peace and to the yearly addition of settlers to their colonies, the number of men far exceeds that of women, and the additional sequestration of the *senhoras* renders the contrast still more evident. In Spanish America, where the females commonly move about and emigration is not so common, and civil wars have continued to shed blood for the last half century, still there even the men are more numerous than the women. Under the influence of an independent mode of life the Spanish American ladies are more gracious, more lively, and more winning than the Portuguese creoles. These, as we observed, pass their lives like prisoners, and notwithstanding the *vigilante* that may be employed, the ladies always manage to laugh at it—verifying the adage of Shakspeare, “Love laughs at locksmiths.”

Notwithstanding the doors of the Brazilian ladies have been always shut to me, a close observation, along with some indiscretions of friends, has enabled me to conclude that such a system of slavery is not to their taste, and that they know what is going on in the outer world. One of their principal means of arriving at this is the symbolical language of flowers. A gentleman passing under a balcony, on seeing a lady with whom he wishes to become acquainted, passes her window again, with a certain flower carried in a particular manner. A signal, imperceptible to any one else, enables him to see whether or not he will be received; and if this be favourable the dialogue by signals is renewed the following day with fresh flowers. I was once acquainted with this indigenous art of conversing, but having no occasion for the use of it, I have forgotten even the first letters of the flowery alphabet.

But this simple method of communication is much employed in processions. The procession in Spanish-Portuguese America is the *ne plus ultra* of compliments, and to these only the unmarried men are admitted. Marsballed and attired as priests, with a large number of companions, these reverends devoutly follow, taper in hand, the Madonna or a saint, which they carry through every street. If the patron in whose favour the procession is formed should be a soldier, he is made to figure at its head on horseback, vizier down and lance in its rest. I was once at Rio Janeiro when the patron saint, St.

George, headed a procession. The saint, securely pegged to his saddle, was on a superb horse, attended by the emperor's equerries. His dress, ornamented with jewels of gold and precious stones, was in imitation of the royal knights of the middle ages. A squire on foot led his steed. A score more of squires, also on foot, formed his escort, each leading by the bridle a horse beautifully caparisoned. A choir of native musicians, with all kinds of primitive instruments, did their best at intervals with flourishes of trumpets and fifes, striving, more for noise than harmony, to drown the beating of the drums. The two sides of the streets were lined with their friends. The white people marched first; then came the mulattoes, the parias, the ilotes, and last the blacks. The deliberate and grave movement of the procession gave the ladies in their balconies all the time necessary for a dialogue of the eyes by signs with those in the procession, whom they promptly could recognize under the robes of the brotherhood.

In the evening, as I was relating to a Brazilian my impressions of the day's proceedings, I asked him why they chose a manikin instead of a man to represent the saint. "Ah, my friend," he answered me, with a sigh, "I perceive you are a stranger: you do not know what happened once at Lisbon. That city has also St. George for its patron saint. Every year one of the most active young men of the place was selected for the patron saint, and the king furnished him with one of the best horses of his stud, besides caparisons of the most costly description. But one day the devil got among them, and the selection for saint fell on a terribly wicked fellow; who, in the middle of their walk, galloped off to the Tagus, where he had a boat ready, with some confederates, and he escaped with all the riches of the horse, and nothing could overtake him. You know, Senhor, that when the crowd is to be amused it is necessary to be on one's guard."

Excepting at these public ceremonies the inhabitants of cities seldom meet, and to a stranger this unsociableness assumes the character of veritable distrust of each other. The interior of a Brazilian family is difficult of access to a European; and when a foreigner does succeed in obtaining admission, he has enough to do in finding out what are the occupations of the gentleman who is the master. The time which is not occupied in business, the *irmandades*, visiting, and politics, is devoted either to the *siesta* or to gaming!

The rich have their villas outside of the city, on the sea shore, forming the terraces such as are seen on the way from Pernambuco to Olinda, and where of course the air is purer than in the city. Their furniture is in general as simple as their dwellings; and one is often struck by the plainness of the exterior of certain houses which it is well known are the residences of millionaires. Nothing, however, is easier of explanation when it is referred back to creole ideas and the origin of Brazilian society. The early Portuguese did not come to this land of El Dorado but to make a rapid fortune. To return home quickly and enjoy their riches in peace was their sole ambition. What good to them would sumptuous houses be to live in abroad? But a very small number are ever able to realize this dream. From various

causes the greater portion of them never do return home, and their descendants, having no other means of comparison than that afforded by the Indian hut or the *rancho* of the peasant, look on their old Portuguese dwellings as the perfection of architecture. Nevertheless one sees that these old buildings, closed on all sides, are not in keeping with the world around them. The air cannot penetrate within their massive, naked walls. Instead of these fortresses of the middle ages one would like to see those handsome, spacious pavilions which belong to and can supply the requirements of a tropical climate. But their country traditions, the creole *nonchalance*, and Brazilian jealousy take the lead, and that is quite sufficient.

Since we cannot penetrate into the interior of the Brazilian residences let us visit the shops, and we may find there the examples which we look in vain for elsewhere. That pale-looking, enervated youth that you see in the store opposite arrived one day from the Azores, his whole wardrobe consisting of a shirt, waistcoat, and pantaloons which scarcely covered his person. His family could do nothing for him, and therefore placed him on board a ship bound to Rio Janeiro. The master of the shop goes then to look for him, and, having paid his passage, engages him as his apprentice, and now he is the *confidant* of that person. The very model of sobriety and Portuguese tenacity, he denies himself all indulgence, all the pleasures of this world. It may be truly said that his life is an uninterrupted course of work and privation. But he consoles himself with the prospect of the future. He knows that if yellow fever or consumption does not cut him off, one day he will be the master—the *fazendeiro*, as he is called—and perhaps the *commendador*.

Possibly you may be in conversation at the counter and you will see a cavalier stopping at the door; who, having alighted, gives the bridle of his horse to a black servant, enters, and, clapping his hands, announces that he has a commission for the house. Thus you naturally suppose he is an *employé*, and has brought some order. The master, however, knowing him, takes some *vintins* from his pocket and gives them to an attendant, who carries them direct to the cavalier. This *employé* is no more than a beggar!—at least, so we should call him among ourselves. But every one has his ideas of mendicity. Is it possible, indeed, to consider a man a beggar who is dressed elegantly, with a negro for his servant and a horse for his use? Charity is not so dishonoured in this country, where the land is so prodigal of its favours and hospitality so easy. Thus is mendicity considered by the gentry, who follow it as a veritable profession. Each one knows where to go without being importunate. His visits are generally weekly; at the houses of the bountiful and rich he makes perhaps two visits a week, but never more. Should you meet him returning from these rounds of visiting you would find him the gentleman, full of intelligence and quite a connoisseur in ease and resources. If he is moderate in his expences he buys and sells slaves, and becoming in course of time well off in the world, in his turn he remembers those who enabled him to live; but he is one, indeed, of a

few. This profession is resorted to by the *ci-devant* student, who requires but a few milreis to enter into orders. The most singular anecdotes may be told of these persons, and one of them, the Senhor Maranhense, has raised the profession to a veritable science.

Any one might, as an artist, like to make an excursion into the country; in which case you must order your caravan, and you request your friend in the city to tell you of a good muleteer. He takes you to a suburb of the city which the turkey-buzzards seem to have chosen as their residence, and where the negro odour assails one most fearfully. But a muleteer soon makes his appearance, ready dressed in his poncho, and agrees to the stipulated price. This man is supposed to know every part of Brazil. His manly person and pleasing address at once inspire confidence, and you are on the point of engaging him, when a new comer informs you that this pretended guide is a *tropeiro* of no good character, and one who is given to deserting his charge in the midst of his journey with the best mule in his service. But admitting that you have found a *cicerone*, and have named the day on which he is to have the animals ready, he will gravely tell you that he is a guide and not a *tocador*,—that he is not a free man to own mules, and that his master may perhaps allow it. You set about looking for this master, and if you are not on your guard you light on a fugitive slave, whom the police will lay hold of at the very moment you are setting out.

However, suppose that all this is arranged and that you start off. If you have not taken the precaution to provide the *cuisine*, the expedition becomes impossible. The first time I made a journey in Brazil I saw the guide suddenly dismount from his mule, and under the pretext of adjusting some of the arrangements put out of order by the irregularities of the road or the slipping of the animals, he buckled the girths of the mules tighter; and as this was repeated again and again, I began to fear for the flanks of the mules and hazarded a remark. "Never fear, Senhor," answered the guide, "the tighter a mule is girthed the more sure-footed he is." At the first place we halted at I thought that I perceived the marks of his spurs on my bags. Too true, for the next day the covering gave way, and but for the assistance of a maker, who placed his own bags at my service, I should have been obliged to leave my baggage on the road.

As in all cities far removed from the capital, the inhabitants of Pernambuco have long been under a prevailing idea of separation from the metropolis. This place is about as far from Lisbon as it is from Rio Janeiro. Before a regular steamboat service was established they were some months without intelligence from the capital. The central power then was only heard of by its regular demand of taxes, and the people of Pernambuco made this the subject of their bitterest remarks. They undertake expeditions everywhere. Whether the Dutch, who in former days made war in these parts, have left some germs of their independent spirit, or whether their nearer proximity to Portugal revives some of the old Portuguese blood, here, in this city, the spirit of independence is certainly most prevalent. Thus,

for nearly half a century the inhabitants of Pernambuco have been endeavouring in various ways to throw off the metropolitan government, and to realize their dreams of independence; and although many insurrections with this object have been serious, I do not think the desire for emancipation which they so strongly entertain would even satisfy them. The province of Rio Grande do Sul, situated at the other extreme of the empire, and which for similar reasons has tried to form a separate state, has equally been obliged to yield; and meanwhile the Brazilian government has at her service men who know the price of liberty, hardened in enterprise, and considered the first of South America. We may add that these tendencies to separation are becoming less every day. The constitutional government of the emperor leaves no room for their political recreations. The steamers which are perpetually crossing the Atlantic strengthen the hands of the government, and continually decrease the feeling of isolation by their repeated communications, and make it evident to Pernambuco that she is too weak and too much impregnated with the Portuguese spirit to have any right, like Monte Video, to form a separate state.

We see in Pernambuco a town where the influence of capital is balanced by contrary tendencies. But were we to look for a city which exactly represents Portuguese civilization in Brazil we should select Bahia. Of all the towns of the coast there is not one so charming. Perhaps the lower part of it, along by the sea, smells of the negro and is liable to yellow fever; but to our mind there is nothing so delightful as the esplanade which overlooks the roads, and where the breeze brings the most invigorating fresh air from the ocean. The hills which you see at Pernambuco as an apparition of promised land are repeated here, and still more magnificently at Rio Janeiro, always inundated with light and perfume. Along the whole coast, for more than a thousand miles, there are never ending garlands of flowers, now and then the hills lowering to make way for a river stream and rising again with more beauty, as if they were meant to fascinate the inquiring eye of the navigator. In fact, nothing can be more magnificent than this amphitheatre of mountains, with their eternal verdure ornamenting the shores of the Atlantic.

To the first rays of the morning sun the forest throws off its humid air, and displays to the distant seaman its undulating edge on the horizon, resembling so much cloud emerging from a sea of gold. There is a marvellous harmony between the sky, the land, and the sea. The sea throws on the distant hills its dark blue tint, the waves reproduce from their mirrors the green tint of their massive depths, while the azure sky softens all with its light colour. In the evening, when darkness is on the face of the waters, mountains, and forests, a delicious breeze commences, bearing the fragrance of flowers; and soon there is a fairy scene. Millions of little luminous insects appear in the foliage of the trees, which they illumine with their phosphorescent light. To see these moving sparks, which dart about, crossing each other in various directions, and gradually becoming lost in distance,

while others as suddenly reappear, all darting about in the most fanciful ways, one is apt to compare them to a revel of stars, come to enjoy themselves on the waves to celebrate the voluptuous hours of night, and add the laughing wonders of nature to the imposing splendour of the heavens,—those heavens which declare the glory of God and that firmament which showeth His handy work.

I was at Bahia on the 2nd of July, the anniversary of its independence. It was a similar day when, in 1823, the last remnant of the Portuguese army, under the command of Medira, decided on quitting the country. The celebration of it commenced in the evening. Large bodies of people and negroes were scattered about the streets, with flags, torches, and music. The songs, or rather the patriotic cries, the noise of fireworks, fifes, drums, and firearms,—all this confusion went on to an advanced hour of the night. On the following morning, at daylight, the houses were decorated and triumphal arches were raised over the principal thoroughfares. These preparations being made, all the free men were dressed in their uniforms of National Guards, and were marching the whole day in long columns through the streets, which were ornamented with flags and verdure. Small cannon, covered with flowers and flags, were drawn by boys who were not old enough to carry muskets. A long ribbon passed over the shoulders, with the words “Caixeros Nacionana,” distinguished the young creoles who were employed in the merchants’ houses and those representing the aristocracy of the place. The negroes, who formed a large majority of the National Guard, wore the Portuguese costume, and marched with all the dignity of men who were not slaves and who knew the value of their liberty. From time to time a column stopped to allow time for the boys to haul their pieces of artillery up the narrow passes to the upper town. The sides of the streets were encumbered with negroes in their turbans, passing signs of recognition to the soldiers whom they made out in their uniforms.

In the evening the hurly burly was renewed with still more vigour. Groups of negroes were running about the streets, preceded by torches, singing, hallooing, dancing, and gesticulating. At intervals a musket was fired out of a window, at which all these noises were redoubled. The women also, excited by the proceedings, gave full scope to the use of their lungs, throwing themselves into a variety of contortions to preserve their enormous turbans and their wide flowing dresses. And as a response to all this noise and confusion, the fireworks and muskets of the town were answered occasionally by discharges of artillery from the roadstead, and the spectacle might then be considered to have attained its height. It might be truly said that the ocean, lighted up with sparkling animalculæ, washed the shores of the city, while this became the scene of fireworks of every kind to illumine the darkness of the atmosphere. The *fete* would thus have continued till the morning if a heavy fall of rain had not on a sudden driven these sons and daughters of liberty to their respective homes. I have witnessed many national *fetes* in Europe, but never have seen such a display of noisy rejoicing or so much lively gaiety.

The negroes are very numerous at Bahia, and full often, in times of political trouble, they have done good service to the Portuguese. The rivalries of the various tribes, which are studiously preserved by them, have prevented the repetition here of the massacres of San Domingo. A traveller who did not know the distinctive habits of creoles would think that in Bahia he had found a town of negroes. In this place one finds specimens of all the African races which the slave-dealers have left on the shores of Brazil. The athletic *Mina* appears to dominate, preserving all his force and primitive energy.

Slavery has introduced some absurd customs, which appear strange to the traveller. Perhaps a couple of black people will be observed walking with a clumsy, awkward step, and making a huge chain rivetted round their legs rattle with their walk. This mournful appendage indicates two fugitives not to be trusted, who are secured to each other with a view to render their escape impossible. Further away a slave may be observed whose person is encased in iron rather strongly formed, something similar to the armour which was worn in the middle ages. Your guide will tell you that he is a poor fellow who wallows in dirt, and that he is thus treated to preserve him from his unruly habits.

But your attention will be most attracted by the gigantic negresses of *Minas*, who are so stately that they seem to have been chiselled out of a block of black marble. It is not uncommon to see these women of six feet carrying with much gravity a banana or an orange on their heads. The horror of work is so rooted in their indolent nature that they consider it degrading to carry the least thing in their hands.

It is generally towards the evening that the young men sally forth on their visits; but their dignity does not admit of their doing this except on horseback, and the animals are not fleet in their movements, but will find their way, however narrow may be the road they have to take, either in ascending or descending. Those who are more advanced in years, and the *senhoras*, only go out in a palanquin. These ladies, however, never leave their houses except on *fete* days, a mode of life which must be enervating; and it is seldom they can vie with the luxurious figures of the women of colour, who have mingled with their African blood an incomparable richness of the fountain of life.

(*To be continued.*)

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

The desire of making a fortune—that all-powerful stimulant of human energies—is generally pretty evident in the disposition of Englishmen, and is like a seal on the national character. The English do not look for opulence merely for the sake of being rich, but also

for that of the consideration attached to it; and every one in the United Kingdom requires riches as the most certain means of raising his social condition in the eyes of the world. All the powerful officers of the state depend, in fact, on their personal property or their large salaries. In England, as elsewhere, from time to time appear moralists who preach against the abuse of riches; but it is pretty generally acknowledged that their eloquence has never convinced any one. Many, indeed, have proved, as opportunity has offered, that in spite of all their fair words, they have not succeeded in convincing themselves. This *amor nummi*, considered by one party as one of the dangers of English society, by others as the mainspring of intelligence and activity, has always exercised a considerable influence on the manners and enterprising character of our neighbours.

How can we be surprised, then, that the English have anxiously sought in the ground for gold and silver, the two precious metals which hold in a concentrated form all kinds of riches. Cæsar himself, it is said in his *Commentaries*, was no stranger to the metallic treasures of the country when Britain was invaded by the Romans; and there is reason for believing that formerly gold and silver were found in British soil. The history of mining in Great Britain is so mixed up in the middle ages with legends of all kinds, accounts of fairies, dwarfs, and giants, that whenever gold was found a most marvellous excitement was produced. From the most trustworthy documents we learn that in the reigns of Edward I and Edward II three or four hundred workmen were employed at Comb Martin (Devon) in the gold mines, the produce of which was of great assistance to the Black Prince when he made war against France.

Gold was found, and is found from time to time, in many other parts of the United Kingdom; but of all these discoveries that in the county of Wicklow, in Ireland, was the most remarkable, in 1796. It was at first a secret; but, like the secret of Midas, it was not long in crossing the Hibernian marshes, and the whole rustic population of the neighbourhood forsook the cultivation of the soil and hastened to the harvest of the golden grain. The people continued in possession of the ground for six weeks and found a large quantity of virgin gold; when the government, to whom by law all the riches of the soil belong, determined to commence regular works. An act of parliament decided that they should be conducted by three directors. At first the produce of the mine paid the expences and gave a surplus, but the works were suddenly suspended by the rebellion of 1798. This having been put down, the works were renewed in 1801. Cuts were made in the solid rock to discover the veins which, according to experience, should contain the mineral. But it was all a dead loss, for the gold seemed to have vanished.

At present a society is formed to work mines in Wales. It is said that this mountainous country has shown signs of the precious metal; and the old Welch songs, known by the name of *triades*, celebrate some of their princes as having possessed accoutrements of gold. A learned geologist, Mr. Smyth, has found in the quartz of Ogofan, near



Pampant, in Carmarthenshire, the traces of works performed by the Romans, similar to those found in Transylvania. If gold existed formerly in Wales it is very naturally concluded that it is there now. No, surely: very different from the metallic veins generally is this; the auriferous veins appear to be richest near the surface, and become smaller as they go lower. It follows, then, that gold, the fragments of which detached from the original rock show themselves to the first comers amongst the *debris* of the mountain and in the dry bed of its torrents, gives rise to a most difficult and often fruitless search.

Silver, too, has often shown itself in different parts of the soil of Great Britain. In 1296 Edward I received from Devonshire 704 lbs. weight of this metal; and down to the reign of George I the mines of Wales furnished the principal part of a certain quantity of silver brought to the mint. At the end of the sixteenth century, and commencement of the seventeenth, the mines of Aberystwith, in Cardiganshire, acquired great celebrity. Sir Hugh Middleton, it is said, realized there a large fortune, which enabled him to construct the canal called the New River, from Ware to London. At his death a Mr. Bushell, secretary to Francis Bacon, bought these mines of his widow and obtained considerable profit from them. Having obtained from Charles I the privilege of coining money, he established forges on the spot, and fitted out the king's troops with a part of the silver which he obtained from the mines, and which he had worked himself. In the course of the civil wars Bushell sacrificed his fortune, and soon placed himself at the head of a regiment of miners, which he had raised in support of the royal cause. The castle of Aberystwith was attacked and fell to the soldiers of the parliament. From that time the coinage business and the mines themselves were abandoned; and now silver does not appear in the lead mines of Great Britain, except in company with tin.

For a long time a large quantity of this silver was lost and neglected by the miners, from the difficulty of separating it from the lead with which it is found in very small quantities. Latterly, a celebrated chemist, Mr. H. Lee Pattison, has proposed a more certain, as well as more economical method of separating the two metals. His plan, by his calculations, effected a saving of £60,000 per annum. In fact, Great Britain obtains from her mines 70,000 tons of lead every year, more than half of which contains a certain portion of silver. This discovery, known by the name of Pattison's method, introduced a kind of revolution into the mines, and will not be without its influence on the public good.

Notwithstanding some peculiar cases, the English up to the present time have not found gold and silver enough in their own soil to satisfy their wants. They have, therefore, been obliged to have recourse to commerce, industry, and to great maritime and colonial enterprise. Like the greater part of Europe, England has long obtained from other countries the metals for her purpose. What has been the progress of this acquisition? Up to 1840 Great Britain had received annually her supply of gold from South America, Africa, and Russia. The

produce of the American mines was then considered to be 30,700,000 dollars annually. The principal places whence it came were Mexico, Chili, Panama, Buenos Ayres, and Peru. It has been calculated that in these last countries the lives of nine millions of Indians have been lost in the space of three centuries.

All the mines of the New World then known were falling off, and the same may be said of Africa. Perhaps there may be in the interior of this country natural riches which have not been reached by the hand of man. A scientific traveller, Sir James Campbell, staying some time at Zante, one of the Ionian Islands, observed a small kind of pigeon of Barbary, which at a particular time in the summer arrived there in enormous numbers from the African coasts. Some of these birds being shot, he observed that their feet were covered with a shining sand, and after carefully examining it he found that it contained a considerable portion of gold. A field of conjecture was thus laid open. The most probable conclusion was that these birds before setting out had been enjoying some water-course, the borders of which were formed of sand containing the gold. But where was this to be found? The pigeons that were thus the messengers of gold had nothing more to say, nor have travellers yet found the place of it.

The richest mines known are those of Siberia and the Ural Mountains. The auriferous land along this imposing chain seems to have been worked in ancient times by the Scythians. In 1842 the total produce of these mines was valued at £2,000,000 sterling annually. It was afterwards raised by Sir Roderick Murchison to nearly £3,000,000. In spite of these different sources for the production of gold more abundantly than in England or in any other European country, it was relatively scarce, and on more than one occasion the British press expressed very serious fears for the failure of the precious metal.

Such was the state of affairs when, at a moment the least expected, the world was surprised by the rapid successive discoveries in California, in Australia, in New Zealand, in Nova Scotia, and in British Columbia. The news of gold being found in California produced, in 1848, an extraordinary sensation. In less than six months five millions of persons, principally of the Anglo-Saxon race, had resorted to the scene of operations.

But how much greater, in 1851, was the surprise in England at the discovery of the rich gold-fields of Australia. England then had a California to herself,—a large gold-field under the protection of her flag. England, which had hitherto received the precious metal from the hands of foreigners, could then command the markets of Europe. The discovery this time was thoroughly English, and people resorted there from London itself with all the resources of science. In 1844 the celebrated geologist Sir Roderick Murchison, after examining some specimens of rocks collected by one of his friends (Count Strzelecki) and brought from the eastern chain of mountains of Australia, placed his finger on the map and said "Search there, for there is gold."

This scientific prediction was repeated in the Australian journals,

and in 1849 a certain Mr. Smith, who was at Sydney, exhibited a piece of gold which he had found to the members of the colonial government. He proposed to point out the locality where this specimen was found, and where there was plenty more of it, provided that he was properly rewarded. This the colonial government refused, observing that there was nothing to prove that this specimen was not brought from California! and thus the Sydney authorities were by no means inclined to encourage what was termed the gold fever. Mr. Smith was then asked first to show the gold-field (and he was desirous of disposing of it), and then to trust to the liberality of the government! But he left Sydney, carrying with him a secret which was not long in getting abroad. Another colonist, Mr. Hargraves, who had acquired mining experience in California, in 1851 had all the honour of the discovery, and, not having named any conditions, received the reward of government. Since 1852 Australia has sent to Great Britain a mass of gold which may be valued at £10,000,000 sterling every year.

Mr. Robert Hunt, of the Museum of Practical Geology, of London, has observed, in his *Statistics of Gold*, that the great discoveries of it have always coincided with grand historical epochs, supporting his opinion on the theory that it was one of the laws of Providence to make discoveries useful to the progress of mankind. We have been accustomed to rely on the marvellous development of industry and the useful arts. The natural consequence of these discoveries has been that the valuable metal is plentiful, as the English say, in the London market. In 1858 alone Great Britain received in gold and silver a sum exceeding £37,000,000 sterling. It is easy to imagine the impulse given by these metallic riches to the commerce of the metropolis and the prosperity of the colony. The population of Victoria (Australia), which in 1837 was 177 inhabitants, now amounts to 540,322 souls. The recent discoveries of gold have also had their influence on the English, in exciting among them a spirit of emigration, and in developing in London the old system of working the precious metals, in which there is a series of facts well worthy of serious attention.

In France we have in our monetary system two standards of value, viz., gold and silver; the English have but one, which is gold. Let us then consider this. Gold appears under three successive forms; first, as it comes from the mine, that is in the form of the nugget; next it takes the form of the ingot; and then that of money, after having received the legal stamp. In each of these different states special workmen are employed. In the docks we find some of the representatives of the class of hardy emigrants or gold hunters who go to seek their fortune across the sea; again, among the melters and refiners in London we find the native gold changed into the ingot; and lastly, at the Royal Mint, may be seen the manner in which the gold is converted into sovereigns.

Perhaps there is not a more interesting place for observations on men and manners than the docks of London. Of late years it has been my custom to resort to them whenever the renewal of the gold

fever induced flocks of emigrants to undertake the voyage to distant colonies. When the mines of Otago, in New Zealand, were high in public favour (in 1861) I was walking one day along the magnificent basins of the West India Docks, from Limehouse to Blackwall, close to the left bank of the Thames. Blackwall, as is well known, formerly a village but now a suburb of London, is occupied by shops more or less connected with maritime business. The West India Docks—the first stone of which was laid in 1800, and which were opened in 1802—consist of a canal three-fourths of a mile long, contained within stone jetties. In this canal, amidst a thick mass of vessels, I observed one full of emigrants, about to depart for New Zealand. This vessel, although having three masts, formed, by her modest appearance, a remarkable contrast to the superb vessels on either side of her, the saloons of which were fitted out in the most luxurious style.

The captain, perceiving that I was attentively observing his ship, very kindly invited me on board. Here, indeed, the scenes I saw were most imposing. There were before me all the miseries of society, which had produced the determination to emigrate from the mother country. It is a great mistake to imagine that the new colonies attract, as is often said, the youth and vigour of the Old World. No doubt there are among emigrants those of robust and handsome form; but, alas! how many are there with faces palid from privation and want, with wasted limbs, poorly covered, worn by sorrow and bitter suffering?

The vessel which I had thus visited, and which was just about to sail, contained some sad specimens of the kind of subjects which England sends to the antipodes. The first person whom I met on the deck was a thin woman with an infant at her breast about a month old; but the poor soul had no milk for her child, and this made it as unhappy as the mother evidently was. One would have thought at first, from seeing several women, that there were no men on board; but some of these were busily engaged in opening large cases and getting the luggage stowed away, and thus the women and children seemed to be in much larger numbers,—all with nothing on their heads, their hair tied up behind. This detail is scarcely worthy of notice, but as in England the women and most of the children always wear a covering for the head out of doors, it was evident that these new comers on board regarded the vessel as their home.

There were some from every part of Great Britain, and of all ages. There was a mother with six children, the heads of each of them rising above the others like Pandean pipes, who were going to join her husband, a miner in the new gold-fields of Otago, and who, she said, was doing good work. Each one told her history in a few words. An Irish girl, with an infant in her lap, was going to look for the child's father in New Zealand! Another had been married some days to an Irishman much older than herself, and without scruple she threw her arm round his neck; while her sister, ill dressed and ragged, with dirty person and hands, was laughing all the time at every thing,

showing a good set of white teeth. "And are you going out for a husband?" I said to her. "I hope so,—that is what I am going for!" she replied. They both belonged to a family of poor farmers, whose harvest had been spoiled by the blight. Another young couple appeared to attract the attention of the passengers. They were Scotch and had only been married the day before. The bride had run away from her home, and had brought nothing on board but her marriage dress! The bridegroom was accompanied by an old man and his wife, with their gray locks; he said he was forty-nine years old, but looked about sixty.

Although it was October most of the women were lightly clothed, the bosom open, as usual at home in doors; but they believed that they were already in the warm country to which they were going. Still there was a little coquetry in their dress, along with an indigence that went to the heart. Their shoes and stockings betrayed long service, and the gloom of sorrow was apparent through the frippery which some of them had put on. But there was not a tear, not a murmur or complaint; all, at the moment of departure, on the contrary, affected a calm—even ironical—manner. No doubt there was sadness under this indifference, but every one had laid aside all regret, all complaints. The distinctive character of the different provinces from which they came was evident in their physiognomy: the Irish, for instance, were by no means so silent and grave as the Scotch. One of them from the Green Isle kept everybody in laughter about him by his jokes and buffoonery.

After looking over the deck I went to the cabins. Here faces were of a far more serious cast than on deck. It was evident here that those who had a weight at heart had retired to this secluded part to conceal their feelings. There was, among others, a young man seated on a stool by a table, playing a melancholy air on a concertina that was well known by those about him—the "Adieu of Byron to Old England." Some good wives were busy in washing the little linen which they had brought with them; and while these were so employed the men were nursing the children in their arms.

The cabins were divided into two classes (there are at least four in large emigrant ships), and the last class is very far from conveying an idea of comfort. The air, the light, and the space were there doled out most parsimoniously. There were berths in which they were caged like the pieces in an armoury, as many as eight bed-places one above the other, and so confined that only two persons could dress and undress in each cabin at a time. The vessel was to be about three months on her passage at least, and it may be imagined what a miserable time would be passed in these floating prisons.

Such, alas, is the infirmity of the human heart, that the smallest circumstance bordering on the grotesque can break in on its melancholy. A rather amusing scene suddenly attracted the attention of some of the passengers. This was occasioned by some little pigs, three or four months old, which had been brought on board, and which the sailors were handing from one to the other, in spite of the concert of

sharp cries which they sent forth with all their might; for these animals, frightened and not accustomed to be carried in the arms like babies, gave way to the expression of their disapproval of such treatment, which of course occasioned shouts of laughter.

It was about five in the evening, and the emigrants gazed at the sun wistfully as it was setting for the last time to them in England. The vessel was moving slowly along the dock, through the forest of masts about her, and I was for landing; but the water was too low to admit of her approaching the jetty, and I was obliged to remain on board, much to the amusement of the passengers, who said, of course, that I must go with them to New Zealand. So we entered the river, and were soon in tow of a steamer on our way down. Most of my *compagnons de voyage*, for I began to consider the passengers as such, gradually vanished from the deck to their berths; but others, in spite of the cold wind, obstinately stuck to the deck, gazing on the banks of the river as they passed them.

Availing myself of that friendly intimacy which had been established between us, I ventured to question some of them on their projects, and obtained from them all nearly the same answers. "Why do you leave your country?" "Because there is no room for us in Old England." "But what do you intend doing in New Zealand?" "Whatever we can!" was the answer. "Have you any capital?" "Yes, to be sure," was the reply, "we have our wits and our hands." A few among them boasted of their freedom, from which it seemed that all of them could not do that. By this freedom was meant, I soon found, that they had paid for their passage; while many who had not would have to work on their arrival until they had paid the portion of that expense which remained unpaid. These, in fact, were under a kind of servitude, having to give the place of their residence on landing, from which they could not depart without leave from the company to which the vessel belonged.

It often happens, from what I learned on board, that as soon as the vessel gets to sea, a stow-away is found emerging from his hiding-place, showing a face that had not been discovered on board until then. This person is mostly a young man—perhaps a young woman—who had resorted to this stratagem to emigrate, being unable to pay anything for the voyage. It is, however, too late to get rid of the intruder, and he or she is therefore watched and made to work for the passage.

Among the emigrants might be seen a group of gold-diggers, who were going to Otago. These men, at least, had a certain destination. They might be recognized at once from their stature, their strong athletic forms, and their determined expression of countenance. Many of them were old navvies, who carried their profession at the point of the pickaxe, and an Englishman is always at home as long as he can find work. To those who asked the question "What will you do if you find no gold?" the quick reply was, "Is there no ground in New Zealand?" Some of them, not many, expressed the intention of returning home in the *Great Britain* when they had made their fortunes.

This word fortune seemed to me strange coming from them, considering the working dresses they had on. It is, however, from these empty-handed, coarse sons of labour that England obtains the precious metal destined to increase the public wealth. But more than one of such men who went to Australia about 1853 has sent his contribution to the distressed operatives of Lancashire. The newly discovered mines of New Zealand may enable these to do the same good work. As yet, the result of their labours is not known, but the receipts are promising well, and the faith of the gold-diggers is staunch.

It was nearly two in the morning when we were off Gravesend, and as the vessel had to stop to take more passengers on board, as well as provisions, my landing was easy. On taking my leave, all of them with whom I had been conversing shook hands with me cordially; and on landing, I waited and saw my friends under sail and gradually disappear as she passed down the river. These emigrant departures to New Zealand are frequently most interesting from various circumstances: often during this passage of about three months two or three children are born, and more than one vessel has been lost on the Cape of Storms!

Have the mines of Otago kept their promise? As yet they certainly have produced a fair show of work, and are still continuing to do so; but they have had more than one disaster to begin with. As soon as the news spread of the gold-fields of Australia they were crowded with workers. Many of them had rushed there headlong, with no means of existence, reckoning on living from day to day on the gold which they found. Unfortunately the metal did not immediately appear; on the other hand the price of provisions was enormous and some of the gold-hunters perished from hunger while others, discouraged, left the pursuit. After all such reaction has been useful in one sense, for it has only left on the spot a sufficient number to work the mines, and results, although fair, are yet limited.

At the time when our attention was called to the progress of the Otago mines the spirit of enterprise was directed to another quarter of the English colonies. It is but a very few years since British Columbia was merely a name found on the map of the New World, but now, in England, it is in every mouth. What is the cause of such a change? Simply the discovery of gold. In 1856 the present governor of Vancouver Island had written to the government to announce that gold had been found in British Columbia; to which he merely received a formal answer. The English government evidently cared not to listen to such representations, or the encouraging reports given by mineralogists. Nevertheless, public rumour and the reports to parliament in the blue books spread the news, and the result was that explorations led to further discoveries, from which it was evident that England possessed a rich colony without knowing it. The territory extending on the western coast of North America from the United States' boundary to the Russian settlements had not been considered in any other light than that of an impenetrable country, occupied by Indians who lived by hunting.

The greater part of the gold discoveries are anonymous, from having been discovered nearly at the same time in several places by different persons. One of the first miners who had driven the spade into the auriferous soil of British Columbia was a Scotchman named Adams. He was travelling in the Hudson Bay Company's territory when, on arriving at one of their stations, he learned from a friend that the Indians of Fraser River had brought him pieces of gold, which they offered for sale. This bit of news was enough for Adams, as he had been a miner in California, and the result was that he determined to examine the matter for himself. He therefore set out on the track of the Indians, and found them in their wigwams, busy washing gold nuggets.

Proceeding himself to the banks of the Fraser River, he saw at once that the soil was rich in gold; engaged a couple of Indians, and worked with them for three months. Left thus far from Europeans, and having collected in the course of that time as much gold as would produce a thousand dollars, he left the scene of his labours and, sooner or later, confided his story to some American sailors, who went with him to the same place the following year. Nevertheless, the news of the discovery got abroad, reached Victoria, in Vancouver Island, and had even been carried to San Francisco, where there were plenty of miners.

From that time, British Columbia, little known as it was, took its place on the map,—the richest part being apparently on the banks of the Cariboo, a tributary of the Fraser, under the Rocky Mountains. These were discovered by a young man named McDonald, a half caste, half Scotch and half French, combining in his character the qualities of both. Like many of the Highlanders, he had an athletic form, and had a contempt for obstacles from the habit of mastering the difficulties to be met with in a mountain life; and to this natural activity he added the spirit of the Welch. His robust health, however, had been shaken by a stay of three years at the mines of California, where he had been continually exposed to the severity of the climate and a thousand privations besides. He had returned to the English colony, where, either by chance or calculation from the specimens which he had seen, he said that Cariboo was the land of gold.

From this time the accounts received in England from the site of the mines were sufficient to move the most frigid imagination. According to appearances, the best days of California were about to be reproduced in British Columbia. The gold in some places was massed together in nuggets. In the month of May, 1860, a Mr. Smith had gained £186 sterling in one day, and many other persons, the names of whom are given, had realized extraordinary sums. An Englishman, Richard Willoughby, had found at the same place many rich veins of silver ore; from which he turned with contempt, for at Cariboo they only look after gold. An experienced digger had returned to Victoria with bags full of golden nuggets, which enabled him to live in luxury.

The effect of all this on a people who are ever ready for adventure by land or sea may be readily imagined. These riches, obtained from



the ground in some months—in some weeks—often even in one night, reflected across the ocean their own tale like the prism rays of glass. The emigration fever, which had somewhat subsided since 1857—the time when more than 200,000 people left the United Kingdom, appeared at once to reanimate our neighbours. The abundance of this harvest of gold contrasted painfully with the falling off of cotton in England and the distress of the Lancashire weavers. Perhaps in the new goldfields might be found the remedy for the evil from which this class of workmen had suffered so much.

There is still a difficulty to be surmounted. There are various routes by sea and land to British Columbia, but they are all tedious and expensive. It is said that no one should undertake the voyage who could not command fifty guineas. This El Dorado is not protected against the rush of diggers except by its distance and the difficulties of the journey to it. In one respect these difficulties are rather useful. Like all obstacles, they try the strength, and must be overcome by sheer resolution. The position is ill calculated for those who are altogether without resources; but the government, generally looking favourably on this mode of thinning the swarms of population, abstained from giving direct protection to emigration there. This reserve is intelligible as far as regards British Columbia: the gold-fields, after a certain time, often prove deceptive, and the authorities might naturally expect that some day they would be reproached for raising false hopes.

There were, however, plenty of English who were not prevented from going by the difficulties of the road. In May, 1862, I accompanied an old gold-digger to the London Docks, where he was going to embark,—one who had learned his first lessons in California and Australia, the two great attractions of the nineteenth century. As he had gone through a great deal he was for telling his story, and to him I owe the knowledge of many particulars of the lives of miners. This man had been attracted in contrary directions by two very strong desires—the love of gold and the love of country. He was consequently, as they say, between two haystacks: when he was at the gold-fields he wished himself in England, and when in England he wished himself at the gold-fields. This unsettled kind of humour, with a wandering disposition, is a trait of character which distinguishes the gold digger. Even gipsies, who attach themselves to no particular place, are sometimes led here or there by the public rumour of some metallic prospect.

The working of a gold mine is a lottery, but doubtless there lies the attraction to the heart of man. In his line the miner whom I accompanied to the docks had not, as yet, been fortunate; but he was not discouraged, and of course hoped that some day or other he would still find a happy lot.

The steamer, which was going to Victoria, and was called the *Tyne-mouth*, was a magnificent iron screw vessel. She carried about 360 passengers; among whom one-third at least went to seek their fortunes in British Columbia. The greater number of the miners occupied that part of the ship called the *steerage*. With some few exceptions,

she carried no women passengers, but a tolerable number of young women had come to see the vessel off. With an adieu there was no doubt many a promise from the men to their *bien amies* that they should have mountains of gold when they returned from the mines.

These departures for Columbia and the other gold-fields have made more than one victim to the tender passion. About two years ago, travelling in Yorkshire, I remember seeing an unhappy damsel sitting by a brook, with hair disordered and eyes haggard, throwing nutshells into the stream, repeating at the same time, in a cheerful or melancholy voice, the words "He will return, he will not return." The persons about her told me that she had been the sweetheart of an adventurer who had long since gone to the gold-diggings, and who had promised to come back and marry her; hearing nothing of him, the poor creature had lost her reason.

Women are by no means too numerous in the new colony. In fact, the men out there, it should be known, are much in the same condition as the Romans before the Sabine virgins were carried off. The fair sex, in fact, are in great demand there. The Bishop of Vancouver Island, struck with the importance of this, is said to have placed himself in communication with an association in London to facilitate the passage out of a certain number of intelligent young women of good character, and sixty-two were accordingly sent out in the *Tynemouth*. One of them died on the passage, but the rest arrived safe and sound in the colony, where they readily found places as domestics or as governesses while their better fortune was preparing for them. As for those who entertained the idea of marrying, they found plenty of candidates, and the embarrassment of choice was the only cause of delay.

The men, among whom are now and then some poor outcasts of the large towns, are in general fine, vigorous, intrepid adventurers; but when arrived in the colony do not make a favourable impression in comparison with the old experienced miners of San Francisco. The dress of the former is too new, their arms and legs too white, and they have too much luggage with them; while the latter may be distinguished by their bronzed limbs and breasts, clothes which bear the appearance of long service, and an air of self-confidence, which they have attained in a long acquaintance with hard work. Such is the difference between the new hand and the old hand, who has been browned by the sun and the breeze in a distant part of the world.

Arrived at Victoria, the diggers are yet far from their destination. The rich ground which they have to work is five hundred miles from the sea. To reach it the hardy miners have to find their way across a primitive forest and over the summits of the wildest mountains; in preparation for which the greater part of them encamp round the town ready for the time of starting. An advanced party of young adventurers, having set out too soon in the spring of 1862, no doubt with the view of being the first on the ground, perished on the route from hunger and cold. Instead of fields of gold they found, on gaining the scene of work, fields of clay concealed by beds of snow.

In this same year the stream of gold-seekers was divided into two

branches. The rich and daring set out for Cariboo; the others, frightened by the perils of the route and the scarcity of provisions, directed their steps towards the banks of the River Sticken. This river enters on a tract of country which extends from Mount Elias to Portland Strait for about thirty miles, and leads to a district where there is much gold. The Sticken River has steamers running on it, small vessels, carrying travellers and provisions. This auriferous country—the “poor man’s diggings,” as it is called—although having the advantage of being more accessible, is considered by the miners as a last resource or a kind of provisional *ultimatum*. The real ground is Cariboo, and this would be gained in the following year; for it was considered prudent to wait and see if the government would open a road to this land of Canaan.

The travelling of the caravans across the desert is extremely curious. The road—if a road it can be called—is marked by a long string of covered carts, drawn by horses, oxen, or mules, which contain, along with working tools, all the outfit required by the labourers. Some travel afoot with a wheelbarrow before them with all their implements; or, in difficult parts of the road, assist with their shoulders a poor donkey, sweating and panting from drawing a small carriage containing provisions, thrown into it any how, with empty sacks, which they hope to return with full of gold. There are but very few women or children; but if perchance there should be their hands are not idle, and they contribute all their might and main to the progress of the whole party. The determination of these travellers is veritably wonderful. They may be seen carrying on their backs extraordinarily heavy loads for great distances.

The search for gold has always produced prodigies of labour, that render the fable of the Argonauts almost worthy of being treated as modern history. When young miners arrive among the crowd they are at first disappointed. According to them they expect to see the gold springing out of the ground like mushrooms; but their old dreams very soon vanish. A person must work, and work hard too, to discover the rare metal. The mountains of gold, like the islands of diamonds, are only to be found in the Christmas pantomimes of London. Nature has determined that even at Cariboo itself man shall gain his bread by the sweat of his brow.

To obtain an idea of the labour of finding gold it is best to go back to the formation, or rather the natural history of it. At the time of the marvellous discovery in Australia the professors of practical geology in London gave a course of lectures for the workmen who proposed going out; and certainly their lessons were not in vain, for the theories of science are intimately connected with the operations of the miner.

Among the numerous zones of land forming the crust of our globe there is but one in which gold is present in any notable quantity, and it is that which geologists term the Silurian rocks. These rocks are very ancient in the history of nature; and therefore, if we are to follow the views of Sir Roderick Murchison, gold, at least in its pre-

sent form, would be a tolerably recent production in the latter ages of our planet. Sir Roderick appears to think that gold existed without doubt in a diffused state across the mass of Silurian rocks from their origin, but that it was not collected in veins, in cordons, and crystals till much later, although at a period of time relatively far distant. But meanwhile what is the date of this period. The English geologist considers it to have been a little earlier than the great disturbance of the crust of our globe when the large mammiferous animals perished. Thus, then, from nature's own chronicles the age of gold does not date from the commencement of time, as the poets would have had us believe, but near the end of the first period.

But what has been the cause of the nuggets or agglomeration of the molecules in the midst of these Silurian rocks. They can only be attributed to great chemical action of nature's own hand, known by the term metamorphic force, in which heat, electricity, and the violent action of water have done their several parts. Everything goes to show that the liquid metal is spread and ramified in veins in the mass of the hard rock while the quartz, which serves down to the present time as the matrix of gold, was itself in a soft condition, when that filled up its cavities.

This theory well explains the presence of gold in the ancient rocky masses and the veins of quartz, but how is it explained that gold is also found, even abundantly, in certain alluvial ground, such as in valleys, on the borders of rivers, and in the beds of torrents? This must arise, without a doubt, from the action of water, storms, snow, and other erosive causes. The fragments, which are collected from certain ground and at a variable depth as irregular lumps, in grains, or even in spangles, have been detached by the above causes from the mother rock.

These two conditions, certainly very different from each other, are those under which gold is found,—associated in the solid rock, in the body of quartz, or by some means disengaged by ancient inundations and driven, among the *detritus* of all sorts, into nature's crucible basins; these have produced two kinds of results.

To attack the solid rock and the strata of quartz, to crush them, and, with the assistance of mercury, to separate the molecules of gold which they contain from the rock is sometimes a fruitful undertaking, but one which requires plenty of capital, powerful machines, and a considerable amount of workmanship. In alluvial ground, on the contrary, in which what is called stream gold is found (gold washed down by currents), nature has already performed half of the miner's work. He has here nothing to do but to collect that which he has taken the trouble to extract from the rocks, the base of which is immovable. Most beautiful masses of gold, called nuggets, have been discovered more than once at the very surface of this ground; but it is generally necessary to use the spade and the pick even in these masses of alluvium.

Again, as the chief of metals does not choose to be easily found, it appears likewise in grains; and in order that none of it should be lost,

one of the most secure methods of getting it is to wash the soil. In the Exhibition of 1862 the process of doing this was shown at South Kensington, for there was a person expressly sent there from Ballarat, in Australia, who was constantly going through the process of gold washing. If the soil is sandy it is first thrown into a shallow tray of water and is separated easily. When the sand or auriferous gravel is sufficiently loose, the workman collects it in a cradle, wherein it is further washed. It is then spread on a perforated iron plate, and after being exposed to plenty more washing, the cradle is rocked by two men, who sing some words well known among the miners,—“Cheer up, my brave boys, cheer up, let us rock the cradle cheerily. There it lies in its new bed what we want to bring forth. What do we think of in rocking the quartz? We are dreaming of sending to our homes some of the gold which lies there and in our thoughts.” While these words form their song, the little bits of the metal, by the filtering which they thus receive, fall into a part under the cradle destined to catch them. But it has to undergo a third washing, and on being drained the sand is entirely washed away, and then the grains of gold appear. The cradle is, of course, one of the most primitive of inventions; but in Australia a much more ingenious machine is used for washing and separating the gold; but as yet it has not penetrated into British Columbia, where they continue to rock the much desired metal by hand.

The life of the gold-digger and that of the gold-washer is one of adventure and severe privation. They are obliged to live for months in a tent, and to be exposed all day to the changes of weather, sleeping on a hard bed at night, perhaps on the bare ground. If any of them cannot withstand the severe changes of temperature to which they are thus subjected, they must build their own hut for better shelter with what they can find. In a more advanced state of things, it is true, in Australia, that solid buildings of stone and brick, handsome shops, and villages lighted with gas replaced these miserable huts of wood, and there is nothing of that primitive kind which is common in British Columbia.

The miners here pay a small tax to the government for a licence to work the soil, to the amount of £1 sterling the year, and this may be remitted. But there are very few who do not pay it, because the miner by doing so secures for himself the protection of the law, and secures his claim also to the ground on which he is working. This license, however, is often sold to others, and sometimes for a good round sum.

The miners are made up from everywhere,—a motley group from every country and of all colours—Negroes, Indians, Chinese, English, Americans, and adventurers from all parts of Europe; but all are on the same footing, and no one is considered as being above another: all are on the same level of equality. Every miner is called a boy; the old *soubriquets* of Dick, Tom, or Harry are laid aside. His costume consists of a red or blue flannel shirt, trousers of velveteen, and strong boots. Those London houses known as emigrants' outfitters

have realized large fortunes within the last ten years, and have opened shops in the country like palaces, where they sell clothes, utensils, tents, and, in fact, everything required by the miner.

The greater part of the miners dig during the day, and wash the soil at night in their homes—that is, their tents. Water is an indispensable aid to their work, not only to wash the gold, but also, of more importance, to wash away the auriferous mud known by the name of “pay dirt.” Now this operation above everything it is that tries the spirit and courage of the miners. This water is often brought from tolerably great distances through wooden conduits, or aqueducts cut across beds of rock. One of the greatest privations is the scarcity of provisions, famine reigning in the midst of bags of gold. In 1858 as much as four shillings was paid for a pound of mule's flesh.

One thing, however, always keeps up the spirit of the miner, and consoles and supports him in the severest trials, and that is the hope of soon making his fortune. The chances attending the search for gold are still very uncertain and capricious. It often happens that a piece of ground which has been already worked and abandoned by a group of diggers as unproductive of gold, is commenced upon again by a new set, and turns out so well as to recompense them by an extraordinary produce. On the soil of British Columbia the collections of gold such as have made the fortunes of more than one in Australia are rather few; but in certain parts the soil abounds in small fragments, and the value of £150 sterling has been extracted from soil looked on as mere dirt. The mode of working differs according to the character of individuals: there are some who only collect the largest lumps, and this they call “delivering the hen of her golden eggs;” while there are others who obtain, by careful washings, all the gold that is to be got from the soil.

The mining season is over with the commencement of autumn, and the miners form themselves into a caravan party, or a large body, for security, and, with their bags full of gold, set out for Victoria. Some of them, on the principle that the diggings are a mere speculation, from which they should retreat at a good opportunity, quietly return home with the dollars or pounds sterling which they get in exchange for their yellow dust; but the ambitious take care to return the following year, in the belief that they will find in their spades the treasures of Sardanapalus. The money acquired in so short a time lasts about as long. But the extravagance of 1853 is not renewed in these days,—the champagne, the cigars lighted with bank-notes, in times when fortunes were made, and lost, and made again in a few weeks. But it is a common occurrence at the gold-fields that the poor man of yesterday is the rich man of to-day, and as poor as ever again to-morrow.

The gold as yet remains in its natural condition. In commerce it is taken in the rough—the mineral itself, either the dust or nugget. It is besides mixed with other matter, which then depreciates its value. It is then extremely difficult to obtain a just estimation of its real

worth. At the commencement of the discoveries in Australia nuggets were sold for much less than their value to agents, who sent them home to England or elsewhere. Now, every one who finds gold takes it to one of the banks in the colony; there it is melted down into ingots and the value determined at the rate of £3 16s. the ounce. Let us follow these ingots to the Bank of England, the great receptacle of gold.

(To be continued.)

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### OUR MERCHANT SEAMEN.

“The Shipwrecked Mariners’ Society having purchased a large mansion and twenty-three acres of land for the purpose of establishing an Asylum for Disabled and Worn-out Merchant Seamen, your Committee cordially recommend the scheme to shipowners and the public generally, hoping that it will meet with the support it deserves, and that ere long there will be a comfortable provision for the merchant seamen of our country, numbering upwards of 312,000, when after their day of active service they are worn-out and disabled.”

We find the foregoing information in the Report of the Committee of the General Shipowners’ Society of London for the year 1863-4, presented to the General Meeting of Members held at the Society’s Office, 12, St. Michael’s Alley, Cornhill, on the 2nd of August, 1864; and, desirous of forwarding so important an object, we transfer it from that report to our own pages.

Now the above committee has so able a secretary, who has set forth the subject in so masterly a way already, that we cannot do better at present than make use of his own words; and this we shall do in preserving his letter for our readers, addressed as it was to the *Daily News*. He says:—

*Hospital for Worn-out and Disabled Seamen, Hibernia Chambers, London Bridge, July 29th.*

Sir,—A few years since the committee of the Shipwrecked Mariners’ Society promoted a meeting, held at the Mansion House, the Lord Mayor in the chair, for the purpose of establishing a hospital for worn-out and disabled merchant seamen, who had no other place of refuge but the workhouse. The meeting, at which there were at least 600 persons present, was unanimous that such an asylum ought to be provided. The reasons given in the resolution were these:—First—That a body of men unto whose care and courage are intrusted the most important interests of the empire ought to be viewed and treated as the servants of the community, and cared for as such: Second—That by such means they may be more bound to their country, for the defence of which in time of need they are necessary to

its independent existence as a nation. Third—That they may be raised in self-esteem by being preserved from pauperism, and, it may be hoped, a moral improvement of their character be gradually effected.

The provisional committee for carrying out the resolutions of the public meeting at the Mansion House, encouraged by the general approval with which the proposition was received, and reckoning that it would be sustained by the shipowners, merchants, and public at large, as well as by the officers and seamen of the merchant service, have now secured the freehold of the mansion of the late Sir Culling Eardley, Bart., at Belvedere, with twenty-three acres of land. The building contains sixty-five rooms, with abundant offices, and is admirably capable of being adapted so as to form a splendid retreat for our worn-out tars, both officers (if they need) and men; it stands on the summit of a hill, commanding a view of the Thames on the north, east, and west, with a railway station at its foot; and though, of course, not equal to Greenwich in the magnitude of the building, it is far superior in situation, with land enough about it to make it anything the bounty of the public may please.

The committee, noticing a leader in the *Times*, remarking on the speech of Mr. Childers, and learning that it and the memorandum of the Duke of Somerset on the affairs of Greenwich Hospital had led many to suppose that there was a probability of a part of that building being given to the merchant seamen, sought and obtained an interview with his grace to know if such a probability existed, and which he emphatically denied, and expressed himself glad of the provision contemplated by the deputation, saying that he "considered it important to keep the provision for the merchant seamen distinct from that of the seamen of the royal navy."

Though the Duke of Somerset's reply was most businesslike and straightforward, nevertheless there were a number of influential gentlemen in the city, interested in the welfare of our merchant seamen, who, notwithstanding the report of the duke's reply put forth by the deputation, published in the *Daily News* and most of the morning papers, could not divest themselves of the thought that the spare buildings of Greenwich Hospital might yet be given to shelter worn-out and disabled merchant seamen.

In order, therefore, to set the matter at rest, the question was publicly put by Mr. Crawford, one of the members for the city, in the House of Commons to the Secretary of the Admiralty, "Whether it was the intention of the Lords Commissioners to appropriate any portion of Greenwich Hospital for the reception of worn-out and disabled seamen of the merchant service?" Lord Clarence Paget said "It was not the intention of the Admiralty to appropriate any part of Greenwich Hospital for the purpose." The reply of his grace the First Lord of the Admiralty to the deputation before alluded to, which of course, being in a measure private, was subject to the suspicion of misrepresentation, being now confirmed in public by the reply of the Secretary of the Admiralty, it is to be hoped has set at



rest the minds of those who may have had the lingering idea that merchant seamen might yet have a berth in Greenwich in their old age.

There is, however, still a hope that the merchant seamen, if they do not get anything out of the building, may yet get something out of the funds by which it has hitherto been maintained; and this hope has its foundation in the published memorandum on Greenwich Hospital of the Duke of Somerset, wherein he states that the "surplus funds" of that establishment will be distributed "with a due regard to the claims of those persons who have contributed to the revenues of the hospital;" and as the merchant seamen for a series of years prior to 1832, subscribed sixpence per man per month, or in the aggregate £30,000 per annum in round numbers, and as the men who then subscribed are the very men who, from their age, it is now sought to save from the workhouse by giving them an honourable retreat at Belvedere, the provisional committee is of opinion, if the movement now set on foot is supported so as to give it a proper status, that, under the circumstances, an endowment in proportion to the number (500) it is proposed to locate on the banks of the Thames may fairly be asked for and pressed as a set-off *in part* to the claims of the merchant seamen, which have been often urged both in and out of parliament.

By a return ordered by the House of Commons seven years since, on the motion of the late Admiral Sir Charles Napier, there were then 2,000 seamen in the workhouses of the United Kingdom. Taking into consideration the great increase of tonnage since that return was made, and that, consequently, a greater number of seamen must be employed, it may be estimated there are now 2,500. If so, as it is only proposed that Belvedere should receive 500, there will be 2,000 to be provided for in similar establishments, which we may hope to see raised at Liverpool and other ports, and thus give opportunity to provide for the men in their own localities. Meantime, Belvedere will be open to all seamen of good character, natives of the United Kingdom, who may have served twenty-one years in British vessels, or previously if disabled in the merchant service of their country.

The provisional committee believe that the subject of a provision for our merchant seamen in old age, or when disabled from labour by some of the various accidents common to their perilous calling, exercises the minds both of statesmen and philanthropists; of which the recent speech of the Earl of Harrowby, in the House of Lords, may be taken as an index. That a country so famous for its institutions, and so dependent on its maritime power, should have no provision for its merchant seamen, while there is, perhaps, not another nation which has any pretence to be maritime but has, is something remarkable. Of old, Dibdin sought to call attention to England's neglect of her seamen, and there being no asylum for them, makes too true the old saying, that when the sailor is worn out in his hard service—

“Where he goes, and how he fares,  
No one knows, and no one cares.”

The shipowners and merchants of England roll in wealth—fruit of the sailors' toil. Among them there are, no doubt, many who will lend a helping hand to this good work. Many of them, to their honour be it spoken, have expressed their desire to see this blot effaced, and I am satisfied that, with the blessing of God, the movement will be successfully supported by the public, so as to redound to the honour of the patriotism, as well as the benevolence and charity of England, and also will serve to prove that her esteem for her brave and hardy seamen has a more solid foundation than words.

The national importance of the subject will, I trust, plead my excuse, and induce you to give this a place in your valuable paper, as well as to use your more powerful pen on behalf of a body of men who all allow are, whether in peace or war, the right arm of the empire.

I am, &c.,

FRANCIS LEAN, *Hon. Sec.*

*To the Editor of the Daily News.*

Now we shall add for the information of our readers that the good work of this hospital for our merchant seamen has been well begun. In the spring of this year a meeting was held at the Mansion House of London, at which the Lord Mayor presided. At that meeting the following proceedings took place:—

It was first resolved—That this meeting having had before it the fact that while the seamen of the royal navy have their Greenwich and the army their Chelsea Hospitals, there is no similar provision for the merchant seamen of this great mercantile country (consisting of upwards of a quarter of a million of men), when worn-out and disabled.

It therefore considers it highly expedient that a hospital or hospitals should be raised as a place or places of refuge for the worn-out mariner of all grades of the mercantile marine when aged or disabled, and having none to care for him, and that a scheme of out-pensions should be grafted on it, to assist those who may prefer to remain with their friends.

That it is expedient upon these grounds:—First—That a body of men unto whose care and courage is intrusted the most important interests of the empire, ought to be viewed and treated as the servants of the community, and cared for as such. Second—That by such means they may be more bound to their country, for the defence of which in time of need they are necessary to its independent existence as a nation. Third—That they may be raised in self-esteem by being preserved from pauperism, and, it may be hoped, a moral improvement of their character be gradually effected.

In furtherance of this resolution the provisional committee have

secured the mansion and twenty-five acres of the park of the late Sir Culling Eardley, Bart., situate on the south bank of the Thames and commanding a splendid view of the river; the donation of £5,000\* of the Shipwrecked Mariners' Society (to which 50,000 master mariners and seamen subscribe), having enabled them to take this first step towards this great national object, they now most urgently appeal to the nobility, gentry, merchants, shipowners, seamen of all classes, and the public at large, for help to enable them to establish such a home in old age for our merchant seamen, as shall serve to bind them to, and make them feel proud of their country, which at present contrasts most unfavourably in this respect with other maritime countries, America having its "snug harbour" and other establishments for their worn-out seamen, and other nations their various provisions, while England, the most dependent of all on her maritime power, has no other provision but the workhouse for the men, whom all allow to be the basis on which her commercial greatness and political power rests.

It is proposed to make the hospital as much as possible a home for the merchant sailor as such an establishment can be made, all seamen who have served twenty-one years in the British merchant service being eligible to be received; that the officers shall all be selected from the merchant service, and that the domestics and labourers shall be merchant seamen, their wives, widows, orphans, or children, preference being given to those men or their relatives who have been subscribers to the hospital fund. In order to give profitable employment for the leisure hour, and thus add to the moral comfort of those inmates of the hospital who may be able to work, industrial wards will be established with the necessary appliances for making such articles as sailors are accustomed to make, the *profits* of which will be at their own disposal.

It is not proposed that labour shall be in any way compulsory, it will be free to all to work as little or as much as they please within the hours regulated by the rules of the house.

According to a return made to the House of Commons there appeared to be about 3,000 seamen in the various work and union houses.

Tables for the proposed pension fund have been calculated by the government actuary, and also one for widows' annuities; it is hoped to establish in conjunction a benevolent fund, by which widows having large families receiving the annuity provided by her husband may be helped, and some peculiar cases of the disabled old sailor. The provisional committee trust that the Board of Trade may be induced to help this fund out of the sums received by it on account of unclaimed effects of deceased merchant seamen, and that the public will also contribute when appealed to.

The committee feel that they appeal to the patriotism as well as the

\* The Society has lent £7,000 to complete the purchase of the house and land.

well known benevolence of their countrymen, in soliciting their help to wipe away a blot, which they firmly believe will be no longer suffered to exist.

Donations and subscriptions thankfully received by Messrs. Williams and Co., Birchin Lane, and by

FRANCIS LEAN, *Hon. Secretary.*

At present time and space forbid us, but hereafter we propose going further into this subject.

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### OPENING OF THE DARTMOUTH AND TORBAY RAILWAY.

Another great and most important event has just taken place in favour of the future prosperity of Dartmouth. In a recent number\* we pointed out the great advantages of this harbour,—how well it was adapted both in its position and good qualities as a port of call for our mail steamers in preference to any other port of the Channel (we might, in fact, say of all England), and we have now to record an event which has evidently opened the gate of progress for this once flourishing little place. We say this with reason, for we find that a market there,† which but yesterday was nothing more than was to be expected of any other quiet, retired place, is already reviving, and promising as much as its best friends could wish.

Perhaps there is no harbour in this country in which the advantages of steam navigation can be so beneficial as the harbour of Dartmouth. Limited as the mouth of the Dart may be to a cable's length across, it yet has abundance of depth, with *no bar*. So that a large vessel like H.M.S. *Britannia*, which has been lying there since last autumn, can run in at any time from sea, provided she has a fair wind; for when the wind is down the river there is but little room (notwithstanding its depth of water) for any vessel to *work* in. Steam, however, if the wind should not be fair, at once comes to supply its place. The steamer cares nothing for wind, and the steam-tug renders access to the harbour for all vessels perfectly easy by simply lending them the use of her wings. From the roads outside the distance is not a mile that places any vessel in still water, as undisturbed as in any wet dock of the kingdom. In fact, the mouth of the Dart, from the remarkable stillness of its untroubled water, resembles more a large wet dock than a river where the tide flows and ebbs every day.

Still, with all these advantages conferred on Dartmouth by nature—advantages which in days of yore rendered her famous in the annals of her country,—there was yet one more wanted to bring her on a

\* See the June and July numbers, pages 281 and 365, of this volume.

† That of house-rent.

level with other more fortunate places. Her natural advantages have enabled her to send forth ships and seamen to share in her country's honour, whether in the military service of the state, or in the honourable pursuit of maritime discovery. The seamen of Dartmouth, as history testifies, have left their names in the glorious annals of the Great Armada in Elizabeth's time, as they did before and have since in those of Arctic discovery.

But that progress which has extended to other parts has hitherto been denied to Dartmouth. Her port was difficult to enter when winds were foul. Steam removed that evil, for nothing else but the steamboat was required to do so. True it is that steam afloat has reached her long since, in common with other places; but at length, by the laudable exertions of a few enterprising individuals, steam on shore, by means of the rail, has now gained the banks of her beautiful harbour, and Dartmouth may look back on her former prosperity and anticipate with good reason that her share of success hereafter shall be commensurate with it. If her prosperity was great when steam had not lent its all powerful aid to the wants of navigation and trade,—if she surpassed many other places then, as she did, owing entirely to her own resources,—now that Dartmouth possesses steam ashore as well as afloat, in common with them, she starts afresh on the race of enterprise, and bids fair, from those advantages which nature has conferred on her, soon to rival if not to surpass them.

The event to which we have here alluded is the opening of the Dartmouth and Torbay Railway; the celebration of which took place on the 10th of August last, and at which it was our good fortune to be present. The day had been evidently set apart as a holiday, for not only was the event the subject of general observation on shore; but every living soul in the town seemed determined to be present to welcome the first steamer that crossed the harbour from Kingswear (the terminus of the railway) with her living freight of company, including the Directors of the new line and some of other lines which would be affected by it.

The captain of the steamer must surely have been an old man-of-war's man, for well and long did the steam-whistle keep up its shrill sound in imitation of piping the side, as those gentlemen crossed her side to meet the Mayor and Corporation of Dartmouth, assembled on the wharf to receive them,—greeted by the shouts and acclamations of the people and the music of an excellent band. Nor did the few ships in the harbour, along with the yachts lying there, fail to do honour to the proceedings of the day. Even the boats and flag-staffs along the wharfs were all dressed in their holiday uniform, with flags flying everywhere. H.M.S. *Britannia* was equally gaily dressed out with her flags in honour of an event fraught with prosperity to Dartmouth. And the weather, too, now proverbially changed from frequent rain to frequent sunshine, was propitious, and lent all its brightness to give life and animation to the scene.

The proceedings of the day consisted in showing all the good people of Dartmouth that the business in hand was one of progress

and prosperity to the town, by means of that general commercial intercourse in which the extension of the rail to their harbour would enable them to take part. And this was done by the whole party, with the Mayor and Corporation, attended by the Ancient Society of Foresters in their handsome uniforms, and other local companies, walking in due procession through and about the old town.

After this the vessel visited the entrance of the harbour, giving the visitors an opportunity of not only seeing for themselves the facility and rapidity of entering it from the sea, but also of witnessing the progress of the new lighthouse now building;\* by means of which and an additional harbour light it will be just as easy to run into the harbour by night as by day.

We have no doubt that this measure has received the sanction of the Trinity-House, as it is one which exclusively belongs to that important branch of our national institutions. But in adopting it the Directors and authorities of Dartmouth have acted wisely, for the advantages of their harbour are thus unlimited in the most important point of time. They well know that be it high or low water when a vessel may be running in is of no consequence. To her, be it flood or ebb, neither strength of tide nor increase of depth of water will be important. She can at all times stem the one with marks by day and lights by night; and as to the other the increase of depth by tidal water is nothing. Her navigation is sure and safe, and it is saying very much when we can qualify the assertion with the important addition of "all times."

The Mayor and Town Council of Dartmouth were no less desirous than the promoters of the railway to celebrate so great an event as the opening of a rail to their shores. So, after having inspected the entrance of the harbour, the visitors were invited to join the festal board, at which Captain Bulley (a son of the soil and an experienced seaman) presided. Here, as may be supposed, the real work of the day was not allowed to languish by the excellent Chairman and his friends; for after the usual loyal toasts were drunk, they were followed by those of the Directors of the Dartmouth and Torbay Railway Company, those also of the South Devon Railway, and then, again, of all other Directors present.

Such toasts, we may briefly say, called forth an amount of information, an expression of a cordiality of purpose, and a unity of sentiment that showed well how much the great work of the day—the opening of the rail to Dartmouth—was appreciated by every one present;—all were working in one common cause,—all were engaged in contributing everything in their power to the prosperity of the commercial pursuits of their countrymen.

As the representative of the South Devon line, an admirable disertation was given by Mr. Woolcombe, its Chairman, of the difficulties of Directors and the performance of duties by which they were

\* It is intended to be completed and lighted in about six weeks.

overcome; and a well-timed, feeling allusion was also made by him to the eminent services of their late engineer, Mr. Brunel, that showed the speaker's heart to be in its right place.

Again, as a former co-director with Mr. Woolcombe, the Earl of Devon (now Chairman of the Mortonhamstead and South Devon line), in a masterly and eloquent speech, confirmed all that he had advanced, then, touching on the historical associations of Dartmouth, gave a lucid and pleasing outline of these several branches of the subject matter of the day and the general progress in connection with steam by rail and sea.

"The Town and Corporation of Dartmouth," "Success to the Port and Trade of Dartmouth," and the "Dartmouth Harbour Commissioners" were the concluding important toasts of the day; admirably responded to by Mr. Prideaux and Mr. Hunt, after being received with acclamations of applause.

The opening of this new line of rail from Dartmouth to Torbay is the connecting link of Dartmouth with the metropolis by the South Coast as well as the Great Western lines; so that, being in direct communication with London, and also with the *North*, everything is now done to entitle Dartmouth to the consideration of her great advantages when next the question of the port of call for the mails shall be brought forward. The direct communication with the *North* which is now secured to Dartmouth is also most important to her; for by the mails being sorted there (the port of delivery) and forwarded from thence to the *North direct*, as well as to London, the merchants and manufacturers there will be placed on an equal footing with those of London in the early receipt of their advices, and would therefore benefit accordingly. We showed in our former papers that Dartmouth would have the advantage of above five hours and a half in the point of time over Southampton,\* so that now the right thing cannot be in the right place while the mails are embarked at Southampton.

Of the four places which we selected, Plymouth even was found to be an hour longer than Dartmouth in communication with the metropolis, in addition to the disadvantages in landing there, along with "the obstruction" to the mails incident to "a large naval port;"† which objection was brought forward by the report of the Government Commissioners. Those Commissioners said that "Dartmouth will be found the most eligible port wherein the mails to and from the West Indies may be embarked and lauded,"‡ and also that they were "unanimously of opinion that Dartmouth is the most desirable station for the departure and arrival of the steam-packets intended to be employed in the conveyance of Her Majesty's mails to and from Alexandria."§

Thus, then, the important testimony of a Government Commission has declared Dartmouth to be the fittest place for the departure and

\* See page 284.

† See page 287, paragraph 13.

‡ See page 287, paragraph 16.

§ See page 291.

arrival of the mails abovementioned,—in which conclusion we entirely agree. But while these are yet in abeyance Dartmouth may now follow up her own interests. The foundation of those interests has been well laid by the all important measure of the railway now opened; and it remains for her to turn that to a good account, along with her excellent snug little harbour, already formed for her by the all-powerful hand of nature.

We find the following account of this completion of the rail to Dartmouth in the *Western Morning News*, which says,—

“An event amongst the most important that have ever taken place at Dartmouth was commemorated on the 10th of August in the opening of the Dartmouth and Torbay Railway, just constructed from Brixham Road to Kingswear. The line, although short, is a most interesting one. Shortly after Brixham Road is passed the line is continued through a deep cutting, and thence on to a high embankment, Galampton lying off to the right. After another lengthy cutting there is a second embankment, somewhat precipitous, and immediately beyond this a view is obtained of a very beautiful part of the River Dart. Then a tunnel, 492 feet in length, runs through “trap rock” and “dry slate,” where considerable engineering difficulty arose from water and clay beds.

“On leaving the tunnel the line is carried on to the Greenway viaduct, 500 feet in length, 100 feet high, with ten arches. The viaduct is constructed of substantial masonry. The railroad is then laid along the shores of the River Dart, through Longwood and over a timber viaduct, forty feet high, resting on quadrupled piles, some driven eighty feet deep into the mud below. Beyond this a small cutting is traversed to the Noss viaduct, 450 feet in length, and thirty-five feet high, resting on quadrupled piles fifty feet deep. A cutting is then made through Devonian sandstone, and the line continued along the shore of the Dart to Waterhead Creek, crossing the landing-place of the old floating-bridge. The depth of the mud was here so great that during thirty days about 300 tons of hard material were shot down before a foundation could be obtained. The sides of the embankment of the line near the floating-bridge are protected by sea pitching.

“The line is well constructed, the curves good, and the gradients easy. The steepest gradient is 1 in 66, and in the tunnel it is 1 in 100. The cost of construction is stated to have been about £80,000. Mr. R. P. Brereton was the engineer, and Mr. H. W. Farley the resident engineer. Messrs. Blenkinborne and Atkinson were the contractors, and Mr. Hunt has acted as their engineer.”

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## SKETCHES ON THE FRENCH COAST.

(Continued from page 119.)

The land on the North side of the gulf of Cordouan is formed by a remarkable peninsula, called Avert, being the name of a town in the middle of it. It is nearly rectangular, lying S.E. and N.W., about fifteen miles long and six across. The Scudre, an arm of the sea, deriving considerable commercial importance from its oyster beds, limits it to the N.E., and separates it from the low lands of Marennnes. At the commencement of the peninsula between Rogan and Saujon, some strips of coast connect it with the calcareous plateau of Coze and Gemozæ; but towards the extremity of the peninsula they become lower and gradually separate, and appearing only as mounds surrounded by water. It is here, on ancient islets in the present day connected with the shore, that the last villages appear; further to the West the rocky formations disappear under the sand or the peat, showing no small eminences whatever. All signs of houses or cultivation cease here, and nothing but sandhills meet the eye, which themselves are moveable. The downs of Avert, surrounded on all sides by the sea and by marshes recently dried up, cover an area of about fifty-six square miles.

The downs of Avert are more accessible to visitors than those of Landes and the Gironde, are also more interesting than these are to the visitor, presenting within a much smaller compass similar phenomena. The principal of them, which is on the N.W. extreme of the peninsula, not far from the town of Tremblade, has been raised by the wind to the height of 203 feet, and commands one of the most extensive and beautiful panoramas that are to be seen in the Charénte-Inférieure. The other mounds, further to the South and fully exposed to the S.W. wind, which reduces them and transports their sand in the direction of the great down, are not more than half that height. No doubt, in the estimation of a tourist, accustomed perhaps to the peaks of the Alps or the Pyrennees, these are trifling elevations: nevertheless, these masses of sand assume the aspect of veritable mountains, with their chains parallel to the coast like a line of enormous waves, appearing like a system of mountains. Their strong foundations and wide bases, their loose summits finely shaped as if cut with a chisel, the equable range of their summits, the general harmony of their forms unceasingly modified by the strength of the wind, impart to them an imposing appearance of grandeur. Even the inclination of their bases rising from the sea shore contributes equally to the illusion and adds to the height of these white sandhills. Hence the inhabitants of the neighbourhood have completed the deception by giving to these sandy mounds of Avert the title of mountains. In spite of the moveable character of the sand, the greater part of these changeable mountains have names, such as *la Briquette, la Ranquieu, la Balise, &c.*

An old proverb, very well known at Santonge, says, that "Moun-

tains walk in Avert." But some of them are stationary, fixed, but nevertheless are transformed by wooded patches. Hence a company at Rochelle, anticipating the displacement of the downs of the North, has prepared a considerable tract of land near the narrow pass of Maumusson: in like manner the forest of Avert, protected by the downs to the South of the peninsula parallel to the shore of the gulf of Cordouan, sheltered during the middle ages a large tract of country, and has continued to do so partially notwithstanding the woodman's axe has somewhat thinned its thickets. However, the downs of Avert still travel, and the least wind raises clouds of sand, scattering it like the smoke of a volcano.

Numerous accidents are related in history occasioned by the movement of these downs. The ancient village of Anchoisne, which was probably the port of Santongeois, or the *Portus Santonum* mentioned by Ptolemy, is continually exposed by the shifting of the sand, like the froth of the waves carried by the tide, and which is borne up as far as the village of Temblade. But all the downs situated formerly to the West of Anchoisne between the sea and the houses, have advanced to the East, like an army in battle array, and perpetually obliging the people to retire, having covered their huts one after another. After these visitations are passed by here and there are seen remains of the ancient houses of the buried town, but the down still covering the greatest portion of it.

The sea itself may contribute its part to the work of demolition, and the sandbank called the Fond d'Anchoisne may cover the remains of the ancient town: Further, the village of Buze has suffered the same fate. Buried under a mass of sand, it was passing out of mind when suddenly in 1698 the walls of the church were discovered in a large dale, also those of an abbey and some other buildings were gradually discovered from the sand being blown towards the interior. The peasantry of the neighbouring villages had scarcely time to save something from these relics of a bygone age, when a huge moving mass of sand again buried them under it. In the present day all that remains of Buze lies, it is said, under the high down called Briquette. The ancient town of Saint Palais has disappeared in the same manner, the church of which is carefully kept free from the sand to serve as a mark for the benefit of navigation. A hamlet also near it has been buried, and of later years the downs of St. Augustine have advanced towards the fields of Avert at an average rate of thirty to forty yards every year.

In these days there is no fear of such a disaster as a whole village being buried in sand, for there is no place where the residents are not prepared to fix the threatening mass by means of cultivation: but there are many scattered huts that are too weak to contend against the progress of these mountains as they approach their huts, who must then either abandon them or expose themselves to the peril of being buried alive. It is some time since I arrived with a friend near Point Espagnol, at one of those houses built from time to time on the sea

shore for the prevention of smuggling, a species of commerce which the surf renders scarcely possible, or may be for the purpose of rendering assistance to shipwrecked seamen on that shore so prolific of disaster. It was by night that we arrived but a few paces from the house, but we could scarcely discover it notwithstanding the light of a full moon. It seemed as if confounded with the moving sand around it, and the roof itself, which we could just perceive above the sandy plain, had the appearance of one of those geometrical ridges which often mark the summit of the dune. In fact, the house was itself half buried. On the side next the sea the sandhills had reached to the roof of the building, but happily the eddy winds had formed round the wall to leeward a kind of dry ditch, but on the other sides the sand pressed against the building; doors and windows were blocked up and the only remaining part above the sand was the roof, which was soon after some feet below it. Some years previously, when the person in charge was at Point Espagnol, another dune in making its course had crossed this very house. This passed it without hurting the walls, but occasioned the formation of a valley, which did worse. The house was soon found by the sand around leaving it to be perched on the top of a small hill; its foundations were gradually undermined to the depth of some six feet, and the walls under their own weight and that of the roof fell. They were replaced after a time, and when the work of reconstruction was completed, another dune, that which we had just now seen, came to renew the attack on the unfortunate house. The resident had to remove his wife and children quickly from his house, and himself was obliged to be in readiness to leave it every day. With the least wind the sand would drift in heaps in his room, cover his furniture, and get into his provisions, he was even obliged to breathe it, and it gradually decreased the light by which he lived. Thus he was on the point of deserting his abode when we visited him, and by this time he has either done so or his house may be again perched on an eminence.

As to the peninsula of Avert, it is a question whether it is becoming elevated above the level of the sea, like the coasts of Poitou and la Vendée, and one of much interest to geology, but one to which a categorical answer cannot be given. However this may be, it is certain that the country was formerly to a considerable extent covered by the sea. In many places of the interior the ground at several feet above the sea and under the upper soil, shows a sandy red nature, evidently brought there by the waves, both in Brittany and Vendée, for the hills of Santonge only present a calcareous deposit, the disintegration of which could not form clay. Banks of marine shells, formed of species common to the place, are frequently found in the peninsula which separates the Scudre and the Gironde. The extensive marshes which cover a considerable portion of the country, are generally considered to have been arms of the sea in a bygone age, and on old charts they appear as bays separated from the ocean by a narrow tongue of land. In fact, there are large mounds now standing considerably above the

surrounding fields that show traces at their base of the sea having been there; among which may be instanced the rocks on the banks of the Gironde called the Vieux Montagne.

A large number of facts, supported by tradition, appear to prove that the rising of the ground which has been going on in ages past continues at the present time. Thus, near a village called St. Augustine-sur-Mer, although far from the coast, anchors and the remains of vessels of considerable tonnage are found in the marshes; and even the peasantry assert that they have seen the fastenings of mooring rings in the rocks for shipping. A host of names refer to the presence of the sea in localities which are now far removed from the shore. Immediately North of la Scudre, the district of Marennnes was so cut through by an arm of the sea and channels that it was called the colloquy of islands. The Avert peninsula equally merits the same title. All the elevations on it whereon villages are seated were surrounded by salt water, and all the marshes formed bays, which still bear the name of ports. La Scudre in which in the reign of Louis XIII. (1650) ships of 2,000 tons sheltered, cannot now receive large ships of war, and the forty navigable branches of communication are now reduced to half that number. It is astonishing that the sediment brought by the sea and the water courses from the interior should be sufficient in these last centuries to fill up so many bays, channels, ports, and harbours: it is more credible that in this part of France the ground is subject to that rising established on the parts of the coasts of Aunis and Poitu. But there are positive proofs of local elevations in the present century of the peninsula of Scudre. Thus, not far from Royan at St. George-de-Didonne, the marsh of Chenaumoine, which was formerly a bay of the estuary of the Gironde, has become gradually separated from the sea, not only by the downs but also by a bank of calcareous rocks, over which a deep channel has been made to communicate with the marsh.

At some distance from St. George, near the village of Talmont, there is an ancient sandy waste containing many remnants of human industry, and situated above the estuary, that must have been elevated at a recent period.

However, whether the ground rises slowly or whether it preserves always the same level, the waves of the sea never cease to encroach on its shores. While the ocean abandons its bays, creeks, and estuaries, which in former days broke into the interior of the peninsula, it tends incessantly to wear away the line of coast, to round the base of the downs, and to reduce the promontories. Formerly, one can perceive, that the chains of mountains or even hills on the sea shore, came by degrees to shape the structure such as we now see in the coasts of Norway and Scotland, worn into deep fiords and forming narrow peninsulas. But on the shores of all continents and islands the sea operates to make the line of its shores by the formation of bars, and its ridges along the coast sanding up the bays and wearing away the capes. In Scandinavia and every country where the bays have a considerable depth, where the points are formed of rocks offering a

considerable resistance to the waves, the sea can no longer do its work: but in revenge, as it were, on low shores, as those of the Landes and Saintonge, the arrangement of the sands progresses, plainly visible to the eye. At present part of the shore of the peninsula of Avert turns towards the sea and is so smooth and straight that it shows the undulations produced on the sand by the surf of the flood. The two extreme points which terminate to the South and North the regular line of the coast, retreat every year. From 1825 to 1853 the Point de la Coubre has lost no less than 600 yards, and its old shore is now a bank under water. It is said that during the winter of 1862, the sea destroyed its beach to the distance of 150 yards to the foot of the high downs of Point Espagnole.

The inhospitable shores of Avert are with good reason the dread of mariners: but it is at its northern extreme, near Point Espagnole, that ships are exposed to the greatest danger. It is there that the celebrated narrow channel of Maumusson causes their wreck, and by which the sea at high water communicates with the mouth of the Scudre and the Coraux of Oleron. Formerly, according to tradition, it was narrower than at present. In 1335, during the discussion raised between the Seigneur de Pons and Philippe de Valois on the subject of territorial limits, one hundred witnesses unanimously affirmed that when they were boys the isle of Oleron was separated from the continent merely by a ditch, which they could jump across with the assistance of a pole. But these assertions could have but little weight against the positive proofs of the ancient authors and the test of numerous charts of the middle ages. It is very probable that the narrow channel existed for a thousand years and constituted a veritable strait, being incessantly enlarged by the currents. At the commencement of the eighteenth century vessels of forty tons passed through it. In 1813 its breadth was nearly doubled, and the *Regulus*, a ship of 24 guns, slipped through this dangerous passage in order to avoid an English cruiser. At the present time the narrow channel of Maumusson is a little more than a mile and a quarter from Point Avert to the point of the said Maumusson, and its mean depth on the bar is from six to nine feet at low water.

This terrible strait, the name of which is synonymous with *mauvaise entrée*, and which the mariners of la Scudre fear as a wild spirit of the sea, derives its dangers from the effect of the tidal currents which meet there, one coming from the sea, the other from the Coraux of Oleron, after making the whole tour of the island. Before high water a current, which runs from North to South, flows across the strait like a river, with the velocity of a yard and a half in a second. But when the flood begins to set in from sea, this current is arrested and gradually sets back to the northward, producing a race off the points and setting into the bays. Two sandbanks, the great and little Gateseau, lying obliquely to the tide on each side of the channel, form the bar of the strait, with the *matties* or banks of Avert on the coast of the continent, and sustain on each side the effect of the tide. This mixture of the currents is often peaceful, and those who come to visit the

strait with the hope of seeing the Maelstrom of the Saintonge, return disappointed. But in stormy weather, or at its commencement, or rather when a dry fog acts on the waters at a distance, then is the time that the expression of the seamen, "the Maumusson grumbles," is realised by its frightful noise, which is heard at the distance of twelve miles. The tremendous waves roll furiously over the sand and make a formidable barrier across the entrance. Then again, eddies formed by the meeting of the two currents run in large circles on each side of the bar and sweep around like two marine wild animals. The sand, torn up from the bottom by the waves and thus rendered moveable, rolls in enormous quantities across the strait, and is dashed on the strand in large masses, which a second wave carries with an impetuous force. Badly would fare the ship that was washed by this turmoil of water and sand. Even when Maumusson is quiet, like a lion satisfied with his prey, boats can never cross the strait without being assailed by a continual break. If the wind should drop suddenly the ship would infallibly be drifted among the breakers and dashed to pieces by the waves.

In spite of buoys, beacons, lights, and semaphores, all parts of the coast of Avert are fraught with danger to the navigator in bad weather. Between Point de la Coubre and the ruined fort Negre, the shore, which the bathers of Cordouan know by the name of Grande Cote, has abundance of the wrecks of boats, timbers of ships, spars, and oars, are half buried in the sand. The shoal of the Barre-a-l'Anglais, situated to the North of the Cordouan, is particularly dangerous. Even in fine weather three or four lines of breakers chase each other in tremendous fury. As far as the eye can reach breakers are seen running parallel to the shore, on which a continual mass of foam gets up like a cloud of dust. Further East the rocky coast commences, and the ancient fort of Terre Negre, developed in the direction of Royau, is subject to the effect of waves not quite so terrific as the Barre-a-l'Anglais. The waves which break on the bold coast and rise to a great height fall in rain, producing a picturesque effect. But the force of the sea is already broken by the banks of sand and rocks of Cordouan. The gulf recedes gradually: to the South the shores of the landes of Gascony show above the floods; the mouth of the river is approached, and soon the *falaise marine* is left, interrupting here and there the bays surrounded by sands. At length Pontailac is passed, the Couchee, the resort of bathers, and Point de Chay is reached, which forms with Point de la Grave the magnificent port of La Gironde.

(To be continued.)

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#### THE CIGAR SHIP.

One of those extraordinary inventions or designs which come to us in such numbers from America, and which occasionally create a perfect

revolution among scientific trades, and even among sciences themselves, was lately in process of being tried on the banks of the Thames, at Mr. Hepworth's shipbuilding-yard near Poplar. This is what is termed a "cigar-ship;" that is, a yacht-steamer, the hull of which is immensely long, perfectly round, and which, in fact, precisely resembles, as its name implies, the shape of a cigar, with the exception that both ends are very finely pointed, instead of, as in a cigar, only one.

The theories that have been advanced about the sea-going qualities and immense speed of vessels built in this shape are plausible enough; and, indeed, are so alluring and based on apparently such solid data, that we are exceedingly glad to see that one way or the other they are likely to be theories no longer. The cigar-ship is nearly finished; so that we have not very long to wait before the problem is solved, and we are proved either to have been all in the dark as to shipbuilding from the days of Noah to this year of grace, or, on the other hand, Mr. Wienan's yacht is consigned to that place for good intentions the paving of which must just now be in a state of pre-eminent repair.

The vessel which is to set at rest these great doubts is being built as the private yacht of an American gentleman, who has designed everything connected with the ship, and who is having his designs executed by Mr. Hepworth in the most perfect workmanship of which wrought iron is capable. The hull is almost complete, and, as the hull of a ship, it looks one of the most extraordinary objects it is possible to imagine. It is so at variance with all our generally received notions of nautical beauty of form, that one can only stare at it in mute surprise, though there is something about its long, tapering lines so suggestive of immense speed that one feels rather ashamed such a simple idea should never have occurred to any one before.

In justice to our own age, however, it must be said that such a vessel could only be imagined when iron ships were in use, and iron shipbuilding had reached its highest stages of development. Looking at her now, she appears to be nothing more than a gigantic iron main-yard for some vessel of the *Great Eastern* class, having a rather wide diameter in the middle, and tapered to a mere point of some ten inches at either end. Her length over all is 256 feet, and her greatest width and depth is in the middle, where the circle is sixteen feet diameter. Thus, then, her length is sixteen times greater than her greatest width. She is built throughout of the finest boat plates, in some parts of steel, in some of Low Moor iron. To the water-line these plates are five-eighths of an inch thick; above the water-line they are only five-sixteenths. Her displacement will be about 500 tons, which gives her a little over 300 tons burthen, according to builder's measurement. She is built without any longitudinal stringers, but throughout her entire length she is divided by no less than thirteen water-tight compartments, and in the engine and boiler rooms is further strengthened by inner rings of angle-iron seven inches deep, which are rivetted to the side, and placed as close as at intervals of three feet apart. \*

Underneath, instead of a keel, is a broad band of the best Low Moor iron, which runs almost from end to end, and which is about one

inch thick by three feet wide, and meant to protect her in case of her taking the ground. Inside is an iron floor, which also runs from end to end, to be hereafter covered with wood, and form, in fact, the lower passenger-deck of the yacht. This floor amidships is only about six feet from the bottom of the cylinder, so that overhead there is a roomy cabin enough, much resembling in shape a small railway tunnel. The upper deck is 130 feet long by  $10\frac{1}{2}$  feet broad, and is formed by holding for that length what we may call a square flat-topped cover on the top of the cylinder. This cover or deck is 4ft. 10in. high altogether, of which the lower 2ft. is of iron, rivetted to the top of the cylinder, and the other 2ft. 10in. of common light wooden bulwarks. She is to have two short funnels, and these and her little deck and a small part of the upper curve of the cylinder are all that will be seen out of water.

So much for her external appearance, to which we need only add that the rivets that fasten her are countersunk, so that she presents outwardly a perfectly smooth surface, while the workmanship of her joints is so perfect that even the touch fails to detect the slightest irregularity in her smoothness. So far, then, her form, length, and small midship section will have a great deal to do with her speed, but when to these favourable conditions is added the immense power with which she is hoped to be driven, it is no wonder that such a rate of going as twenty-six knots, or nearly thirty miles, an hour is confidently talked of by her designer and builder.

Her engines are to be three-cylinder, driven at high-pressure, turning one steel shaft (made by Mr. Krupp) which runs through the whole length of the vessel, projecting from the fine points at each end, where it carries a screw. These screws are to be four feet greater in diameter than the greatest diameter of the vessel—namely, twenty-two feet—and each is to have eight blades, because the two points, being only say a foot or so below the water, four of the blades of each screw will always be out as it revolves, while there will always be four of each immersed to do the work of propulsion. In fact, we cannot better describe the general shape of the ship, and its mode of progression when at sea, than by likening it to a porpoise with a tail at each end.

Under each screw is a rudder, and by steering with both the vessel can be turned as on a pivot. As the extreme points would be too fine to admit the passage of the screw shaft and its bearings also, this difficulty is obviated by making sixteen feet of each end revolve with the shaft, and therefore form part of it, so that, with the increased diameter of the point at the end of the sixteen feet towards the midships, there is ample room gained for both shaft and bearings.

Her boilers, like all the rest about this vessel, are on a new plan. There are four of them on the locomotive principle, with vertical tubes. A blast fan is to give them draught, and they are to work at 150lbs. pressure. This is a great pressure, but, as the boilers are built far stronger than even locomotive boilers, it is asserted that they could be worked up to 1,000lbs., or even 1,100lbs., with safety. There are



136 feet of fire-bar surface, and it is expected that with the aid of the blast fan each of these 136 feet can be made to burn 50lbs. of coal per hour.

If the furnaces can accomplish this, then, according to the rules which give one nominal horse-power for every  $2\frac{1}{2}$ lbs. of coals consumed per hour, Mr. Wienan's yacht will be working at more than 2,500 horse-power. For fast ocean-going steamships the rate of horse-power to tonnage is about  $2\frac{1}{2}$  tons to one nominal horse-power; that is to say, roughly, engines of 500 horse-power for a fast steamship of 1,250 tons. But our best mail steamships on their fastest trips find it difficult to burn their 30lbs. of coal per foot of fire-bar surface per hour. If Mr. Wienan's, then, can burn his 50lbs., he will, as we have stated, be working up to nearly 2,500 horse-power, or at the rate of eight indicated horse-power to every ton burthen of his vessel; and this, with her slender form, smooth surface, and very small midship section (only 100ft.) should give her extraordinary speed.

We do not at all say that all these results as to consumption of coal, &c., are certain to be effected, as the principle is quite a new one. The vessel, however, is built to accomplish it, and on the part of the public, who will be the ultimate gainers, we hope she may. It is said, also, that as regards motion at sea, rolling and pitching will be reduced to a minimum, and certainly her form seems to suggest that such a result will be accomplished. With no top hamper in the way of masts, and with all her weights well below the water-line, she is certainly not likely to roll. But if she does not pitch, but cuts through the water, she will "take it in over all," and in that case, with her upper deck so near the sea, it would be swept fore and aft.

Soon, however, all these doubts will be settled, and as a bold trial of a new principle at the inventor's own expense and risk, she will, at least, deserve success; and Mr. Wienan has paid a compliment to our national spirit of progress and desire for improvement in preferring to build his first yacht here instead of in America, so that we shall be, in either event, the first gainers by the experiment.—*Times*.

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#### THE CUPOLA-SHIP "ROYAL SOVEREIGN."

The turret-ship *Royal Sovereign*, Captain Sherard Osborn, C.B., has completed her first course of two days' experimental firing from her 12-ton turret guns in St. Helen Roads (a man-of-war anchorage situated in the comparatively clear water off Bembridge Point, at the east end of the Isle of Wight, and about six miles and a half south of the entrance of Portsmouth Harbour), with blank cartridge in the first instance, as a preliminary round of drill for the guns' crews, and afterwards with shot, with full and distant charges of powder, the full charge consisting of 35lbs., and the distant charge of 40lbs. The guns were fired at different angles over the vessel's deck, and also at

different degrees of elevation. In fact, during these two days' trials everything has been done that could possibly be done to test the guns in their working, and the effects they might be expected to produce when fired on the vessel, or her upper deck and its fittings.

Strong prophecies have been uttered at times relative to the damaging effects shotted guns when fired from the *Royal Sovereign's* turrets must produce upon the wooden planking of the ship's upper deck, and the immense amount of concussion which must be experienced in the turrets and on the deck on which the turrets rest, and the fittings of the officers' cabins, &c. It has been asserted, further, by many that a few discharges from these guns at any lengthened angle along the ship's deck, and with the guns depressed, to strike an object at short range, must, as a matter of necessity, rip up the planking of her deck and commit no end of other damages; that the men would not be able to stay inside the turrets for any length of time when working the guns, owing to the amount of concussion which must be felt; and, finally, that the turrets would become filled with smoke, and the men inside would therefore be in danger of suffocation.

It is, therefore, satisfactory to be able to state, as the result of the two days' firing, that no disaster of the kind predicted has occurred, nor is at all likely to occur. The guns have been fired singly and in broadsides at all possible angles and degrees of depression, and the result of the two days' amount of damage is—half a dozen panes of glass in the captain's cabin skylight broken, and those parts of the leather flaps which surround the turrets at their junction with the upper deck scorched by the flame of the guns' discharge. To remedy these two slight matters only requires that the panes of glass in the cabin skylights shall be put in rather differently to ordinary dockyard fashion, and that the leathern flaps of the turrets under the muzzles must be fitted, or rather covered, in those parts, with flush coverings of boiler-plate.

Throughout the whole length and breadth of the ship's upper decks not a sign exists, however small, of even the pitch between the seams having been started. As to the 'tween decks, the china and glass in the steward's pantries, which are merely hung up in the ordinary way, have suffered no damage whatever, neither have the glazed engravings and other pictures hung up in Captain Osborn's cabin. As a further proof of the steadiness of the ship in all her parts under the fire of her guns, it may be mentioned that the paymaster's office on board is abreast the fourth turret, and when the gun was firing shot with 40lb. charges of powder directly over the heads of the clerks employed in the office, those gentlemen could be seen busily continuing their writing in the most unconcerned manner possible.

With regard to the inside of the turrets, there was less concussion experienced there than in any other part of the ship, and at the same time the smoke which entered each time the gun was discharged was very trifling indeed. The guns work remarkably easy, and the turrets revolve also with the most perfect ease and nicety. The same men were employed working the guns in the turrets seven hours each day,

and it was impossible not to notice the great interest they took in their duties, and with what coolness they went about them.

On the 16th a large number of rounds were fired with blank cartridge to accustom the men at first, as we said before, to their work. Afterwards 20lb., 35lb., and 40lb. charges were fired with shot at different angles and elevations.

On the 17th fifty rounds were fired at different angles and elevations with shot and 35lb. and 40lb. charges, the day's firing being brought to a close by a concentrated fire from the four turrets, at the mark—a square foot of white bunting on a slight staff, at 1,000 yards' distance. When the smoke cleared away the flag and its staff were found to be also gone.

On the morning of the 18th the ship cruised outside the Isle of Wight, and afterwards went down to Osborne, where she was visited by the Queen in the evening.—*Times*.

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#### SHIP SIGNALLING AND REPORTING.

The new commercial code of signals, which the authorities here, and which America, France, and other States have adopted, as an international or universal system for communicating from ships to the shore, or from vessel to vessel at sea, is gradually superseding all others. Some owners decline to furnish the masters of their vessels with the new flags. A few obstinate men of the ancient school adhere to the old codes, and ignorance deters a small number from following in the progress of the times in this as in other improvements. There are always men in every profession to put a drag on science. Not that they are adverse to progression, but they are disinclined to take up inventions which lead to change, and give a little trouble. They understand one way of signalling, and they do not care whether there is a better or not. If these latter persons injured themselves only, we should not care to notice their apathy or indifference; but their inertness is productive of considerable inconvenience to shipowners and merchants, who are interested in the fate of floating property. That our remarks may be better understood we will demonstrate them by practical example. We will take one day's report of ships passing Great Yarmouth. In the *Shipping and Mercantile Gazette* of August 1st, of vessels signalled, no less than fifty-four reported themselves on the Saturday previous. Several of these vessels had their numbers up at the same time, and there were long intervals during the day between the approach of one ship and the passing of its predecessor. A signalman cannot arrange affairs so as to bring the vessels in successive order to suit his labour. He has to strive to make out the flags in fine weather, during rain, haze, or snow. Now and then a master who may be very anxious to report will heave his ship to, whilst others will run on, and if there is a strong leading wind the flags are scarcely distinguishable unless properly hoisted. All masters

do not understand how to display the flags to the best advantage. Again, the signalman on shore may be supplied with a powerful telescope, by which he can make out the flags, whilst those on board the vessel have but a poor glass to aid their sight. To report, therefore, fifty-four vessels during certain hours of the day demands some attention, and to enable the signalman to answer all vessels, the code which admits of the quickest dispatch should be universally enforced.

In practice it is found that the new commercial code of signals is the best suited for signalling operations; for, as regards ship's names, port, and destination, there can be no mistake. The commercial code has eighteen letters, and Marryat's twenty figures in all. If the whole of the fifty-four vessels passing through Yarmouth Roads on the 30th ultimo had required to have been reported by Marryat's code, many of them would have had to heave to for hours. This, when there is a fair wind and clear weather, ought not to be the case, for time is money in the navigation of a ship. The new code supplies all information at once, for a ship gives a number, and, on reference to the official list, which now forms part of the book, her identification is at once ascertained. It is different with Marryat's code. Having made out the name, then comes the second question, as to her port, and it not unfrequently occurs that five signals have to be made before the report is correct. This happens from there being, perhaps, fifty vessels of the same name registered at one port. What misleads, also, is the fact that the names of ships and masters are similar. See, then, how this operates. There is no night signalling at Yarmouth, and in the winter months there are but few hours of daylight. During this daylight, probably one hundred ships out of three times that number going through the inner roads, require reporting. One only at a time can be answered in a clear and unmistakable manner. A vessel shows her flags, and when the signalman on shore makes them out he hoists on the flagstaff the corresponding ones. However sharp-sighted a man may be, he cannot always detect at a glance the flags displayed, for the colours are blown about by the wind, and the view is dimmed by the weather. When the shore-man answers the ship, the flags of the latter should instantly be lowered to denote that the answer is right, but some masters neglect to haul down the signals, and this delays the duties at the signal staff. If a ship reports her name in Marryat's code, and then follow the questions,—What port? Name of master? Owner? and, lastly, official number?—a full hour may be wasted. If at the time there are no other vessels it is not of so much consequence, but if one hundred or more vessels have to be reported in about seven hours, this waste of time is a serious matter.

At Yarmouth there are a great many vessels reported, also, by a system known as Watson's code. This rather complicates the signalling, for vessels are in the roads displaying,—1st, the new commercial code; 2nd, Marryat's; 3rd, Watson's. At the semaphore those vessels hoisting the three flags of Watson's code are reported. All the owners of the vessels reported by Watson subscribe to a club fund. If these owners would adopt the new commercial code of signals they

would have no necessity to contribute towards the cost of private signal stations. No code of signals is perfect unless efficiently carried out, and we regret to have to observe that some vessels cannot be reported because the flags are wrongly put together. When they are simply inverted they may be made out, but there is no excuse for bending them so that they are inexplicable. The next step in advance will be night signalling and reporting. Vessels run through the inner roads at Yarmouth especially to make their numbers, and many get on the Scroby, Corton, or Holm Sands in consequence. The hundreds that pass daily outside the sands are never reported. There is a light-ship near the Hasborough Sands, besides the Newarp, Cockle Gat, St. Nicholas, and Stanford Lightvessels, all of which are in or near the approaches to Yarmouth Roads. One of these vessels ought to be turned to maritime advantage by connecting it with the shore by a submarine electric cable, and then vessels could report further out at sea by flags in the day or by lamps at night. This will certainly follow the general application of the new commercial code of signals. The maritime trade of the United Kingdom has become so important that it behoves us to keep pace with the spirit of the age, and supply increased and more rapid means of communication.

*Mitchell's Maritime Register.*

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#### LOSS OF THE STEAMER "CORINTHIAN."

The master of the *Labuan* (screw-steamer) wrecked off the N.W. coast of Scotland, was recently acquitted of blame because the rock on which the ship struck was not, as was alleged, laid down in any chart. We have now the official report of Mr. Raffles, the stipendiary magistrate of Liverpool, and concurred in by the two nautical assessors, on the striking and subsequent foundering of the *Corinthian* (screw steamer), off the coast of Portugal.

The *Corinthian* was one of the vessels belonging to Mr. Bibby, of Liverpool, and was well known in the Mediterranean trade. At the time of her loss she was coasting from Oporto, to touch at Vianna. On the 3rd of July, at 1h. 45m. p.m., she steamed out of Oporto, and at 6h. 25m. the same evening she struck on a rock a little to the southward of the River Neiva. The course steered after clearing Oporto was N.N.W. for about an hour and a half, and it was then altered to N.b.E.  $\frac{1}{2}$  E., to haul in round to Vianna. Off the River Neiva there is a shoal of rocks laid down in the chart, known as the Raven and St. Bartholomew. The speed of the vessel is said to have been from five to six knots. Taking the mean of these, it is clear she must have passed the shoals just mentioned. The master of the *Corinthian* states that the Raven and St. Bartholomew Rocks had been passed full three-quarters of an hour before she struck. The ship remained fixed on the rock till two in the morning, when she floated into deeper water and sank.

The court considered that the evidence adduced tended to show that the *Corinthian* struck upon a danger not laid down in any chart, or mentioned in any sailing directions, for the coast of Portugal, and therefore returned the master his certificate. Captain Perry, of the steamer *Braganza*, who went out the next morning to render assistance to the *Corinthian*, it is believed steamed over the same hidden danger, and owed the safety of his ship to her light draught of water and the flood tide. This submerged rock is said to be known to the Portuguese pilots, and if this be so, its position ought to be immediately verified and described. There are generally a few ships of war in the Tagus, and the crew of one of them could not be more profitably occupied than in taking soundings, and obtaining the bearings of this shoal. The number of steamers now plying off the Spanish and Portuguese coasts renders it of the greatest importance to navigation that it should be discovered with the least possible delay. The publicity given to this case will be the means, probably, of preventing other vessels from steaming or sailing on to this rocky shoal, though it takes a long time to make such discoveries generally known.

The court having come to the decision that the *Corinthian* was cast away from striking on an unknown, or, at all events, an unrecorded rock, one would suppose that the master's certificate would have been returned without comment. Not so, however, for the report of Mr. Raffles ends with a censure, in these words:—"I have felt myself justified in acquitting the master of the *Corinthian* of any default in the loss of his vessel, and have accordingly returned to him his certificate. In doing so, I have deemed it my duty to point out to him that, in the opinion of myself and of my assessors, he navigated his ship too near the land in the vicinity of the St. Bartholomew Shoals; and having failed to take any bearings when the vessel was stranded upon this dangerous rock, its true position is left to this moment very doubtful."

What is deemed too near the land for a steamer to pass? If the lights on the coast are distinguishable, and the navigation well known, a master who has steam at his command will not hesitate to run close in-shore; but if there are no beacons to steer by, and the coast is not fully known, then it is reprehensible not to keep a good offing.—*Mitchell's Maritime Register*.

We have long since referred to the discreditable condition of the charts of the Portuguese coast. In fact, we really believe that the only two trustworthy plans that we have of all their seaboard are those of Oporto and Lisbon, made by ourselves. While every other government has been busy making excellent surveys of their shores, we find no single, solitary production from the Portuguese. The chart of their little piece of coast line we believe to be the production of old Pimentel, sometime of the last century!—and our sea commanders, accustomed to inshore navigation in these days, are thus ignorantly trusting to charts which should be obsolete. When are we to have charts that ships can go inshore with? When will the Portuguese

government understand that good hydrography of their own shores is essential to commerce because it conduces to safe navigation? There is a Spanish proverb which says that "help from Spain comes late," but such help from Portugal comes not at all, and our shipmasters should remember, when trusting to their charts, that they are not worth the paper which they are printed on for accuracy of detail.

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*Official Inquiries into the Losses of the "Corinthian" and "Labuan,"  
Screw Steamers.*

An inquiry, directed by the Board of Trade, has been held at Liverpool, before Mr. Raffles, magistrate, and Captains Harris and Baker, nautical assessors, respecting the loss of the *Corinthian*, from Oporto for Liverpool, a short distance to the southward of Vianna, on the coast of Spain. After the examination of several witnesses, Mr. Raffles delivered the following judgment:—

"The court having carefully considered the evidence given in this case, tending to show that the steamship *Corinthian* was lost on some dangerous rock not laid down in the charts of the coast of Portugal, as also the evidence of Mr. Perry, the master of the *Braganza*, to the same effect, is bound, in the absence of any conflicting testimony, to return to Captain Goff his certificate. The court, in handing back the certificate to Captain Goff, could not avoid remarking that in their opinion the *Corinthian* was kept unnecessarily near the land in the vicinity of St. Bartholomew Shoals, and they regret that when the ship first struck upon what is supposed to have been an unknown danger, no bearings were taken, either then or at any later period, to determine its position, which the court observes, with much concern, is left to this moment very doubtful."

His worship then handed Captain Goff his certificate, and the proceedings terminated.

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Mr. Raffles, the stipendiary magistrate at Liverpool, has just made his official report to the Board of Trade as to the result of his investigation into the loss of the *Labuan* (screw steamer), off the Island of Harris on the 28th of June last. After recapitulating the facts of the case, Mr. Raffles says:—

"The captain appears to have navigated the ship with care and caution throughout, but in consequence of the thickness of the weather on the morning of the 28th, and failing in his attempt to obtain soundings, he seems to have been in error as to his distance from the land. The course steered from the last headland would, however, appear to have been a safe one to clear all dangers, according to the chart by which he navigated his vessel, but, unfortunately, the sunken rock on which he struck is not laid down on that chart—one of Imray's of 1862, and which the master had purchased in Liverpool just before sailing, in the belief that it was the latest. It is but right to state that, in a more recent chart of the same publisher for the present year, the rock in question, the *Lag na Laire*, is correctly laid down as in the Admiralty charts. But, regarding the fact that the master's chart was deficient in the information which would have enabled him to avoid the danger, and there being no buoy or beacon to point it out, as there would appear to be on other dangers in the same neighbourhood, I am disposed to acquit him of default. I am glad to be able to do this, as the master's antecedents are all favourable to him, and his attention to his duties both before and after the accident appears to have been highly creditable. I have, therefore, with the concurrence of the assessors, returned to Mr. Hargitt his certificate."

## Nautical Notices.

## PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 444.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist. in Mls.	[Remarks, &c. Bearings Magnetic.]
33. Port au Prince	San Domingo	18° 33' 6" N., 72° 25' 2" W.	F.	50	9	Est. 12th May, 1864. On Point Lamentin.
Brava Island	Venezuela	South America	F.	..	..	Has not been lighted.
Porto Cabello	.....	.....	R.	..	..	Occasional. Not to be depended on.
34. Giglio Island	Italy, West coast	42° 21' 5" N., 10° 53' 8" E.	R.	1017	20	Est. 20th July, 1864. Once a minute. (a.)
35. Kassandra Point	Gulf Saloniiki	39° 57' 5" N., 22° 22' E.	R.	52	15	Est. 10th July, 1864.
Panama Point	Gulf Saloniiki	22° 21' 7" N., 22° 54' 4" E.	F.	52	6	Est. 10th July, 1864. A Red light.
Kara Cape	Gulf Saloniiki entrance	40° 29' 5" N., 22° 49' 4" E.	F.	85	10	Est. 10th July, 1864. (b.)
36. Prince Consort Shoal	off Cowes	.....	..	..	..	(c.)
Knolls in the Downs	.....	.....	..	..	..	(d.)
37. Durazzo Quay	Adriatic	East side	F.	53	6	Est. 2nd July, 1864. (e.)
Avlona Bay	Ditto	Ditto	F.	82	5	Est. 18th July, 1864. Red light (f.)
Antivari Cape	Ditto	Ditto	F.	121	8	Est. 18th July, 1864. (g.)
Bas Ibn Hanl	Syria	35° 35' N., 35° 43' 7" E.	Fd.	40	13	Est. 20th July, 1864. A flash every minute. (h.)
Mount Carmel	Ditto	32° 48' N., 35° 2' E.	Fd.	410	18	Est. 20th July, 1864. A flash every two minutes. (i.)
38. Tenerife	Bermejo Point	28° 35' 4" N., 16° 8' 1" W.	Fd.	810	35	Est. 15th September, 1864. Flash every three minutes. (k.)
San Sebastian	Santa Clara Island	43° 19' 5" N., 1° 50' 6" W.	F.	171	9	Est. recently. (l.)
39. Port Soller, Orus Point	Isla Majorca	39° 48' N., 9° 44' 1" E.	F.	77	9	Est. 15th September, 1864.
Hesselo Island	Kattegat	.....	F.	..	10	Temporary, 6th August, 1864. (m.)

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

(a.) 34.—The light is invisible through an arc of 63° or when bearing from about N.N.W.  $\frac{1}{4}$  W. round by North to N.N.E.  $\frac{1}{4}$  E.

(b.) 35.—The light is a *fixed* light, showing *red* from seaward when bearing from N.  $\frac{1}{4}$  W. round by North to N.E.  $\frac{1}{4}$  N.; and white from N.E.  $\frac{1}{4}$  N. round by East and South to W.b.S.  $\frac{1}{4}$  S. It is placed at an elevation of 85 feet above the mean level of the sea, and should be seen in clear weather from a distance of 10 miles. By keeping the white light in sight a vessel will clear Touzla Point, but in rounding the shoal ground off Cape Kara a berth of a long mile should be given to the lighthouse.

(c.) 36.—A shoal of gravel and shells has lately been found by H.M.S. *Prince Consort*, while anchored about 3  $\frac{1}{2}$  cables E.b.N.  $\frac{1}{2}$  N. from the club-house on West Cowes Point. It is narrow, about a cable long, E.N.E. and W.S.W., with 22 to 34 feet on it at low water springs, the least depth being towards its eastern part. A *white buoy*, bearing the words "Prince Consort Shoal," has been placed in 4 fathoms at about 33 yards northward of the 22 feet patch, with Old Castle Point S.E. nearly three-quarters of a mile, and the club-house flagstaff W.b.S.  $\frac{1}{4}$  S., a little more than one-third of a mile.

To pass northward of the shoal, keep Ryde Pier open of Old Castle Point:



(d.) 36.—*Caution*.—Considerable alterations have taken place in the shoals at the southern entrance of the Gull Stream; a knoll of  $4\frac{1}{2}$  fathoms at low water springs has been found, with South Brake buoy N.b.E.  $5\frac{1}{2}$  cables, Bunt Head buoy E. $\frac{1}{2}$ S. half a mile, and Gull light-vessel N.E. 2.4 miles. Not more than  $4\frac{1}{2}$  fathoms at low water springs will be found about  $3\frac{1}{2}$  cables S.S.W. from Bunt Head buoy.

Variation at Cowes  $21^{\circ} 26'$ , in Downs  $20^{\circ} 26'$  West in 1864.

(e.) 37.—The fixed light at Durazzo stands in front of and close to the garden wall of the Quarantine Office, about 33 feet from the Quay of Durazzo, on the eastern coast of the Adriatic, and shows *white* seaward when bearing from E. $\frac{1}{2}$ S. to N.E.b.E. $\frac{1}{2}$ E.; *red* from N.E.b.E. $\frac{1}{2}$ E. to N.b.E. $\frac{1}{2}$ E., or in the direction of the shoals on the N.W. side of Durazzo Bay; and *white* from N.b.E. $\frac{1}{2}$ E. to N.W.b.W. $\frac{1}{2}$ W.

(f.) 37.—The fixed light in Avlona Bay is on the first point to the southward when steering towards the summer anchorage, 2 miles West of the Quarantine Office at Avlona or Valona. In bad weather, mariners are cautioned to leave this light to the North, so as to get into safer anchorage.

(g.) 37.—The fixed light on Cape Antivari stands in the fort, at 164 yards within the extreme of Cape Antivari, on the South side of the entrance of the Roadstead of Antivari.

(h.) 37.—The fixed and flashing light on Ras Ibn Hani is 66 yards within the extreme of that cape, which is 5 miles to the N.W. of Latakiah, coast of Syria.

(i.) 37.—The fixed and flashing light on Mount Carmel stands on the terrace of the ancient castle, below the monastery on Mount Carmel, coast of Syria.

Variation in Adriatic  $10^{\circ} 30'$  W., on coast of Syria  $4^{\circ} 25'$  W. in 1864.

(k.) 38.—It stands on Roque Bermejo Point, at  $1\frac{1}{2}$  miles N. $\frac{1}{2}$ W. from Anaga Point, and  $3\frac{1}{2}$  cables N.W. $\frac{1}{2}$ W. from Roque Bermejo Islet, which is connected to Roque Bermejo Point by a short reef covered at high-water.

(l.) 38.—At  $1\frac{1}{2}$  cables northward of the island is La Banca, a rocky shoal of 3 to 6 fathoms water, which breaks in any swell. To avoid its eastern end when entering the port, do not bring the light to the South of S.b.W. $\frac{1}{2}$ W.

(m.) 39.—The temporary light on Hesselö Island is placed instead of the flashing light hitherto exhibited there. It is shown from a lantern placed about 14 feet from the N.N.E. side of the new tower in course of construction, at the same height as the old light, and is visible in all directions, except when it bears between South and S.W. $\frac{1}{2}$ W., when it is covered by the new tower.

Variation at Hesselö Island  $15^{\circ} 20'$  W. in 1864.

### OUR IRON-CLAD FLEET.

According to official records, we find that England's iron-cased vessels of war already afloat, and all of which have been but recently built, amount to nineteen ships, of from four to forty-one guns each, and mounting in the aggregate 400 guns, of a tonnage of 71,958, and of 14,762 horse power. In addition to the above, there are also twelve powerful ships now under construction, which will carry in all 255 guns, are of 43,160 tons burthen, and 9,527 horse power. The following are the names of the ships, both afloat and building, together with the number of guns, horse power, and tonnage:—

*Ships Afloat.*

<i>Ships.</i>	<i>Guns.</i>	<i>H.P.</i>	<i>Tons.</i>	<i>Rig.</i>
<i>Achilles</i> .....	20 ..	1,250 ..	6,121 ..	iron-cased ship.
<i>Black Prince</i> .....	41 ..	1,250 ..	6,109 ..	iron-cased ship.
<i>Caledonia</i> .....	35 ..	1,000 ..	4,125 ..	iron-cased ship.
<i>Defence</i> .....	16 ..	600 ..	3,720 ..	iron-cased ship.
<i>Enterprise</i> .....	4 ..	160 ..	993 ..	iron-cased cupola.
<i>Favourite</i> .....	10 ..	400 ..	2,186 ..	iron-cased corvette.
<i>Hector</i> .....	24 ..	800 ..	4,089 ..	iron-cased frigate.
<i>Minotaur</i> .....	26 ..	1,350 ..	6,621 ..	iron-cased frigate.
<i>Ocean</i> .....	35 ..	1,000 ..	4,047 ..	iron-cased frigate.
<i>Prince Albert</i> .....	4 ..	500 ..	2,529 ..	iron-cased cupola.
<i>Prince Consort</i> .....	35 ..	1,000 ..	4,045 ..	iron-cased ship.
<i>Research</i> .....	4 ..	200 ..	1,253 ..	iron-cased ship.
<i>Resistance</i> .....	16 ..	600 ..	3,710 ..	iron-cased ship.
<i>Royal Oak</i> .....	35 ..	800 ..	4,056 ..	iron-cased ship.
<i>Royal Sovereign</i> .....	5 ..	800 ..	3,963 ..	iron-cased cupola.
<i>Sharpshooter</i> .....	6 ..	202 ..	508 ..	iron-cased ship.
<i>Valiant</i> .....	24 ..	800 ..	4,063 ..	iron-cased ship.
<i>Warrior</i> .....	40 ..	1,250 ..	6,109 ..	iron-cased ship.
<i>Zealous</i> .....	20 ..	800 ..	3,716 ..	iron-cased ship.
<b>Total</b> .....	<b>400</b>	<b>14,762</b>	<b>71,958</b>	

*Ships Building.*

<i>Ships.</i>	<i>Guns.</i>	<i>H.P.</i>	<i>Tons.</i>	<i>Rig.</i>
<i>Agincourt</i> .....	26 ..	1,350 ..	6,621 ..	iron-cased ship.
<i>Bellerophon</i> .....	14 ..	1,000 ..	4,246 ..	iron cased frigate.
<i>Belvidera</i> .....	39 ..	600 ..	3,027 ..	iron-cased frigate.
<i>Endymion</i> .....	22 ..	500 ..	2,478 ..	iron-cased frigate.
<i>Lord Clyde</i> .....	24 ..	1,000 ..	4,067 ..	iron-cased ship.
<i>Lord Warden</i> .....	24 ..	1,000 ..	4,067 ..	iron-cased ship.
<i>Northumberland</i> .....	26 ..	1,350 ..	6,621 ..	iron-cased frigate.
<i>Pallas</i> .....	6 ..	600 ..	2,372 ..	iron-cased corvette.
<i>Repulse</i> .....	35 ..	1,000 ..	4,125 ..	iron-cased ship.
<i>Royal Alfred</i> .....	35 ..	800 ..	4,045 ..	iron-cased frigate.
<i>Viper</i> .....	2 ..	167 ..	787 ..	dbl. sc. iron g.-boat.
<i>Vixen</i> .....	2 ..	160 ..	754 ..	dbl. sc. ir.-cad. g.-bt.
<b>Total</b> .....	<b>255</b>	<b>9,627</b>	<b>32,160</b>	

Exclusive of the above we have also thirty-nine other iron-cased vessels afloat, viz.:—The *Ætna*, 16; *Erebus*, 16; *Glatton*, 14; *Terror*, 16; *Thunder*, 14; *Thunderbolt*, 16; and *Trusty*, 14; iron-cased screw floating batteries. *Adventure*, 2; *Dromedary*, 2; *Himalaya*, 6; *Megara*, 6; *Orontes*, 2; *Simoom*, 4; *Tamar*, 2, *Urgent*, 4; and *Vulcan*, 6; iron screw troop-ships. *Antelope*, 3; *Bann*, *Bloodhound*, 3; *Caradoc*, 2; *Dover*, *Fire Queen*, *Harpy*, 1; *Jackal*, 4; *Lizard*, 3; *Oberon*, 3; *Princess Alice*, 1; *Recruit*, 6; *Triton*, 3; and *Weser*, 6; iron paddle vessels. *Buffalo*, 2; *Hesper*, 4; *Industry*, 2; *Supply*, 2; and *Wye*, 2; iron screw store ships. *Chasseur*, iron screw floating factory; *Fairy*, iron screw yacht; *Manila*, iron screw vessel; and *Trident*, 3, iron paddle sloop.—*Daily News*.

## GATHERINGS FROM CLUB PAPERS.

*Ship "Congress."*—When the barque *Congress* was seventy-five miles East from Sydney, November 28th, 1863, a few minutes before three o'clock in the morning, we discovered smoke coming out from the lower hold through the fore hatch. All hands were called immediately, and water was passed down in buckets; but the smoke was so strangling that the men could not stay below the upper deck. The smoke was so thick that we could not tell which side the ship was on fire. I ordered all hands to come on deck, and to batten down the hatchways, so that the fire should have no vent. We nailed a tarpaulin over the two hatchways, cut a round hole through the centre, rigged barrels both side of the ship, hoisted in water, and emptied it through the hole in the tarpaulin. We continued so until three o'clock next afternoon. I found by sounding the pumps, that the lower hold was full of water. I swung the ship off before the wind to make her roll, and kept her rolling a few minutes, then luffed her to the wind again, took the tarpaulin off the fore hatch, found the water over the combings of the lower deck, and the fire extinguished. A load was taken from my shoulders when I found my ship was safe.

We commenced hoisting the water out of the hold with barrels and pumping with both pumps, and at twelve o'clock the next night had the ship dry. We were twelve hours filling the ship, and nine hours pumping her dry, making twenty-one hours' hard work.

We found, by overhauling, that the fire was made by some of the crew, in the lower hold forward, about ten feet abaft the fore hatchway, well over to the side of the ship. If we had known where the fire was, we could not have got water there, it was too far from the hatch. We found two beams and one carling badly burnt, the two knees between the beams entirely gone, the lower deck burnt through in one place, and also the ceiling of the ship burnt through, and the outer plank burnt some.

*New Order respecting Passenger Ships.*—A new order in council has been issued respecting the "Passengers' Act, 1855," which revokes the order in council dated the 28th of February, 1856, and directs that another, now published, shall henceforth be observed for preserving order, for promoting health, and for securing cleanliness and ventilation to be observed on board of every passenger ship proceeding from the United Kingdom to any port or place in her Majesty's possessions abroad, out of Europe, and not being within the Mediterranean Sea. It is specified among other rules that passengers shall rise at 7h. a.m., at which hour the fires shall be lighted. The breakfast hour is between eight and nine o'clock; and before that time all the emigrants, except those under medical orders, are to be out of bed and dressed, and the beds rolled up, and the deck on which they sleep properly swept. Dinner is to be at one o'clock and supper at six; fires are to be put out at seven o'clock, and the emigrants are to be in their berths at ten. On Sundays the passengers are to be mustered at ten

a.m., and are expected to appear in decent apparel. The day is to be observed as religiously as circumstances will admit. "No smoking shall be allowed between decks. The following kinds of misconduct are strictly prohibited:—All immoral or indecent acts or conduct, taking improper liberties or using improper familiarities with the female passengers, using blasphemous, obscene, or indecent language, or language tending to a breach of the peace, swearing, gambling, drunkenness, fighting, disorderly, riotous, quarrelsome, or insubordinate conduct."

#### THE FORTRESS OF TARIFA.

On the subject of passing the forts of Tarifa and Isla Verde, and the usual practice of ships showing their colours, the neglect of which has produced a multitude of complaints, all to be attributed to that neglect, the Spanish authorities have issued the following notice. It is said that the custom of showing the colours was not considered necessary; but the fact of being in Spanish waters is a sufficient claim to that courtesy which we should require from any foreign ships passing our own roadsteads within the distance of gun shot.

*San Ildefonso, July 31st, 1864.*

Sir,—Having informed the Minister of War of the exertions made upon different occasions by certain foreign representatives accredited to this court, with the object of introducing some favourable modification of the regulations observed by the fortresses of Tarifa and Isla Verde to oblige the vessels sailing in the jurisdictional waters of those fortresses to hoist the flag of their nation, a practice which they often neglect, alleging an ignorance scarcely credible in vessels who so often cross the Straits, the abovementioned minister replied, on the 21st ult., that on that day the following instructions had been sent to the captain-general of Andalusia, under whose immediate orders the fortresses of Tarifa and Isla Verde are placed, which for the future are to guide the commanders of the said fortresses.

1. Every vessel crossing the line of the said forts within reach of their guns, and not showing the flag of their nation, when the flag of the fort is flying, shall be warned of the neglect it is guilty of by means of cannon loaded with powder only.

2. If after ten minutes she does not hoist her flag, a shot with ball shall be fired across her bow.

3. If in spite of the two warnings, and after ten minutes more, she still refuses to hoist her flag, a third shot with ball shall be fired at her rigging.

In informing you of the foregoing regulations that you may transmit them to the government of Great Britain, the government of the Queen, my mistress, flatters itself that the cabinet of London will perceive in the measures adopted, a new proof of the sentiments of deference which it entertains towards the nation which you so worthily represent.

I avail, &c.

J. F. PACHECO.

### New Books.

**OUTLINES OF ASTRONOMY.** *By Sir John Herschel, Bart, K.H., &c. Longman.*

This well known work has here reached its seventh edition, enriched by the same clear explanation of astronomic phenomena that has signalized it as one to which the reference of mere curiosity, that of the *aspirant*, or the astronomer himself may be made on any subject of the sublime science. These "outlines" have reached over 700 pages, accompanied by numerous cuts and plates of illustration.

**FOREIGN MEASURES and their English Values, compiled from official sources.** *By R. C. Carrington, F.R.G.S., Hydrographic Draughtsman of the Admiralty.* Potter, 31, Poultry, London.

A general collection of the measures of foreign countries, something more modern than *Kelly's Cambist*, with their equivalents in English, was much wanted, and is here supplied by Mr. Carrington. And yet what we find in it scarcely entitles it to be considered in most cases anything more than approximations. Thus, while in some places we have equivalents to three and four decimal places of the inch, in others we have them but to one decimal of the foot. Still considered generally the collection is valuable from the numerous parts of the world given, and to which reference, as it should be, is made easy by a good index.

**CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, in July and August, 1864.**

Mediterranean, Ionian Sea, Zante Bay, Commander Mansell, R.N., 1862, (1s. 6d.)

Mediterranean, Africa, North coast, Ras Bulaou to Alexandria, Captain Spratt, R.N., C.B., 1862 (3s. 6d.)

Newfoundland Island, East coast, Broyle Harbour to Renewse Harbour, with views, Captain Orlebar, R.N., 1863 (1s. 6d.)

West Indies, St. Christopher's, Nevis, Eustatius, and Saba Islands, Captain Barnett and Lieutenant Lawrence, R.N., 1850 (3s.)

Brazil, San Francisco River, Captain Mouchez, F.I.N., 1862 (2s. 6d.)

North America, West coast, Juan de Fuca Strait, corrected by Captain Richards, R.N., corrected to 1863 (2s. 6d.)

Africa, West coast, St. Louis or Guet-n'dar and Senegal Bar, with a plan of Goree Road and View, French survey, 1817 (1s.)

China Sea, Delawan Bay, Balabac Island, the late Commander Bate, R.N., 1850 (6d.)

Pacific Ocean, North, Fanning Island, a sketch of, including English Harbour, Captain Richards, R.N., 1863 (1s.)

Hydrographic Notice, No. 1, South Wales, a reprint of Holyhead Bay and Harbour, 1864 (3d.)

Hydrographic Notice, No. 1, a reprint of the Eastern Archipelago, (6d.)

Sun's true bearings or Azimuth from lat. 48° to 56° N., by J. Burdwood, Staff-Commander, R.N., 1864 (3s. 6d.)

EDWARD DUNSTERVILLE, *Commander, R.N.*

*Hydrographic Office, Admiralty, August 22nd, 1864.*

THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle.

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OCTOBER, 1864.

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REPORT ON THE CONSULAR DISTRICT OF NEW-CHWANG,—with  
*reference to its Commercial Capabilities.*—By T. T. Meadows,  
*H.M. Consul at New-chwang.*

Manchooria\* consists of three provinces styled in the imperial geographical dictionaries, the Tung-san-sang, the “eastern three

\* The consular district of New-chwang embraces the whole of Manchooria, as bounded by the Yellow Sea and the Chih-le Gulf on the South; by Corea on the South-east; by the Russian territories on the East and North, and by Mongolia on the West; and it also embraces the extreme eastern portion of Mongolia. British travellers, whether for trade, for pleasure, or for geographical or other scientific purposes, throughout that region, are likely to travel under passports issued by this consulate; and cases of shipwreck on its sea-bound southern border, together with any difficulties regarding inland travellers, are certain to be reported to and referred to it by the Manchoo and Chinese authorities.

Previous to the opening of this port, the only accounts we had of the region above particularized as the consular district, were the unfortunately scanty notices of the Romanist scientific missionaries in the service of the Emperor Kang-he, about a hundred and fifty years ago; and all the Occidental maps which appear of it are merely reproductions in greater or less completeness of those drawn by them at that period. Within the last two years, the publication of Mr. Ravenstein's work has given to the British public a few slight notices of the northern portion of the region, that lying along the right bank of the Amoor, and a portion of the Sungari Valley. Since the opening of this port, the southern portion from the Great Wall on the West, and down to Ta-lien-wan Bay on the (South) East, has been several times traversed by Englishmen, and Moukden has also been visited by them.

provinces" of the empire. These are Shing-king or Fung-sang, Kirin, and Tsitsihar.

Fung-sang, the most southerly, in which this port lies, consists of the seaboard between the Great Wall on the West, and Corea on the East, with so much of the interior as extends to the line of palisades on the North-west, where it meets Mongolia, to about fifty or sixty miles beyond the palisade on the North-east, where it meets Kirin; and to some twenty to thirty miles beyond the palisade on the East, where it meets Corea. It includes the Leaou Peninsula, that which juts down southward toward the Shan-tung Peninsula, dividing the head of the Yellow Sea from the Chih-le Gulf, and marked as the Regent's Sword in many maps.

Kirin lies to the North-east of Fung-sang, and Tsi-sti-har to the North-west of that. Both have been considerably reduced in size by the recent cessions to Russia.

This province, Shing-king, or Fung-sang as it is here commonly called, though thus reckoned a portion of Manchooria, is peopled mainly by a population of Chinese descent. Though less literary and though rougher in manner than their countrymen in the valley of the Great River, they differ, even in these points, very little from the inhabitants of Shan-tung, the birthplace of Confucius, and one of the oldest portions of China Proper. The most of the mandarins here are Manchoos, but neither they nor the other inhabitants of their race speak anything but Chinese; and they are hardly to be distinguished from the Chinamen of the province either by physical appearance or by manners. The real Manchooria lay, in fact, in the valleys of the southern affluents of the Amoor, more especially about the sources of the Sungari and the Hourha, in the southern portion of the province of Kirin. The region comprised within this province has long belonged to the Chinese nation; and 200 years ago it was the Manchoos who came into it as conquering immigrants, and made it the seat of their state for some time previous to their becoming masters of China Proper.

The chief physical features in Manchooria and that portion of Mongolia which I reckon in this consular district are the valley of the Sungari and its affluents in the North, that of the Ya-loo in the East, and that of the Sira-muren or the Leaou in the West, together with the mountain ranges which form the watersheds separating these three valleys. These are the Long White Mountains separating the Sungari and the Ya-loo valleys, and two continuations or spurs from that range, the one stretching in a north-westerly direction, and separating the upper portion of the Leaou valley from that of the Sungari; the other stretching in a south-westerly direction, and separating the lower portion of the Leaou valley from that of the Ya-loo. This latter mountain range, part of which bounds our distant view at this port from S.S.W. to E.N.E., is known here as the Eastern Mountains. It might be not inappropriately named by us the Leaou Mountains. Coming down from the N.E. beyond Moukden, it passes away to the southward in the shape of the Leaou Peninsula, then dips under the Meaou Straits, showing here and there a peak as an island, and then

again reappears as the Shan-tung mountain range and forming the Shan-tung Peninsula.

Viewed commercially, the valley of the Ya-loo must, I think, be considered as lying without this consular district. The Ya-loo itself, and the river ports lying at the head of the Yellow Sea, form the natural outlets and inlets for native and over-sea articles of traffic. Native craft bring to them, from Shanghai, foreign goods at a much less cost of transport than would be unavoidable for the sea voyage to this port with the cart carriage across the Leaou mountain range. In that part of it which has been traversed by foreigners, from the neck of the peninsula to its southern extremity, it rises to heights of from 2,000 to 3,000 feet; and its breadth is considerable, the whole of Leaou Peninsula being nothing but a mountain range from shore to shore. The range toward the North appears to become still higher.

I may state here that throughout the peninsula, and for some not yet exactly ascertained distance to the North, the range is entirely divested of timber, only a few patches of oaken brushwood being found among the higher peaks. Villages and hamlets exist in all the valleys. All the flatter slopes are cultivated, and where the steepness stops cultivation, the coarse grass is cut down in the autumn for fuel. Coal, however, exists both on the peninsula and in a more northerly portion of the range. A hot spring is also to be seen in one of its western valleys, the pools formed by which are above blood heat when the temperature of the air is below zero of Fahrenheit. The water is blackish, and has a sulphureous smell—that of sulphuretted hydrogen, I believe (*schwefel-wasserstoff-gas* in German). The peninsula produces millet and Indian corn in excess of what is required for the supply of the inhabitants, the surplus being, at present, mostly sent to Tien-tsin.

At first sight it might seem that, in a commercial point of view, the whole of the large Sungari Valley, with those of its two great affluents, the Nonni and the Hurka, should be considered as lying beyond this consular district, because of their direct water communication with the Russian ports at the mouth of the Amoor. There are, however, reasons for believing that, in spite of the watershed between the valley of the Leaou and the Sungari, and the consequent land transport, this port may compete with Nicholayevsk at the mouth of the Amoor, as far as regards the introduction of foreign manufactures into the Sungari Valley, and the exportation of any more valuable and less bulky products that the progress of commerce may discover in it. From the ice in its estuary, the Amoor is closed to navigation for seven, the Leaou for four and a half months at most. As to its five open months, Mr. Ravenstein, speaking of its estuary, the Liman, says,—“Its navigation is extremely intricate, and only to be accomplished with the aid of a good pilot, but even then vessels drawing above thirteen feet of water cannot enter the Amoor.” This river, on the other hand, besides being perfectly free from ice for seven and a half months, is remarkably easy of access. Captain



Ward, R.N., who made the admiralty surveys, stated it to be much easier of access than Shanghai. So soon as a lightship is stationed at the bar and buoys are laid down, pilots will, except for the rules of the insurance offices, be unnecessary. For several days at each period of springs, vessels drawing eighteen feet water can cross the bar, the only real difficulty in the way. Further, vessels can lie at anchor outside of the bar in perfect safety, the only dangerous gales blowing here being northerly, and the head of the Leaou Gulf forming a good roadstead as regards them. It is a common practice for the larger foreign vessels to take in a portion of their cargo in the harbour, and the remainder outside the bar, in which latter operation they are rarely interrupted by the weather; while vessels drawing sixteen feet can load up in the harbour and leave with ease. It may be fairly hoped that these great advantages will counterbalance the disadvantage of the land carriage between the Leaou and the city of Kirin; a little beyond which, commerce from this place will have the water communication at its command equally with that which ascends the Amoor. Hence, if the Chinese provincial authorities are not allowed to throw artificial obstructions in the way of British adventure, our merchants here may hope to compete successfully with those of the Nikolayevsk in the valleys of the Sungari, Hurka, and Nonni. As to the Russian ports on the gulf of Tartary, inland commerce from them would have to cross two mountainous watersheds to get to the nearest and smallest of these valleys.

As regards the valley of the Leaou itself, this port can have no rival, neither in the Russian territories nor on the coast of the Chih-le Gulf. That foreign manufactures are, and have been for years carried by Chinese from this province down the Sungari, even to the Amoor itself, there can be no doubt; but it is mainly the Leaou Valley that up to the present time has supported the trade of this port. And by the Leaou Valley is meant that portion of it which lies beyond the north-western line of palisade, even more than the portion within the palisade. Chinese colonization has, during the last fifty years, been going on with great and increasing rapidity in the track of Eastern Mongolia lying along the bounds of this province; it has now penetrated from 200 to 300 miles beyond the palisades, in which quarter the mandarins say a man may travel for eight or ten days in a north-westerly direction without seeing any difference between the country around him, between the villages, roads, and cultivated lands, and those which he sees in passing through the oldest port of this province. To this colonization this commercial and shipping town owes its existence as such; and as the colonization has been recent and unknown to Occidentals, so the existence even of this town, as a considerable trading place, was unknown until we came to it in the beginning of last year. How little it was known is proved by the work of a very painstaking inquirer, *The Middle Kingdom*, by Dr. Williams, published in 1848. In describing Manchooria, he says,—“Kin-chow is the port of Mookden, fifteen leagues from it, and carries on a considerable trade in cattle, pulse, and drugs . . . Kae-

chow, another port lying on the East side of the gulf, possesses a better harbour, but is not so much frequented." He altogether overlooks this town lying between Kin-chow and Kae-chow, though it exceeds both in population and commercial bustle, as its harbour surpasses theirs in depth and safety. This port is the port of Moukden, and of all other cities in the Leaou Valley. The town has a variety of names. By the seamen and merchants of Central China it is called New-kow; by the seafaring people of the gulf, Ting-kow; by the mandarins in their proclamations and official letters, Muh-kow-ying, but in conversation it is by them as well as by the shore people generally called Ying-tze, and that is the name the foreign residents also use. But the similarity of the term Ying-tsze to that of the River Yang-tze having seemed to me likely to cause confusion at a distance, I have adopted for letters a rendering of the first name, New-kow, i. e., port of New-chwang. Though a great deal more than the port of New-chwang, it is that among other things; and the designation has the advantage of bringing in the name of the city stipulated for in the treaty as an open port and a consular station.

The Leaou, it will be seen from a glance at a map, comes down from the palisade barrier in a south-westerly course nearly parallel to the Leaou mountain range. Throughout the whole of this stretch, it is believed, and certainly through the last portion of it, the river flows in a wide plain, elevated but a few feet above the sea, and where it opens on the latter, about seventy miles broad. When at a distance of about thirty miles in a direct line from its mouth at the head of the gulf, the river receives its largest eastern affluent, that which, having its sources in the Leaou range, drains the country around Moukden and Leaou-yang, the second best historically known city of the province. The point of junction is called Sancha-ho, known to sinologues as having been celebrated by the Emperor Keen-lung in a descriptive poem on Manchouria. For the writer of a report on the commercial capabilities of the province, it is of some slight interest, for the only timber that comes from inland directly to this port floats there into the Leaou; but for a poet, it is simply hard to conceive a place more uninteresting and unnoteworthy. There, if not sooner, (no foreigner has as yet been further up it,) the Leaou begins to make a series of wide sweeps to the right and left, forming in the plain a succession of flattened and irregularly shaped letters S. About one half, and sometimes the whole, of each of the peninsulas thus formed is a reed marsh, while the concave portions of the river bank facing such peninsulas are comparatively high and dry. This town, Ying-tze, or the port of New-chwang, is situated on the last complete sweep from East to West, on the left bank, and just where one of the above described dry portions ends and a marshy peninsula begins. It consists of one long street running East and parallel to the river, and of shorter ones running at right angles to that main thoroughfare, northward to the river bank and southward into the plain. After passing the town the river curves up to a W.N.W.

direction; then, when about a mile and a half off, it bends round again from West to East, passes in the easterly sweep of the S at the back of the town, and then, before it can curve again round to the West, meets the gulf. The port town stands, in fact, on the last piece of dry plain that lies along the left bank of the Leaou before it enters the sea. The above mentioned sea bar once crossed, the river forms an excellent harbour. The reach along which the town lies, varies in depth from four to seven fathoms, with a breadth of about half a mile.

Foreign sailing vessels could, as far as depth of water is concerned, proceed for some miles above the port town, but there is no inducement for them to do so. A few large junks proceed up to a river port called Teen-chwang-tae; but shallows that occur from time to time beyond that prevent any but river craft drawing a couple of feet of water penetrating much further. A very small description of masted craft does, however, penetrate nearly up to the palisades; and no inconsiderable amount of produce is brought hither by the main stream and the Moukden affluent. New-chwang, the city opened to trade by treaty, I, however, found to be quite inaccessible by water. It lies about three miles up a small branch of the by no means large Moukden affluent. In my yacht, a flat bottomed craft drawing only  $2\frac{1}{2}$  feet of water, I penetrated up the latter as far as the mouth of its New-chwang branch. But this I found un navigable for the smallest description of row boat. By land New-chwang is about thirty miles from this town; but by the curving river and its branches the distance is fully eighty miles. It is altogether an inland place, and even as such is of no commercial importance. It is called a city in virtue of some broken down walls that inclose a portion of it; and has a commandant and some 300 soldiers.

In the first reigns of this dynasty New-chwang was the great place of trade nearest the mouth of the Leaou; but about the end of the reign of Keen-lung, say about eighty or one hundred years ago, it was superseded by the above mentioned river port Teen-chwang-tae. About the fifteenth year of Taou-kwang, i.e., twenty-five years ago, this town, which had been gradually growing up, became the centre of the maritime trade of the province. This was partly owing to the then silting up of some higher portion of the river, but mainly to a monetary crisis and general failure among the bankers and large dealers of New-chwang, Teen-chwang-tae, and Kae-chow, one of the ports particularized in Dr. Williams' *Middle Kingdom*.

Ying-tze, or the port of New-chwang, having attained its present position of chief outlet and inlet of the province and of Eastern Mongolia, is certain, from the natural advantages of its situation, to retain that position, and to increase rapidly. Apart from the buildings erected by foreigners during last season and that now closing, a considerable amount has been going on for the Chinese, and house rent is very dear. The population has been estimated by some foreigners at 200,000, the number given by the mandarins. I myself do not think it exceeds 80,000.

It has been usual in this country for foreigners to settle themselves on unoccupied ground below the Chinese city opened to them. Here I found immediately below the town only a reed marsh, covered at high springs by two to four feet of water, and otherwise objectionable. I therefore selected and obtained from the authorities, for a British settlement, a strip of land occupying about 1,000 yards of the river bank immediately above the Chinese town. In front it has the deepest stretch of river throughout the course of the Leaou, the soundings at low water very close in-shore being seven to nine fathoms. At back, each lot abuts on the one great road between the port town and the interior. The whole of the imports and exports of the place pass either in front or at back of each British lot; and hence, so far as site can command trade, the settlement promises all that could be desired. The non-British foreign merchants have settled in immediate contiguity.

The great export of the port is pulse, either as such or as pulse-cakes, and the oil expressed from them. Under no conceivable circumstances could these articles form return cargoes to Great Britain, but they furnish return cargoes to vessels that bring foreign goods from Shanghai, and give, besides that, employment to foreign shipping that it is found advantageous to send here in ballast, to convey them to Shanghai, Ningpo, and the ports further South.

Now it is a noteworthy fact connected with the trading prospects of this port, and one which distinguishes it, I believe, from every other in China, that its chief traffic, and the increase of it, does not depend on a tract of country which, however extensive, is already cultivated to its greatest extent and degree, and is filled with a population so dense as to admit of no increase. The increase of the foreign shipping, and of foreign commercial interests at this port, depends on that colonization of the prairie (*tsau-te* or grass lands) of Eastern Mongolia above mentioned, which is, humanly speaking, certain to go on, and is capable of practically unlimited extension. In the first season of 1861, thirty-four Occidental vessels visited the port; this season we have had eighty-six; and next year about double that number is expected. At present, the process is, perhaps, only that of substitution of Occidental vessels for junks; but the greater safety and cheapness of the transport by the foreign vessels cannot fail to add an impulse to the other causes of the colonization of the Mongolian plains.

The colonization of Mongolia is done under the authority of the Mongolian Princes, with the sanction of the Imperial Government; but in the Ya-loo Valley, and about the base of the Long White Mountains generally, an illegal colonization by Chinese squatters has been simultaneously going on, in defiance of the Manchoo authorities, who dare not proceed into the newly settled region. The colonists are all outlaws by the fact of their being there, but no inconsiderable portion of them are men who have committed crimes in this province and made their escape. They have established a government of some

kind, one feature of which is a rough penal legislation that knows few punishments but death. At its head is a chief entitled *Laou ta ko*. Rendered literally, this means Old Great Brother; but a better idea is given of its significance to the Chinese if we employ the etymologically similar term of Signior or Seigneur as applied to the rulers of the European republican states of the middle ages. The chief in the Ya-loo Valley rules over a small but independent state, of growing importance. The inhabitants are agriculturists and gold or ginseng diggers in the warm season, when they also hunt the deer for their soft-horn sprouts, and float timber into the mouth of the Ya-loo; in winter they cut the timber and hunt fur-bearing animals. The timber used at Tien-tsin, and most of that used here, comes by sea from that newly opened territory.

I close this report with some remarks on the climate. In this I can furnish some tabulated statistics that I know to be reliable. The accompanying register has, with the exception of the first fifteen days, (from the 21st of October to the 4th of November, 1861,) been entirely kept by myself, and the observations have been regularly made at the hours indicated. As they extend to the 5th of November, 1862, they embrace one whole year. The instruments used were two pairs of maximum and minimum thermometers, an aneroid barometer, and a rain-gauge, all made by Negretti and Zambra. The observations were taken twice daily, once in the morning, so soon as there was sufficient light to take them, and again in the afternoon, between two and four o'clock. The "additional" notes were made at these times, and also at other periods as occasion required.

The explanations on the first page of the register give further information as to the method of keeping it.

In the column of "greatest warmth" double entries appear from the 14th of May to the 20th of September. The highest of the two temperatures was that of a courtyard, the thermometer being in an angle altogether shaded from the rays of the sun, whether direct or reflected. The lower temperature was that of my sitting room, into which the sun was prevented shining by Venetian blinds, but the glass windows of which were not closed, night or day. Where only one temperature is given within the above period, it is that of the courtyard.

One of the most characteristic features of the climate is the prevalence of strong winds. These follow, and, we may assume, receive their direction from, the Leaou Valley and the mountains on each side. In the cold season N.N.E. and N.E. winds prevail, and in the summer S.S.W. and S.W.

In 262 mornings and afternoons, as recorded in the period from the 5th of November, 1861, to the 31st of March, 1862, there were 88 which had the wind either E.N.E, N.E, or N.N.E; hence, one third of the wind in winter comes from north-easterly points.

In the same 262 mornings and evenings, there were 25 with the wind due North, or about one tenth from that point.

In the same 262 mornings and evenings, there were 40 with the wind from W.N.W., N.W., or N.N.W.; hence about one sixth of the winter's wind came from north-westerly points.

Again,  $88 + 25 + 40 = 153$ ; and hence,  $153 : 262$  shows the proportion of the wind from the points between E.N.E. and W.N.W. inclusive.

The above inductions have reference, however, only to the duration of the wind. I have had no instrument for ascertaining its force. But viewing the great strength and steadiness, for two or three days at a time, of the N.N.E. gales, I should say that fully eight tenths of the winter's winds came from north-easterly quarters.

What is said of the north-easterly winds in winter applies to the south-westerly winds in summer.

In each season, two or three days of the wind directly opposite to the prevalent one occur from time to time: N.N.E. wind in the hot season, and S.S.W. in the cold season. The course is usually thus: the wind will blow, say in summer, with unusual steadiness and force from the S.S.W., for the first day or two with a clear sky, then with clouds, which increase till the whole sky is covered. Rain will then sometimes fall, in greater or less quantity. With or without rain the wind begins to blow strongly from N.N.E., changing in less than a minute. Then is often observable the phenomena of a cold lower stratum of air blowing from the North, while above the hot air is blowing from the South. The flag at the head of the consulate mast, of 100 feet in height, will be blowing straight out to the S.S.W., while above, a dense mass of cloud, covering the whole sky, will be racing steadily to the N.N.E. Eventually the cold wind prevails in the higher regions also, and then, in a few hours, the clouds are driven off southwards, and several days of beautifully clear and dry weather follow.

Our rain we get either from S.S.W., or still more westerly points; in other words, entirely from the gulf of Chih-le. Our easterly winds, even the S.S.E. wind, are essentially dry. I presume the Leaou mountain range, if not before it those in Corea, cause the precipitation, before it can reach the Leaou Valley, of all moisture blown from the Pacific.

The record of the fall of rain and snow is not complete, though nearly so. In the first place, the guage was not set up till the 19th of December, 1861; and then, it will be seen by an entry of the 8th of July, 1862, that on the night before the guage had filled, so that the surplus could only be guessed at. But one inch and a half for these omissions will, I feel certain, cover the deficiency, and as the registered quantity of rain is 20.99 inches, we thus have  $(20.99 + 1.50 =) 22.49$ , or say  $22\frac{1}{2}$ , inches of rain for the year; which, so far as Chinese accounts enable me to judge, has been wetter than the average.

One great advantage of the climate here consists in the fact that the cold season is eminently a dry one, and that when rain falls in the warm season the air becomes dry and refreshing immediately after

the cessation of the rain, while those oppressive periods of damp heat that occur at Shanghai and Canton for days, and even weeks, are here unknown.

In my next report I shall go more into details bearing on the trade of the port; at present I conclude by stating that the navigation must be considered as closing between the 10th and 15th of November. Ice does not usually begin to float up and down the river till the end of the month. But the Chinese cargo boatmen are obliged to dry dock or beach their craft before the ground hardens. It is, consequently very difficult to get a vessel loaded after the 10th, and after the 15th next to impossible. For the same reason, if a vessel should ground in the river in going out after the latter date, she cannot discharge a portion of her cargo into boats, but must throw it overboard, as the last British vessel of this season, which cleared on the 10th instant, has been obliged to do.

[The place called New-chwang pointed out by our consul, Mr. Meadows in the foregoing report, appears in our chart as Nieu-chwang in the northernmost part of the gulf of Lian-Tung on its eastern shore,—No. 1,256, containing also the gulf of Pechili. Although much frequented by shipping as it appears to be by the consul's report, it has not yet fallen under the inspection of our naval officers surveying on the China coast,—a remark which may be equally applied to the whole of the northern part of the Lian-tung Gulf, as well as other coasts in that neighbourhood. We are, therefore, unable to point out to the navigator any other chart or plan of it than the abovementioned, which, however, will be sufficient to enable them to approach the mouth of the river and place their ships in the hands of a local pilot. But we commend to their notice the above chart, No. 1,256, with its corrections up to the present time.—ED.]

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**CONFUCIUS;—and the Religions of the East.—By Sir John Bowring.**

The name of Confucius having been incidentally referred to in the foregoing paper, suggests the introduction here of the account of a discourse given by no less an authority than that of Sir John Bowring on the occasion of opening a chapel recently at Portsmouth. Sir John, in fact, touches on the subject of religion generally, and treats largely of Confucius. The report on New-chwang being so near his birthplace, induces us to preserve this address, in which not only will be found a good *resumé* of the character of Confucius, but also much about the peculiarities of the Chinese.

In opening proceedings, Sir John Bowring addressed the meeting in a lengthy and eloquent speech. He commenced by remarking that

the subject placed in his hands was one of so vast an extent, covering in fact the whole surface of the globe, that it was impossible he could undertake to carry them with him into all the regions which would open before them ; but having had a great deal of experience of men, and having been a great traveller in various parts of the world, he thought he could interest them to some extent by stating some of the convictions which this long experience had given him. They knew the great religious sects into which the world was divided.

It was quite impossible for him to enter into all their ramifications, but he would give them some general idea of the religious faith which among all human races had become the ground of connection and was associated with their civil and social institutions. He thought it would be found generally that the founders of most religions that had their origin in the communication of truth, were men of remarkable excellence, likely to influence the society which surrounded them, and fit to leave a permanent impression on the national mind.

Most religions have undergone very much the same process. They began in the communication of truth and knowledge, but in the course of time they have been perverted for many purposes, and they have passed through various stages of deterioration. Little by little a desire for improvement, an anxiety to obtain more information, has led to investigation and inquiry, and then the process of purification began, and religions have been disassociated from most of the other elements with which they had been disconnected in the progress of time. On this they might rely that the whole world was under the influence of a great religious agitation ; and though their attention was specially directed to that which was passing in their small church, the same elements were at work and the same leaven was moving among the Catholics, Mahomedans, the Brahmins, and, in fact, in almost every part of the world. Perhaps he could illustrate this by some topics which had fallen under his own observation.

Some centuries before the appearance of Jesus Christ there was a series of remarkable men. No doubt society was prepared for their appearance, for, as in the world of commerce, the demand led to the supply, so in the region of thought, where there was a desire for something. Where there was an effort to obtain something, in some shape or other Divine Providence had given it. The most influential and extensive religion in the world was Bhuddism, for it was professed by between 400 and 500 millions of human beings. It was impossible that such a religion should have such an effect on the human race unless it had contained some truth ; but in process of time the Bhuddists found that the religious element was not sufficient, and they introduced philosophy, their temples being now crowded with gods and other things resembling those in Roman Catholic places. He had heard it said that the external forms were scarcely different from those of the Roman Catholic ; and if they talked to the Bhuddist he would tell them that " these things were necessary, that the people must have a god they could study, that their god must have arms, head, and some-



thing they could touch." He had, however, found that the most cultivated men considered this a mere recommendation to the ignorant people, and that they professed great contempt for those external observances. Bhuddism had its origin in India, but was introduced into China, and was now the predominant religion of that country.

Before its introduction there lived a great teacher whose name was Confucius, one of the wisest and best of men, who had travelled far, and there was scarcely one of his maxims which could not be read with profit and attention. In fact, Confucius must have been a very great man; and it was very singular that he avoided all sorts of controversy. If people asked him what would become of them when their life ended, he simply said, "I know nothing about it. I suppose your best plan is to be kind to all you can, to live in subjection to the authorities, to do all the good and remove all the evil you can, but as to the rest, I know nothing about it, and therefore you must not ask my opinion." The habits of this man were of the most perfect character. He honoured the institutions of his country; he threw light on all the topics brought before him; he had brought home much information from foreign countries; and he was consulted as the great statesman of his time.

But it was a great error to suppose Confuciusism was a religion. He was a great teacher and schoolmaster, his lessons were the lessons of wisdom, and his influence was greater than that exerted by any human being. They saw inscriptions in the temples of Confucius, which spoke of his greatness, goodness, and the necessity of obeying his instructions, but there was not a single word that encouraged idolatry, there was not a single word that associated the name of Confucius with what they called idol worship or heathenism. Sir John again remarked on the resemblance between the outward ceremonies of Bhuddism and Catholicism, and stated that a dispute once arose between the members of the two bodies with reference to an image, which each claimed, but which was now in a temple belonging to the former. Sir John then proceeded to remark that the temporary representative of Bhuddism was the King of Siam, with whom he (Sir John) had had a great deal of intercourse. The present King was the legitimate heir to the throne, but, being the younger son, he was set aside by his illegitimate brother, who was called to the throne. That brother died suddenly, after he had reigned seventeen or eighteen years. The legitimate king had retired to a convent, studied the Bhuddist books and many of the languages, so that he was able to write his life in Latin and speak and write English with wonderful correctness. On ascending the throne the King said he had been reading the books written by their masters, and he had found a great many things which were not consistent with the discoveries of science, for he had his telescopes, his quadrants, and various scientific instruments. "These books," said he, "tell me that the sun moves round, but I know that the earth moves round it; and, therefore, if there be anything in these books opposed to the statements of philosophy, I

must rely on the facts which I have personally examined, and which are more positive and certain than anything coming down from ignorant times."

Sir John Bowring then gave instances of the popular notions of the illiterate among the Chinese, and of the manner in which they argued. He then remarked that the same sort of reasoning went on throughout the world, and he felt certain that the missionary doctrines taught to the Chinese would never make any impression on them. They never would persuade the Chinaman that the infant he loved was doomed to death, and that the purposes of Divine Providence concerning it could not be undone; and surely there was more truth in the Chinese doctrines than in some that were recommended to the English people.

Sir John next passed on to Brahminism, which, he said, was very similar to Bhuddism. He believed that the instructions of the first teacher of Brahminism were of the highest order. But Brahminism had become contaminated, and was now idolatry, though it was at the present time undergoing a great purification. He had sat in a Brahmin temple, in which he had heard no sentiment connected with the unity and spirituality of God, His Divine attributes, and His holy purposes, which he could not endorse and recognise as essentially true. He had also heard the Brahmans speak with great admiration of the character of Jesus Christ, as one of the most beautiful models ever produced for their example and study; and on one occasion he took up a book in which there were a great number of divinities to be worshipped, and amongst them he found the name of Jesus Christ.

With a great deal of error in China they invariably found a great deal of truth, and one of the reasons why the missionaries met with so little success was because they would not do honour to the honest convictions of those around them. They urged that there was no God but the God they introduced; they endeavoured to tear up all the temples, to displace everything they found, and there was the secret of their almost universal failure. In China, if they could convert an influential and learned man it was of the greatest importance; and in that country a man of the very lowest rank might obtain the very highest appointments. China was covered with schools, in which examinations took place. The pupils were examined in history, the doctrines of Confucius, and the elements of knowledge popular among the Chinese. He had seen 7,000 in a province, in which there was a population of 30,000, going into the competitive examinations, which generally lasted for several days, and seventy were selected for honours. The moment the examiner went down from Peking, he was locked in a room and carefully guarded, that he might not be tampered with. The interest felt in these examinations was so great that the news ran like wildfire, and the names of the competitors were published in all the newspapers. Here he would remark that, proud as they ought to be of their cheap press, in China they could get five newspapers for a farthing. These newspapers circulated throughout the whole community, and when any one of the inhabitants was successful the joy of his friends exceeded all belief.

There were illuminations on a large scale, music, congratulations, and, in fact, the whole world seemed in a commotion. It frequently happened that a man became the despotic sovereign of a district of whom nothing was known until he distinguished himself at one of the examinations. They, too, gave all sorts of titles. The father and grandfather of the successful candidates were objects of universal homage, and received titles, which never went downward, for the Chinese said,—“You English give titles to descendants, of whom you know nothing; we give them to our ancestors, of whom we do know something.” That was also another feature which he admired, and which belonged to all the religions in China. It was called “The worship of ancestors,” though it was not so. There was no village in China in which the history of a member of a family was not recorded; and there was many a man in China belonging to the lower order who knew his ancestors 2,000 years ago; and it was a mark of the greatest reproach if a man could not go back six or seven generations.

Sir John next contended that this had an important effect on the formation of the religious character of the Chinese; commenting on the conduct of the Jesuit missionaries with reference to this practice. The most enlightened, courageous, and persevering men were the Jesuit missionaries, who, on arriving in China, wrote to the Pope to the effect that there was a religious element in China which was called “the worship of ancestors,” and they recommended it should not be interfered with, stating that “it was a social right, and that if they did not touch that sore point of Chinese prejudice they should be able to obtain a hold.” And for some time the Jesuits succeeded; but there came into China the Franciscan and other friars, who were not half so clever as the Jesuits, but who wrote to the Pope to the effect that it could not be tolerated, and there came two bulls from Rome discountenancing the practice. The Chinese replied,—“Oh, if you come interfering with us in that sort of way, you had better go about your business.” They were all bundled out of China,—and it was only recently that they had been reintroduced.

There can be no doubt that Christianity had left its leaven, and he must do the Catholics the justice to say that their heroism and perseverance were of the most remarkable kind. He honoured those men, and though the results might not be equal to their exertions, he could not help looking with interest on the efforts of those disinterested and religious men.

Sir John concluded with an earnest appeal to the meeting not to be afraid of inquiring into religious questions. Need he speak to them of what was passing in the Christian world in these days of controversy? Need he tell them that society was shaken on all sides by inquiries, by difficulties, and by doubts? Were there not many conscientious men turning away from the field of controversy alarmed at the consequences? But let them fear nothing. Let them examine. Let them remember that they were spoken to by zealous teachers as wise men who were called on to judge. Let them pursue it boldly and courageously. The only thing to be denounced was intolerance;

the only man at whom they need look with distrust and repugnance, was the man who told them they should arrive at certain convictions, and if they did not they would be subjected to obloquy and punishment. That was the man from whom they should turn away. That was the man who was afraid of free inquiry. That was the man who held a faith that would not bear investigation; and let them be assured that what was most true was most sound, that what was most wise and worthy of acceptance was that which when turned outside and inside, when looked at from the left and the right, from above and below, would only appear more divine and more beautiful. And let no one who was engaged seriously and reverently in inquiry be turned away by a threat that if certain conclusions are not reached his soul was in peril. That soul was in peril that would not look into truth, that would not believe that the God of truth was the great guardian of the interests of truth, that the religious element was in the heart of every man who was under the special protection of the great Source of all religious feelings, and that the more that element was developed the more they should resemble Him who was the great representative of truth, who was constantly encouraging inquiry, who was giving them revelation after revelation in His word and works, and whose great revelation was this,—“Faith is great, but charity is greater.”

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## MAPS AND THEIR CONSTRUCTION.

(Continued from page 421.)

On consulting old maps or charts, we are at first struck by the curious general character of the drawing. They display marine monsters of a very whimsical form, these being represented as if swimming at the surface of the sea; a multitude of small clock towers represent the towns; the mountains are shown in a kind of perspective in the midst of plains, with an outline as if nature never had a gentle slope or an undulation that was hardly perceptible. On maps such as these it is impossible to measure the breadth of a valley, to know the position of a hill, or to trace the basin of a river. A topographical map such as this was certainly a picture, some representation of a country; but it has now become a geometrical plan, as correct in its detail as the plan of a building; and it is principally to French art that the merit of this is due. The grand object in view being that the map ought really to be a picture of the ground which it represents, the most minute instructions are issued by the *dépôt de la guerre* regarding all the operations carried on under the direction of this establishment; the particulars are specified of the breadth that is to mark roads of all kinds, the manner of representing towns and villages, country seats and farms, the conventional signs which are to signify the forests, the meadows, rocks, and sands. The character and di-

mensions of the writing that is to appear on the map are also fixed according to scale, depending on their importance. The limits of estates are shown differently from those of departments, and, thanks to these conventional signs so clear and concise, all the principal traits and the distinctive character of a large extent of surface can be represented on a map of very limited dimensions. But it is necessary that those who have to refer to such a map should possess the key to this conventional system.

It is especially in the manner of expressing the actual nature of the surface of the country that the new maps differ from the old ones. In these the method adopted was to draw the profile of the land supposing the eye to be in the plane of the map; the direction of the chain was thus badly marked, and the summits of the hills were confused with their bases. The geographers of the last century rendered this method somewhat more expressive by changing the position of the point of view from which the spectator is supposed to be looking. They invented a topography depending on the supposition of a light coming in an oblique direction, by which the mountains were represented with one side in shade and the other in light; and they managed to form by this assistance of light and shade a very tolerable picture.

About the same time that all this was done, Buache, a French geographer, proposed a totally different way of expressing the undulations of the ground. Having to convey his ideas on the submarine topography of the straits of Dover, in a memoir, dated 1744, he proposed to trace on the chart the limits of the surface of the strait supposing it to be lowered 10 fathoms, then 20, then 30, &c. By this means he obtained horizontal curves, very wide from each other when the bottom had but a small inclination, and very close, on the contrary, when the incline was rapid. On continents the same curves may be traced by supposing the waters of the ocean to be elevated gradually above their present level. This is, in fact, a kind of geometrical representation\* of the undulation of the ground: hence civil and military engineers have unanimously adopted it; but maps constructed on this system are, perhaps, not so well adapted as the others to general use.

When the first sheets of the new map of France were preparing, much discussion arose as to the system to be followed in representing elevations in relief, and the question of what method to be adopted was assigned, in 1826, to the consideration of a committee appointed by the minister of war. This commission decided that on the drawing elevations of the land should be shown always by the horizontal curves of elevation; but that on the engraved maps these curves should disappear, and that the spaces between them should be filled by hatching, the space and thickness of which should be regulated by the inclination of the slopes. Equal slopes drawn by different hands on two

\* Called by us the system of "contour lines," obtained by horizontal lines of different heights as would be made by sections at those heights.—Ed.

separate sheets were always expressed by uniform tints and lines of the same thickness, the scale of tints being adopted as proposed by Colonel Bonne. Such is the system for the representation of the ground that was adopted for the map of France forming by the *dépôt de la guerre*. Although the method is scrupulously correct, there is no doubt that it savours too much of the conventional, and tends to confuse a map. And there may be reason for believing that if the question were submitted to a fresh discussion, another method might be preferred. The adoption of light in an oblique direction, which the committee of 1826 would not admit, has been followed in some countries, particularly in Switzerland and the Sardinian States, and is considered well adapted to a mountainous country.

Among the works executed in this style may be mentioned the new map of Switzerland constructed by the topographical office under the direction of General Dufour. The effects of the light left white on the summits of the mountains render them particularly clear, and if the roads were tinted brown along the valleys, the effect would be still better. In France, even, many engineers, in spite of its defects, still prefer the old style of Cassini, because the character of the ground is shown on it in a more satisfactory manner than in the new map.

There is no uniformity in the methods which the geographers of different countries adopt for showing the features of the ground. Nor is there any more uniformity, as is well known, in the orthography of the names which are expressed on maps. How many towns, rivers, and mountains are there the names of which change from one language to another? Let us take but one example, the river which we call the *Rhin* is called by the Germans *Rhein*, by the English the *Rhine*, by the Dutch the *Rijn*, by the Spaniards the *Rin*, and by the Portuguese *Rene*. For as many nations so many are the different names. Again, can this multiplied terminology be explained when the course of the same river is in question which belongs successively to so many countries: one might suppose that every nation would have an orthography for words from the Persian, Arabs, or Indians, who have a different alphabet from ours; but these oddities of geographical names should not be allowed in the heart of Europe among people whose communications are of every day occurrence. Without incurring the reproach of looking for a local dress, it is desirable that such names as London, Vienna, Cologne, should appear on all charts in their proper names and in their description the pronunciation which the natives give them. But at present the customary orthography of different maps is sometimes quite unintelligible, at least for the use of Frenchmen.

There is the same unfortunate discordance in topographical matters inasmuch as concerns the scales of maps. It may be admitted that the surface of the ground cannot be represented with sufficient detail if the scale is not larger than a hundred thousandth part of nature. Below this limit one has nothing but a general map, a chorographic map, which is useful when one desires to study the general features of a country or of a single province, but which cannot contain all the

features necessary for a due appreciation of the actual state of the ground. In France, the decimal scale only is the fashion. The whole sheets are on the scale of one thousandth part, while the particular plan of a town or a fortress is on the scale of two thousandth or two thousand five hundredth part: the original surveys are on the scale of a ten thousandth part, then a twenty thousandth, then a forty thousandth: the engraved sheets are on a scale of eighty thousandths. No doubt these scales are sufficient for general use even for public works or military operations. The whole of France is shown in 268 sheets on the scale of eighty thousandth, of which seven are occupied by departments recently annexed, every sheet representing a surface of twenty-four miles by forty miles wide. The whole of this map, if the sheets were mounted, would cover a space of thirty-six feet by forty-three feet; but the sheets are intended to be consulted separately, to be examined, in fact, minutely, and not to be joined together.

The French originals which were a local undertaking defrayed by funds voted each year, have nothing to do with the geodetical operations. And, consequently, there is no inconvenience resulting, for it is of no consequence that the whole plan of the originals should be incomplete provided that the survey of each commune does not contain any sensible error. In England, these two operations, the topography and the originals, have been mixed together. After long discussions and many parliamentary inquiries, it was decided that the map of the British Islands should be published on three different scales: first, on a scale of 25 inches to the mile (about two thousand five hundredth part nearly) to serve as the reference for taxes and to show the limits of heritages; then on the scale of 6 inches to the mile, for the use of military operations and public works; and then on the scale of one inch, (that is, 63,360th,) which makes a topographical map something analogous to ours. It should not be forgotten that it is a good thing to possess good maps on the original scale, with complete information on the minutest detail of all the accidental inequalities of the ground, because the engineers are then dispensed with to form any special plans or whatever may be wanted for drainage, mines, fortifications, &c. Unfortunately, the English government had not decided on undertaking the survey for the whole kingdom till 1862, when part of the country had been done on six inches to the mile, but the greater part on one inch. All the topographical work done formerly on one inch had to be recommenced, and the whole work was estimated at above a million of money, and could not be done under twenty years. But it is well to remember that the committee of inquiry on the whole measure gave their opinion thus concerning it and the expence that would be incurred by it. "However great the expence may be of constructing a large scale map, the advantages of it are so great that it is a good disposal of the public money."

The construction of the above chart on the triple scale, is entrusted to the Ordnance Survey Office, under the direction of the talented engineer officer, Colonel Sir Henry James, R.E., who, in order to accelerate its progress, without lessening its accuracy, has brought to

its execution the happiest of methods. It is a principle that maps on a minute scale formed on the spot cannot be increased to a larger, because by so doing all the proportions are not correctly preserved. A map can only be copied or reduced to a lesser scale, provided in the latter case that in each reduction all those minute details which would crowd a small sheet and produce confusion are suppressed. The small maps are therefore constructed from the original drawings on the largest scale and subjected to successive reductions. Hitherto all reductions are made by the pentograph, a safe but slow process, of which engravers frequently make use to copy maps on different scales. But the English maps are produced by another method, from which excellent results are obtained; the process being as follows:—After the primary and secondary triangulations are completed, as well as a third, and the positions of all the remarkable objects are obtained in the country, as churches, single trees, &c., the surveyors return to the ground with the chain, and throw in the details of all the lesser triangles which have been formed. The distances thus measured and entered in their note books and are verified by the most simple process and then committed to the plan on the large scale. This is then copied with lithographic ink on paper prepared before hand, those representations being employed which are in most common use, a process so very simple that it can be done even by children. It remains only then for the draftsman to introduce those special details which require a practised hand. The sheet is then transferred to a zinc plate, which metal has the advantage of clear and rapid working for lithography. As many proofs are then taken as are required, and here is the original plan completed, lithographed, and sent to all the proprietors of the part surveyed so far interested as to purchase at once what is well worth its cost. The sheets of the French original survey not having been reproduced by zincography, a copy can only be obtained at considerable expence.

From these original sheets, which are on the scale of 25 inches to the mile, for the topographic map on the scale of 6 inches (that of the ordnance survey) the process of photozincography is adopted, a new application of photography. As it would be impossible to construct an object glass of sufficient diameter to give without evident disproportion all the objects on a large sheet of paper, this is divided into small squares, all of which in their turn, by a very ingenious method, are made to pass through the photographic process. The negative impression obtained with the collodion is placed on a zinc plate, then on one of copper, which the engraver works in by his usual method. It is considered that the zinc plate impressions give imperfect results, for these sheets with their abundance of delicate details are by no means to be compared with the same work on copper by the engraver, whose work is further facilitated. Thus, the throwing in of points which represent sand, the conventional signs which indicate trees, rocks, &c., are done with a machine, which a child might manage, instead of being cut in by the engraver himself. These expediting processes assuredly diminish the price of the work; but it is much to



be feared that perfection suffers by them. It is observed, in fact, that the artists who follow especially topographical engraving, acquire an instinctive idea of the form of the ground that enables them to correct the representations of it by the surveyor. The six inch map in its turn is again reduced by photography to one on the scale of one inch, after which the lines for representing the heights of the ground are introduced.

Another new process no less ingenious and useful than the preceding is the copying of the plates themselves by galvanism. The copper plates of the map of France, each of which cost,—forming, drawing, and engraving,—from £1,600 to £2,000, could only supply a very limited number of copies. 2,000 or 3,000 at most; and to obtain more it would be necessary to engrave another plate. This inconvenience, which has long been felt not only in topographic maps but also in all kinds of engraved plans and pictures, is most ingeniously overcome by means of electro-typography. And when the plates are new, fac simile copies of them may be thus obtained. An experiment is about to be made in France of a simple process and one very inexpensive, which admits of the plate being multiplied almost indefinitely without using the original plate. It consists in making the engraved surface of it in steel, that is, covering it by galvanic action with a coat of iron which is so soft that the finest lines of the engraver will remain on it unaltered. The copper plates which have undergone this process become as hard as those of steel, and still preserve the soft mellow character of the engraver's art, which is thus imparted to the steel plate.

The plates produced by the galvanic process have the advantage also of facilitating the corrections which become necessary from year to year on the plates, and thus the sheets of each new edition are modified according to the changes which the topography of the country may have undergone. It is very troublesome, as is well known, to correct a copper plate for a piece of topography. But with plates of great value, containing that which the European governments severally have had constructed, it is clear that the plates, with the engraver's work on them, will be no longer considered as not to be touched while preserved as important stores in the archives of an office from whence they are only disturbed to obtain whatever copies may be necessary. It is to be hoped that this mode of improvement in these matters will produce a material reduction in the price of maps, that is still far too high, although they are already sold far below their real value. There need be no fear that these successive renewals of the map will affect the general correctness of the work. On the contrary, they will rather preserve it. In 1856, the *dépôt de la guerre* exhibited two proofs of the same map, one from its own original plate and the other from another plate which was an electrotype copy of it, and the most scrupulous observer could not discover the slightest difference between the two.

To complete the various improvements introduced into maps, a few words must be said of chromo-lithographic printing, or the introduc-

tion of colour. The different tints of colour are now among the conventional signs of which we have spoken. They have long been used in common maps to denote the limits of estates, &c., but now they are introduced to express more delicate and complicated matters, in the same manner as tints are employed in geological maps. In maps of a mountainous country a light tint thrown into the valleys shows the difference of level in the ground remarkably well. In fact, colour has begun to appear in the most particular topographical plans in order to avoid too much of other conventional representations in a map of limited size that would destroy the effect in clearness, and thus, thanks to this improvement, the scale of the map may be reduced without sacrificing essential details. But after all, the real work of the map has progressed only as much as topographical science itself has done which it represents, and in conclusion we shall take a general view of the extent to which these improvements have been applied.

(*To be continued.*)

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ROYAL SCHOOL OF NAVAL ARCHITECTURE *and Marine Engineering.*  
*South Kensington.*

On the subject of establishing a School of Naval Architecture, in especial reference to the place selected for it, viz., South Kensington, Sir William Snow Harris, in our present volume, has placed on record his objections to that place for it, and the reasons on which they are founded. We have just received from the President of the Institute of Naval Architects the following communications, in which the whole scheme of the intended school is developed. The assistance claimed for promoting its success it will assuredly be our object to give all in our power most heartily. And as one of the first objects towards that success must be publicity, we thus early place these communications before our readers, trusting that whether at the metropolis or by the sea side, the great object which is in view will meet with that success which it deserves. In this great maritime country and in this advanced age, and especially at the present moment of that revolution which is threatening naval architecture in the substitution of iron for wood, arising from heavy guns, there is so much for discussion, experiment, and determination, that no difference of opinion about locality should operate to the disadvantage of the establishment of the school. With locality we have nothing to do. But our solicitude for the success of the school shall not be questioned; to which success, however, locality, wherever it may be, must always be considered—although secondary—yet as contributing. However, having thus expressed our own views, here are the papers.

*Westwood Park, Droitswich, August 18th, 1864.*

Sir,—I enclose a prospectus of the new Royal School of Architecture. And I beg leave, as President of our Institute of Naval Archi-

pects, to call your attention to the proposed arrangements, and to express my hope that they will receive your approbation.

They have been prepared with an anxious desire to effect that national object which received so much attention at our two last annual meetings:—viz.:—The establishment of a school in which students from both the royal navy and the private trade may be successfully trained for the professions of naval architect and marine engineer.

The school will be carried on under the general superintendence of the Science and Art Department of the Committee of Council on Education.

It will be opened in the approaching autumn, and in the event of the proposed plan receiving your sanction, I trust you will promote its success, by giving it all the assistance in your power.

I beg to remain, &c.,

JOHN S. PAKINGTON.

### *Royal School of Naval Architecture and Marine Engineering.*

I. The Lords of the Committee of Council on Education have determined, after communication with the Admiralty and the Institution of Naval Architects, to open at South Kensington a School of Naval Architecture and Marine Engineering.

II. The school is for the instruction, not only of admiralty pupils from the royal dockyards and officers of the royal navy, but also for the use of naval architects and shipbuilders in wood and iron, marine engineers, foremen of works, shipwrights, and other persons desirous of studying naval architecture.

III. The Admiralty have deposited their collection of naval models at the South Kensington Museum, and my lords trust that the private shipbuilders of the country will give their assistance in rendering the collection more complete.

IV. The school will have a yearly session at South Kensington of six months, from November to April. It will open on the 1st November next.

V. The following is the course of instruction, as at present decided on: it is calculated to last three years.

#### *Course of Instruction.*

1. Pure mathematics: including differential and integral calculus, differential equations, calculus of variations and finite differences, descriptive geometry, coordinate geometry, and higher geometry of curves and surfaces.

2. Applied mathematics; including theory of mechanics, hydrostatics, hydrodynamics, strength of materials, and of structures and machinery.

3. Theory of fluid resistance and waves.

4. Theory of design, construction, and behaviour of ships.

5. Theory of steam, and of design and construction of steam-engines.

6. Theory of marine propulsion.

7. Freehand and mechanical drawing; including practical geometry—plane and descriptive, machine drawing, ship drawing, and laying off.

8. Principles of machinery.

9. Practical design of ships; including complete working drawings, specifications and calculations.

10. Practical design of marine engines; including complete working drawings, specifications, and calculations.

11. Practical construction of ships; including practical methods of finding ships' centres of gravity, tonnage, &c.

12. Practical construction of engines; including their management.

13. Naval equipment; including the masting, stowing of ships, &c.

14. Naval artillery.

15. Book-keeping and dockyard accounts.

#### *Lectures.*

Courses of practical and experimental lectures, which may be attended separately, will be given on such of the above subjects as admit of, or require illustration by, this means; and also on—

1. Physics, of heat, light, electricity, and magnetism.

2. Chemistry (inorganic); and chemical analysis.

3. Metallurgy (a special course on the metallurgy, chemistry, and physical properties of iron, copper, zinc, lead, &c.)

Programmes of these lectures will be issued hereafter.

VI. When the school is not open arrangements will be made if possible for study in the royal dockyards and in private yards.

The Institution of Naval Architects recommends the following as a course of practical work:—

"1. Practical wood shipbuilding in public or private dockyards.

"2. Practical iron shipbuilding in public or private dockyards.

"3. Mechanical engineering in public or private dockyards.

"4. That six winter months of three years form the course of study, above indicated, at the School of Naval Architecture.

"5. That six summer months of three years be devoted to—1. Practical wood or iron shipbuilding in a dockyard. 2. Practical engine and boiler building in a dockyard. 3. To the complete formation of the design of a ship, with all her calculations, in a dockyard.

"6. Six months' practical work at sea on board ship, making reports and observations on the working parts and qualities of a ship.

"7. Systematic examination of establishments near London during the session.

#### *Admission.*

VII. The fee for the full course of instruction will be £25 for each session of six months, or £60 for the course of three years. The public will be admitted to the full corresponding courses of lectures on payment of a fee of £5, or to each separate course by fees which will be hereafter determined. So long as there is room in the school the public will also have the opportunity of attending any of the separate classes of instruction on the payment of proportionate fees.

VIII. Four free studentships will be given in competition if qualified candidates come up, and to the two best of these, scholarships of £50 per annum.

The subjects of the competitive examination, with the number of marks attached to each, will be as follows:—

1.* Pure mathematics; including arithmetic, geometry—plane and descriptive, trigonometry, and the elements of the differential and integral calculus . . . . .	2500 marks.
2.* Theoretical mechanics, or applied mathematics . . . . .	1000 „
3. Practical mechanics . . . . .	750 „
4. Practical shipbuilding . . . . .	2000 „
5. Steam . . . . .	750 „
6. Physics . . . . .	500 „
7. Chemistry . . . . .	500 „
8. Mechanical and freehand drawing . . . . .	750 „

IX. The competition this year will take place before Christmas. Students must have entered the school and paid the fees to be eligible to compete, and the fees will be returned if the student be successful. The syllabus of the subjects, except practical shipbuilding, is given in the directories for science and navigation schools.

#### *Diplomas and Certificates.*

X. Diplomas will be given to all persons, whether they have received their instruction at the school or not, who pass the final examinations of the school, provided that they give satisfactory evidence of having gone through the course of practical work recommended by the Council of the Institution of Naval Architects. These diplomas will be of two grades according to the success of the candidate in the examination, the title of the higher grade being Fellow, and of the lower, Graduate of the Royal School of Naval Architecture. Certificates for success in special subjects, and prizes also, will be given to the students at the end of the session.

XI. The Rev. J. Woolley, LL.D., has been appointed, with the concurrence of the Admiralty, Inspector-General and Director of Studies, and Mr. C. W. Merrifield, F.R.S., Principal, of the Royal School of Naval Architecture.

XII. The Principal will be directed to afford any information in his power to parents and guardians respecting the board and lodging of those who desire to reside in the neighbourhood. It must however be distinctly understood that the department takes no responsibility in the matter.

XIII. All communications to be addressed to the Secretary, Science and Art Department of the Committee of Council on Education, South Kensington, W.

By order of the Committee of Council on Education.

\* In these subjects at least half marks will be required.

## SKETCHES IN BRAZIL.

(Continued from page 458.)

*Manners, Customs, and Slavery.*

Bahia is a Portuguese town par excellence, less than from the activity and absolute energy of its founders. But the monk reigns here more than in any other part of Brazil, and of course along with him all the superstitions of former days. Each family has a saint from choice, whom he considers responsible for everything that happens of good or evil in his house. The most powerful of all these gentry is St. Anthony, at least he is most often met with among them. He is promised wax candles, silver, and flowers to ornament his recess if he manages to obtain success for his patron, or to keep away evil fortune: but if he turns a deaf ear, adieu to the candles, flowers, and all caresses, and being responsible, it is necessary that he should be resigned to his punishment. Should, for instance, a negro chance to run away, the master hastens to the office of the journal or paper, gives a description of the fugitive, and promises fifty or a hundred dollars, according to the value of the runaway. Then he proceeds forthwith to his home and snatches his patron saint from his niche, takes a whip proportioned to its size, and sets to work flogging it over the back, accompanying the process by saying,—“Ah, filha! thus it is that you take care of my slaves. This is the way in which you repay me for the care I take of you, and for the wax lights which I buy for you. I will teach you how to live.” After this flagellation he throws the image into an out of the way corner, the most filthy of his house, among the refuse which is common to the Portuguese dwellings, and tells his saintship that he is to lie in that kennel until his slave is found. If this be long delayed, the master loses all patience, breaks his idol by kicking it from his house, and chooses another patron, which he considers more powerful and active than he is: but if the runaway is returned, he replaces the image in his niche, begs his pardon for being so hasty, and buys him magnificent candles to induce him to forget the past and that he may still deserve his protection.

The negroes generally choose for their patron saint one of their own colour. Saint Benedict, of whom some marvellous stories are told. This Benedict was in his lifetime the chief cook of a convent. Naturally led, like his countrymen, to be of a contemplative disposition, he assisted secretly at all the official proceedings of the monks, and was sometimes so much absorbed by his mental orations that he would lose all recollection of his ovens. Angels, moved by his piety, would then do the needful for him in order that his hearers might not suffer from his being so absorbed with his orations. The first time that I saw this patron saint of niggers in an oratory, I believed him almost to be his sable majesty himself. The artist who had made him having given him such a hideous look: he was positively frightful; no doubt from a scrupulous care to follow the truth. When a man is too poor to have an oratory in his hut, he adopts mentally the patron saint of his

neighbour, and at times when he requires his assistance gives him wax candles with the view of obtaining it. In a farm house near Bahia I have seen a poor mulatto carry off ten milreis, about twenty shillings, from the sacarium of his master, which were all his savings, in gratitude to the saint for finding some pigs which he had lost. I begged of him to tell me the story. When he said:—

St. Anthony, sir, is a most powerful saint, and there is not a better than he is for the poor man. Imagine to yourself,—yesterday, when I went to look at my poor animals, they were gone. This could have been nothing more than a piece of malice, for they had never before left their sty. Of course I considered it proper to offer my protector all the money I had if he would enable me to find them; and full of hope I sallied forth, taking the first road I could find, calling my pigs loudly as I went along. But seeing that my search was fruitless, I thought that I could not be on the right road, so I turned back to take a better. But my patron was quite right. While I was persisting on a wrong course, he had coaxed the runaways into their sty, and as soon as they saw me the poor creatures ran towards me. You must know very well, sir, that when one has such a good saint one should keep his word instead of doing as certain persons whom I know who are in the habit of forgetting what they have said when the danger is over.

Such is the credulity which still prevails among the black population of Bahia.\* This simplicity, which was sometimes accompanied

\* Some interesting correspondence has been going forward in the *Daily News*, and is still being carried on, in which are many interesting facts concerning slavery in Brazil. In reference to the price of the slave we extract the following:—

The present very high prices of slaves would not lead one to expect a very large or, at any rate, an increasing number of manumissions. In the debate on Mr. Hull's motion of July 12th, 1858, for discontinuing our anti-slave-trade squadron, Mr. Charles Buxton, who opposed the motion, mentioned £70 as the price of a slave in Brazil, and as an immense temptation to the greed of the slave-trader. What is the price now? The last prices, as reported by our consul at Rio, published in the blue books, viz., for July, 1863, are—

Males (agricultural and mining)	. . .	£107 6	to	£193 2
Females ditto	ditto	. . .		107 6 to 160 18
Males (domestic)	. . . . .	129 3	to	214 2
Females ditto	. . . . .	107 6	to	193 2

It has been often said that so long as there is slavery there is danger of slave-trade, and with the "institutions" existing in such force in Brazil, with 3,000,000 of slaves there, prices at Rio reaching to £200 a head, and the government resisting all proposals to mitigate or diminish slavery, it may occur to many of your readers that Lord Palmerston's and Lord Russell's fears of what might happen if the "Aberdeen Act" were repealed, were not altogether chimerical.

In reference to the Aberdeen Act the following sensible letter has recently appeared in the same journal on the subject of slavery in that country.

*Liverpool, September 7th, 1864.*

Sir,—I am very much surprised to find such men as Lord Brougham and other anti-slavery advocates carried away with the present agitation for the

by no small degree of energy of manner, is the inheritance of the very earliest state of society formed by the conquerors of the country. The original Brazilian physiognomy, so remarkable at Bahia, is still more

repeal of the Aberdeen Act, in consequence of the so-called "stoppage of the slave-trade into Brazil." As one who has had some experience of African, Brazilian, and American slavery, permit me to give them a word of warning at the present crisis.

Allow me to ask, when did this great Brazilian conversion to anti-slavery principles commence? Let the present deplorable state of internal Brazilian slavery testify. Brazilian slavery at the present time is far worse than the slavery of the Southern States of America ever was. In the United States of America there has always been a free press to advocate the cause of the slave, and the most atrocious barbarities connected with slavery in that country have been published and made known. Not so in Brazil. There there is no press, neither bond nor free, to advocate the cause of the slave. To High Heaven alone have the groans and the cries of the Brazilian slaves ascended. Don't be carried away with this so-called conversion of Brazil to anti-slavery principles. Nothing of the kind; they are only anti-slavery just so far as they are compelled to it, and no further.

Who are the most active agents employed at the present time in carrying on the African slave-trade to Cuba and other places? Why, they are all Brazilians, falsely called Portuguese. They are Brazilian Portuguese almost to a man. Their head-quarters and ramifications are all in Brazil. The mother country, Portugal in Europe, have no control over these scoundrels; their government is in Brazil. When you speak of the Brazilians in Brazil on the one hand, and Portuguese slave-traders in Africa on the other hand, you create a confusion in their nationality. In Africa they are called Portuguese, in Brazil Brazilians, but they all belong to the same class; they are all Brazilian Portuguese. If the Aberdeen Act were abolished to-morrow they would spring up like wildfire, and before twelve months the Brazilian slave-trade would be as brisk as ever. Their agents are on the spot, and all ready to commence the "infernal traffic" at a moment's notice. Repeal the Aberdeen Act, and before twelve months are over your head the following extract from Lord Aberdeen's despatch to Mr. Hamilton would require to be re-written:—"For it is unhappily notorious that vessels intended for slave-trade are fitted out almost daily in the ports of Brazil, that of the slave ships met with in the African seas three fourths are under the imperial flag or are prosecuting the trade on account of Brazilian [should be Brazilian Portuguese] subjects."

I repeat, therefore, don't allow yourselves to be carried away by a false philanthropy; the agitation ought to be all the other way. Let a commission of inquiry be instituted to report upon the present state of internal Brazilian slavery, and you will have some startling revelations. Think for a moment of the sufferings of the 3,000,000 slaves at present in Brazil! I visited Brazil before the year 1845, and could give you a chapter on Brazilian slavery.

I have no confidence in the philanthropic professions of those Brazilian Portuguese—they are a bad lot; and I would advise all our anti-slavery friends in this country to have nothing whatever to do with them, except to expose them, until internal Brazilian slavery is completely abolished. When internal Brazilian slavery is abolished, it will then be time enough to release her from external restrictions.

I am, &c.,

ALEXANDER INNES, F.R.G.S.

*and Honorary Consul-General for the Cameroons, West Africa.*



marked in proportion to the distance inland that it is found from the coast. Before leaving this primitive civilization in Brazil to find at Rio Janeiro the first signs of modern life, let us look at a Brazilian city less advanced than Pernambuco or Bahia, in its present condition in the interior of the country, and especially in a province some time since under cultivation by the *Mineiros*. We will take Auro Puto, Goyaz, Cuyaba, &c., where the traces of the past still subsist in a remarkable degree.

At those places where there is more money there are more theatres, and of course more idleness. There a miserable dilapidated mud house is sufficient for the inhabitants, convents half in ruins serve as schools: a population remaining half civilized by the cross of races, and isolated from the world, lie grovelling under walls that are overrun by lizards, with no sign of industry or any desire to improve their wretched condition. The worst state of the Arbruzzes or Calabrias can only convey an idea of the aspect of these places, formerly so flourishing. The creoles there have only to contend with ignorance and idleness. Even the churches built by the piety of their ancient founders are for the most part now as much dilapidated as the dwellings of the commonest of the people. Sometimes one is led to believe that he is in one of those cities of the Cordilleras so subject to earthquakes. Certain towns where the course of the caravan imparts some activity, such as Lao-Joao-del-Rey, are those which sadden Europeans. It is quite true that the gross habits of the people bespeak their origin. The first inhabitants of these parts came from the mountains of Portugal, who, although enriched by commerce, have failed to improve themselves with their change of fortune, and have therefore remained in ignorance with their change of condition. The muleteers, who most enjoy all their patronage, are little calculated to inspire them with any desire for improvement or progress. When occasionally these Portuguese of the old school attempt to celebrate a fête or to improvise a play, one cannot resist laughing at the strange spectacle in which the serious and the ridiculous are jumbled together. It is not uncommon to see an attempt at exhibiting a Greek tragedy represented by painted mulattoes, who are dressed in old Portuguese or French monkish robes, with massive sabres and daggers.

The few sensible men one meets here and there in the midst of this lost population, are not encouraging of any hope that they will ever be rescued from their state of ignorance. They are remarkably frank and open on the subject, to judge from the language of a Mineiro to a French traveller. "My countrymen (he said) only wear their shirts to their elbows, where they are obliged to secure them. On Monday they rest from the fatigue, occasioned by attending mass for a quarter of an hour on Sunday: on Tuesday the negroes are left to go to their work: on Wednesday and Thursday it is necessary to replenish our cuisine by the chase: on Friday to fish as well as on Saturday, because they are fast days; and Sunday is a day of rest from the fatigues of the week. Should a tree fall down across a road, a path is made round it and rejoins the road clear of it. It would require much

less time to cut and remove the tree, but then it would be necessary to employ the axe, and by making the new path the large trees are avoided. They are content here to cut down the shrubs, and for them the nigger's knife is all that is required. If a man has to get some corn meal, he will mount his mule, take a small sack, and will make six trips for it; he might have carried it all at once on his mule, but then he would have been obliged himself to walk." The people of certain provinces, it may be seen, differ much from each other, some of them having learnt that "time is money." But it is difficult for a European accustomed to active workmen to witness so much want of exertion without a sigh. There are certainly things essential to civilized life that here are entirely unknown.

Happening one day to visit a factory some few leagues from Rio Janeiro on the road to Minas, the most frequented in all Brazil, and suspecting a storm, I frequently inquired of my guide how far we had to go? Another hill, he would reply, pointing to a small one before us. But wishing for some more precise information, I put the question to some persons we met on the road. How many leagues from here to Senhor ——'s establishment? I inquired of a muleteer who was passing us.

Two leagues, Senhor, was the reply.

In about half an hour, on putting the same question to another.

Three leagues, Senhor!

The answer was so unexpected that I put the question to the owner of a wayside pothouse (*venta*) that we passed soon after, considering as a matter of course that I should now be satisfied.

Three leagues and a half, Senhor, he said.

Finding that I was disappointed and further than before from my object instead of being nearer to it, I began to suspect the guide was out in his road, and begged the man of the inn to tell me the proper road. And on his formal assurance that we were going right, I continued on, endeavouring in vain to find some explanation of these differences. But I could only see one way of relieving my embarrassment, which was to persist in asking the same question of all whom we met. The fresh answers which I received were worse than the first.

Four leagues, replied a pedlar.

Don't know, was the answer mostly of the niggers.

Two quarters and a half, replied a trooper.

You mean one league, I observed.

Yes, Senhor, was the reply.

Why do you say two quarters and a half, then?

Because 'tis the fashion.

Seeing a woman with mules at the step of her door, I was curious to know her view of the subject.

Three leagues, Senhor.

But it is not three leagues, observed her husband, coming out of the hut.

They may be small, but they are three, replied the woman in a tone of assurance which admitted of no answer.

This reply gave me a clue to the truth of the matter. It is absolute ignorance of the whole subject, for every one in the country has his own opinion on it.

It is worthy of remark among a people where, according to the terms of the constitution, the titles of nobility are not hereditary, that even the beggar may become a nobleman. Very often a single title is insufficient, but two or three together are more effective; in fact, they sound more important. I have met with the highest names among Portuguese nobility owned by muleteers, footmen running by the road side at the tail of the mule. But the reason is quite simple: They are welcome to take the names of their patrons, a godfather or any other protector. Now the Portuguese is generally a gentleman by birth. It is not, in fact, by inheritance that their ancestors have obtained titles in battle with the hordes of Turks in the long wars of independence, for it is very well known that the Kings of Portugal rewarded the courage of their soldiers when victorious over the infidels by ennobling them on the spot. Another matter of surprise is that this country, agitated everywhere by internal convulsions, still enjoys the most profound peace. The Portuguese character, which is more grave and determined than the Castilian, is less susceptible of passing events. The immense deserts which disfigure the southern continent prevent the effects of the jarring of the Spanish republics from reaching Brazil. Political life is nevertheless seen in Brazil, but it is at Rio Janeiro above all other places where it is mostly to be found.

I had often heard of the extraordinary beauties of the harbour of Rio Janeiro, but accustomed from long experience to find in reality a sad denial to the pompous accounts which I had received of it from travellers, I was by no means led to expect what I heard about it from many quarters. In fact, I entered this roadstead on one of those bright tropical mornings and for the first time in my life. I found the picture far beyond its description; so much so that I said it was impossible for human exaggeration here to surpass the exaggerations of Nature herself. Let any one imagine an immense basin surrounded by a girdle of granite mountains, covered with the richest vegetation that was ever dreamed of by man, and he will have a slight idea of the roadstead of Rio Janeiro. But at the same time it must be added that there is another roadstead still more beautiful, larger and more majestic, and that is at San Francisco.

In spite of yellow fever, which for some years has taken up its home at Rio Janeiro, this is the principal town of South America both from its commerce and population. It is in this direction that nearly all the European emigration is directed. Thus the visitor finds himself at every step elbowed by French, Germans, and Italians. I have been assured that the numbers of the first amount to more than 10,000. I thought this was an exaggeration until I found whole streets

where nothing else but French is spoken. It is there where those luxuriant stores are found, where the wishes of the most refined taste are supplied, and especially those novelties which even beat the Parisians. Any kind of industry that requires good taste and a knowledge of finishing a thing, seems to be exclusively developed there. The articles of shoes and stockings of every kind are exclusively German. The great commercial houses are held by Portuguese; the Italians are celebrated for their figures both in plaister and carving as well as their pastry.

Before this increasing number of strangers tradition, however tenacious it may be, cannot hold its place long. So the long Portuguese visage begins to disappear more and more. Gas has commenced taking the place of oil lamps, the *Urubus* have a place purposely assigned for supplying their wants, unpaved streets are becoming less and less common, and here and there such things as side pavements are seen, narrow, it is true, for the character of the place does not admit of breadth. As in all towns of hot countries the streets are narrow, for it is necessary to give as little access as possible to the sun. But serious inconvenience arises from it. At the summer solstice, for instance, when avalanches of rain fall on the city, the streets become torrents of water and gutters useless. Fortunate that this rain is far from being cold, but it must still be endured. A German, who had taken a fancy to bathe in the stream which a heavy shower had produced before his door, having gone to a *venta* before changing his dress to show his condition, was seized with shivering in the night following, and died the next day from yellow fever.

Have all the efforts that have been made for the improvement of the sanitary condition of the place succeeded? I dare only hope that they have! The girdle of mountains which surrounds the city forms a funnel at the bottom of which the sun's heat is added to the humid emanations of the land and sea. Besides, from the yellow fever having visited the eastern coast, it has left its pestilential germs, which, according to the oldest inhabitants, never existed before the arrival of this terrible malady, which causes almost incredible ravages among the new comers. I will first mention consumption (pulmonary-phthisis) which carries off a fifth part of the deaths from disease, according to a return from the hospitals of Rio Janeiro. The largest number of these are young men from twenty to thirty years of age, principally Portuguese. Emigration will explain the rest. It is at that age that young men leave their homes to seek their fortunes, and the Portuguese send the greatest number of emigrants to Brazil. Some medical men attribute the predominance of this disorder to the pressure of the liver on the lungs. Every one knows that these viscera attain an enormous size under the influence of a hot and humid clime. Without rejecting this explanation, I believe that the principal cause may be found in the imprudences of strangers in the evenings. The first hours of night are terrible within the tropics. The sky being always then clear, the ground cools rapidly, and from 40° the thermometer will quickly fall to 10°. The vapours collected in the atmosphere im-

mediately descend and poison the unguarded person who subjects himself to them.

As to yellow fever, we may now say that it is but the result of accident. Of three cases attacked with this malady, one only is considered as lost, and that of the working class. Improprieties, bad food, and imprudence does the rest. It attacks principally Europeans and especially Portuguese, and mostly the young, from twenty to thirty years of age. We can find a reason for this. Here is a statement of the deaths from yellow fever at Rio Janeiro from 31st of December, 1856, to the 31st of May, 1857. It will serve at the same time to convey an idea of the number from each country of Europe that emigrate to Brazil.

Portuguese, 761; French, 139; English, 82; Italians, 60; Germans, 59; Various, 188; Brazilians, 80; Slaves, 15. Total, 1,387.

It will be seen that in the foregoing the Portuguese amount to more than half, the French a tenth, and the Brazilians only a seventeenth. Five sixths are young persons, and the number of women not more than 134. The small number of emigrants and the sedentary life of the Brazilians, explain the amount. The most trying month is that of March, perhaps because the atmosphere is not purified by the electric discharges which in the summer clear the air every day, or is it the miasma produced by the rainy season, then at their most prevalent condition. It may be added that the yellow fever only frequents the towns on the coasts and spares the negroes. Its principal seat is the stomach, and it shows itself by a severe headache and an intense heat. The cholera, which is frequently confounded with it, is common to the interior as to the coasts. It seizes the negroes especially. The principal care in both cases is to induce perspiration. But *infallible* remedies are common,—every one has his own. I have known a pedlar, who, finding some difficulty in disposing of his ware one day, set about inventing one of those wonderful potions, and having got half a dozen certificates signed by Brazilian physicians, started for Europe, confident of doing wonders. But without saying more on these passing epidemics, it may be observed that Europeans, and especially the new comers, should keep a constant watch if they wish to escape being the victims of one of these terrible maladies, which the land, the sun, the atmosphere, and humidity, seem to engender to the utmost. On my departure for the South I observed on the deck of the ship young men in health and spirits, with all their strength: on my way back to Europe I found mostly women on board, dressed in black: they were widows. They would tell me their misfortunes. Their husbands had been carried off by various diseases: they were artisans, and it was difficult to impress them, in the ardour of their work, that they were in a latitude that was unfavourable for it. Such mortality contrasts fearfully with the unalterable health of the peaceful and quiet *fazendeiros*, who, in their comfortable dwellings have nothing to fear either from rain, from sun, or from fatigue.

But when once a person is at Rio Janeiro all the sad effects of climate are forgotten. The town itself, in fact, under its variety of

aspects, affords abundant reasons for this, and surpasses in its monumental riches many of the cities of Europe. It is true that but few such ornaments are in general found in Brazilian towns. The conquerors of the country were soldiers and little given to such pursuits, and the search for gold and securing slaves were their principal pursuits. Nevertheless, there is an aqueduct which may be compared with any built by the Romans, and an hospital which cannot be surpassed by those of London or Paris. Two other establishments are worthy of observation; and these are the museum and the botanical garden. Many capitals of Europe would be glad of such a museum, and it is yet far from containing the riches of the country nor is it sufficient to satisfy the curiosity of visitors. It is not an easy matter to form a complete collection of the weapons, costume, ornaments, and utensils which were in use among the native tribes before the arrival of the Portuguese ships, or specimens of the wild animals of the American forests, and specimens of the various kinds of diamonds and precious stones, of auriferous quartz and other minerals shut up in the ground of this immense empire. We may add, that the founder of the Museum was the Baron d'Uba, whose name is highly respected by the savans and artists who have visited the country.

John the Sixth, the King of Portugal, established the botanical garden. This unhappy prince sought relief in his long exile in watching the progress of this magnificent plantation, situated a very few miles from the city, between which places an omnibus now runs regularly. The entrance of it is imposing, and in good keeping with the majestic grandeur of the forest by which it is surrounded. It is formed by a large avenue of gigantic palms, the stems of which appear to lift their bunches of fruit and their large fans into the clouds. This is again crossed by other paths, containing everything that is remarkable for its beauty or its fruit amongst all the tropical plants; thus, camelias, the tea plant, cocoa trees, peppers, and every tree, even to orchides, are to be found there in their most flourishing condition. Certain trees yield fruit of a most extraordinary size. It is fortunate that La Fontaine did not know of this garden. To see enormous cocoanuts and gigantic calabashes waving in the wind and threatening the heads of the promenaders would have prevented all his philosophic reflections and would have deprived us of his most charming fables.

The Emperor's palace looks more like an hospital than any thing else. Such at least is the effect of the building on strangers who know no better. But it is the ancient palace of the Viceroy of Rio Janeiro, and the imperial family resides there still. The Emperor passes the summer in the charming villa of Petropolis in the hills which surround the bay, and the winter in the magnificent residence of St. Christopher, some few miles from the capital. The Emperor never visits the city except on solemn occasions. He is a man of tall stature and handsome appearance. German on his mother's side, an Archduchess of Austria, there is nothing in his physiognomy which marks Portuguese origin; he seems to be all German. A large high forehead bespeaks quick intelligence, and he has the character of being

a sincere and honest friend. His pursuits are those of a savan. A Latin library, which he is always enriching with the best works in French, English, and German, are his principal and best studies. To him the sciences are as familiar as letters. Every visitor who knows him joins in acknowledging his ready perceptions and his superior intellect. It is observed that in Europe Princes are not generally found among the leaders of science and progress. But in the new world, if a revolution is at hand it is because the chief of the government would go too fast and that the country refuses to follow him.

It may not be uninteresting to take here a glance at the Brazilian press. When from the first insurrection of Pernambuco (1817) one was obliged to resort to the English and French sailors in the roads to print the proclamations, from that time it would seem determined to regain the lost time, for now the Brazilian papers exceed by the dimensions of the sheet, every other paper on the continent. Unfortunately, whoever runs over these sheets is soon convinced that he is assisting in the erroneous views of society, the elements of which are not yet classified. The *Diario*, a daily journal, after giving an account of the meetings of congress, contains nothing further than some insignificant correspondence, and some verses. &c., and then announcements of all sorts but the prices of markets, &c. Is assistance to be given to sale or a shop newly established, much is made of it in large characters, headed by the word "attention." If attention is wanted to the announcement of a sale of some shopkeeper or merchant, the mere word attention is not sufficient, recourse is then had to a superlative, "much attention," and the announcement is ornamented. On solemn occasions all these are laid aside and lithography is resorted to. Nothing, in fact, is considered better by the journal than to attract the eye. A villa surrounded by palm trees is converted into a country residence for sale. The last columns and the most numerous are devoted to the sale and purchase of slaves. Thus the same journals which in the energetic description of M. Ribeyrolles "sometimes weep in the first page [on the ills of Poland or Italy," finish by announcements addressed to slave-dealers.

It has been occasionally attempted to establish a French journal at Rio Janeiro, and even at Petropolis, the residence of the court and the rich nabobs of the capital; but an essential obstacle is opposed to the success of any journal, and that is, the impossibility of dealing with any question of general interest. Any such attempt soon degenerates into a personal affair. The real remedy in such a situation would consist in a better system of openness, which is impossible in Brazil. If Rio Janeiro, Pernambuco, Bahia, San Paulo, have for some years courses of law and medicine, the population of the interior is in a state of deplorable ignorance. Certainly the fault does not lie with the people. Before their independence they were in some degree obliged to be instructed on their native soil. The young men who were desirous of being educated, were obliged to make a sea voyage, and to take their college degrees at Coimbra. This state of things has left sad traces of its ill effects among Brazilian families the best

calculated to introduce new habits in their country. A fazendeiro whom you might ask if he did not wish to educate his son would say most ingenuously that to plant coffee and to produce sugar his son did not require a better education than his own. Hence it is very seldom that families who attend the court or that even rich merchants consent to send their sons to Europe.

In the commencement of my visit to Rio Janeiro I thought the example of the French would tend to rouse the Brazilians from their apathetic condition and give them a taste for another kind of life; but I soon found out my mistake. The Brazilian takes his siesta, and smokes or plays in his residence. The theatre might be a place of meeting; but it absolutely fails in originality. The plays are nearly all copied from French, and most of the performers are Parisians. The Brazilians have no other taste than for processions and public ceremonies. I will take for instance a review of the National Guards. On the 7th of September, 1859, the anniversary of the national independence, all the troops were in line when I arrived at Rio Janeiro. and things went on regularly enough except on an explosion of a piece of artillery. But no one seemed surprised at it,—such little accidents are common enough to make a part of the programme. The white people are much more numerous than at Bahia. The officers appear to have an irreproachable appearance; but as much cannot be said for the greater part of the mulattoes and blacks. Behind the ranks were a whole crowd of negros, whom I took at first to be merely spectators; but I soon found otherwise. As soon as the order was given for breaking up the ranks, each of these gentry went to his master in uniform, who quickly handed him his musquet and sabre, belt, shako, &c. A number of these even gave up their boots and more than these. Those who had no slaves begged of their friends to lend their negroes' shoulders, and the poor negroes were soon complaining under the weight of a dozen sets of regimentals and their accoutrements. As to the brave defenders of the nation themselves, they were off to some neighbouring *venta* to rest from the fatigue of the day, to narrate to their neighbours the exploits of the day, interrupted occasionally with some patriotic songs.

The Brazilian was not born a soldier, still the military elements are not wanting in this immense empire,—far from it. Looking to the South we soon find the vigorous constitutions of the natives of St. Paul, St. Catherine's, and the Rio Grande do Sul, whose people rival the Gauchos of the Banda Oriental, and who may be considered as the first soldiers of the world. Such was the school in which Garibaldi commenced his career. I have seen a letter from the General addressed to one of his old companions in arms, in which he complained bitterly of not having at his command a squadron of Centaurs of the Desert to break the Austrian squares.

One cannot be long at Rio Janeiro without being induced to speculate on the political and social future of this empire, the civilization of which is to be directed by this large city. Don Pedro the First has given to Brazil a constitution strongly tinged with modern views, and



which would secure the prosperity of the empire if those who were charged with executing the laws could be depended on. Unfortunately, in an empire so extensive, without roads and covered with impenetrable forests, the repression of crime becomes impossible. On the other hand, in the amalgamation of races so opposite, one cannot look for social habits of a very regular order. The towns of the coast occasionally visited by shipping, present instances of modern civilization. An attentive observer may nevertheless single out instances of great degradation. A laxity of manners is perhaps natural in a country where the creoles themselves lay so much to the effect of the climate. Travellers repeat this excuse, and at present in the estimation of honest men it is the equatorial sun that produces all the irregularities that occur between the tropics. But we must protest against these too ready conclusions. Far from provoking the passions the extreme heat should rather lull them.

*(To be continued.)*

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#### THE ROYAL NAVAL RESERVE.

The Royal Naval Reserve has now been long enough in existence to permit of a satisfactory judgment being formed as to the value of the institution as a means of strengthening the Royal Navy in cases of sudden emergency. The Reserve has been scarcely four years in existence, and it has now enrolled, disciplined, and available, a force sufficient to man two powerful fleets with men who are the very pick and choice of our mercantile marine, and this, be it remembered, wholly irrespective of, and in addition to, the regular naval force of the country.

The number and rapid succession of important events which of late years have forced themselves on public notice may, perhaps, have caused the nation to forget the circumstances under which the Naval Reserve was first called into existence, or may have prevented that close observation of its growth and progress to which its great national importance entitled it. It will be remembered that at the close of the Crimean war the injudicious discharge of the continuous service men left our navy in a very helpless condition. The men so discharged had, from their long service in men-of-war, become unsuited for trading ships, and, consequently, soon melted away into other than nautical occupations, or in some instances found refuge in the work-house, whilst the sailors in the merchant service, disgusted and demoralised by the treatment these poor fellows had received, tabooed the royal service altogether, and so it came to pass that her Majesty's ships could only be manned after long delay, with very great difficulty, and with a class of men who were by no means the most eligible that could be found for the purpose. In this dilemma the royal commission and the parliamentary committee commenced their labours. The well-

known expedients of the high bounty and the street bands were first tried with but indifferent success, and were immediately followed by the wise and now completely successful creation of the Royal Naval Reserve. To Mr. Farrer, of the Board of Trade, and Captain Brown, late registrar-general of merchant seamen, must be given the credit of the original suggestion: whilst to the present right hon. Secretary for the Colonies we owe that system to which we are indebted for a powerful and efficient organization. The Royal Naval Reserve is now a great national fact, and quite as important an element in our national defence as is the volunteer army of which we are so justly proud.

When we consider the inducements that are offered to our merchant seamen to join the reserve, and remember that our mercantile marine keeps nearly 300,000 men constantly employed, the number actually enrolled, nearly 18,000, may seem rather smaller than we were entitled to expect. But it must be remembered that the force has had from the commencement to contend with three serious obstacles,—first, the natural shyness of a man-of-war which is inherent in the merchant seamen; second, the jealousy of the royal service and the coolness with which the project was taken up by the authorities of the Admiralty; and, thirdly, the almost absurdly strict list of qualifications which were demanded before a man was permitted to enter. The shyness of the seamen, as will be seen from the annual numbers, disappeared after the first year. In 1860, 2,879 men were enrolled; in 1861, the number jumped to 5,350; in 1862, 6,486 were enrolled, and then the strict tests and qualifications began to tell, and the number of eligible men to be nearly exhausted. In 1863, the numbers enrolled were 2,234; and this year, up to the present month, only 744, making in all nearly 18,000 out of the entire 300,000 before mentioned. But these comparatively scanty numbers are by no means to be attributed to any disinclination on the part of our merchant seamen to enter the reserve. On the contrary, their appreciation of its advantages becomes more general every day: but the fact is that the ridiculous stringency of the list of qualifications keeps out hundreds, perhaps thousands, whom the registrar-general of seamen is obliged to reject in consequence of their not coming up, in some one point or other, to the required standard. For example, to be eligible for admission a man must have served as A. B. for a certain number of years in a square-rigged vessel,—as if some of our best seamen were not made in smacks and schooners. He must be of a certain stature, although it is an axiom amongst experienced commanders, that tall, heavy men are by no means the best suited for the navy; he must submit to the most rigid medical inspection, he must pass an examination in seamanship, and he must enter into an agreement to attend regularly at divine service, no matter what may be the distance between the church and the ship in which he undergoes his annual drill. The wonder is that with so many conditions to be complied with, so large a number as 18,000 men should have been enrolled, and the

more we should prize a body of now carefully disciplined men, who have passed so many tests as to character and fitness.

Another circumstance which has interfered with the enrolment has been the coldness with which the project has all along been treated by the Admiralty. A gallant sea lord, now deceased, was so certain that it would be a failure that he said,—“If you ever get 5,000 men I'll eat them;” but he lived to see three times that number enrolled. The officers, too, of the reserve feel that there is a want of cordiality and frank acceptance in the manner in which they are dealt with at Whitehall. Those who have reached the highest rank in the reserve, and who are in the command of ships, had set their hearts on being permitted to carry the blue ensign, and were proportionally elated when Lord Clarence Paget announced in the House of Commons that the much desired boon had been conceded. It may be imagined, therefore, that their chagrin was equally great, when the Order in Council came out, and the concession proved to be surrounded with restrictions which in nine cases out of ten made it a dead letter. An enumeration of those restrictions will show in how very few instances the Royal Naval Reserve officer can hoped to see his much prized blue ensign fluttering at his mast-head. It cannot be hoisted except in a ship carrying 32-pounders, which must moreover be fired at a mark a certain number of times during each voyage. As most of the reserve officers who could claim the blue ensign are in command of mail steamers, it can easily be imagined how difficult would be compliance with this condition. Heaving to two or three hours during a voyage for target practice, would not much accelerate the transit of her Majesty's mails, nor would such booming of the great guns be very agreeable to the invalids who so often are the principal passengers in such vessels. The blue ensign cannot be hoisted either unless by an honorary commander or by a lieutenant, and the former he must have passed the age of fifty years and have retired from active service. Another evil way in which these restrictions work is in stopping promotion in the merchant service. Our shipowners of first class vessels, as well as their captains, have a fancy for the blue ensign, and are thus in many instances prevented from promoting deserving chief officers to command of ships solely because the latter would not by the Admiralty regulations be permitted to hoist that symbol of Royal Naval Reserve rank.

Having thus shown what has been the progress of the Royal Naval Reserve up to the present time, and glanced at the circumstances which in our judgment have retarded a full and complete development of this most valuable defensive institution, we shall proceed to describe briefly the mode in which the system is worked, and the means by which the reserve men when actually enrolled are made fit to take a part in the defence of their country when called upon. As the plan pursued at all the ports is the same, a description of what goes on in the London training ship will be sufficient.

On the eastern side of the South West India Dock, a conspicuous

position is occupied by H.M. frigate *President*—the flag-ship of the ill fated Admiral Price at the untoward affair of Petropaulowski—and on board of this vessel the naval reserve men repair each Friday during their stipulated annual period of service to learn their great gun drill, and then rifle and cutlass practice. Captain Mould, R.N., who is in command, is an officer of great experience and a successful gunnery instructor, and under his superintendence the naval reserve men are put through their drill by naval reserve officers.

On Friday last we had the pleasure of witnessing a hard day's work, and also the satisfaction of hearing from competent judges that the men went through their exercise with a promptitude and efficiency which would do honour to the best drilled ship in the navy. On the drum beating to quarters, something like 140 magnificent seamen came pouring down the hatchways to the main deck, and immediately commenced knocking about the 68-pounders, of which the ship's armament consists, as if they were so many ninepins. Mr. Roe, sub-lieutenant of the Royal Naval Reserve, gave the word of command, and the first indication we noticed of the improved training of the men, was the dead silence, so different from the hubbub and uproar which commonly prevail in a merchant ship. To cast loose the guns, search, load, run them out, and lay them, seemed to be but the work of a moment, and not the slightest hesitation or inexpertness was exhibited in any of those difficult manœuvres. The whole programme of a hot sea fight was then gone through with extraordinary vivacity and vraisemblance. First one broadside was fired, then another; sometimes the fire was concentric, with a view of sinking the enemy at once; then a dropping fire would be ordered as she was supposed to be bearing down, and each successive gun was elevated in proportion as the distance increased.

At one time the enemy was supposed to be forging across our bows and preparing to rake, and in a moment our men crouched behind their guns, and the busy and crowded main deck was transformed into a desert as if by magic. Then, as the relative position of the imaginary foe was altered, firing from the port or starboard bow would be ordered, the men would scamper across the deck like wild cats, with small respect, we must add, for the persons of the spectators, and the discharge of whatever number of guns could be brought to bear would be heard as simultaneously as if only one had actually been fired. The pendulum was in constant use to regulate the discharge of the gun in unison with the supposed motion of the vessel, and the firing was in all cases timed with a stop watch. In most cases the time occupied was less than that permitted by the gunnery regulations, and in all the firing was far above the average celerity. It was altogether a most animated and exciting scene, and nothing could be more satisfactory than the zeal and alacrity with which the men went about their work. It was obviously a labour of love with them, and a friendly strife between the crews of each gun to see which should do their work the most to the satisfaction of the directing officer. The alacrity with which the huge guns were moved in and out solely by the agency of human muscle

was truly marvellous, and the work exhibited to the best advantage the athletic forms of men such as we believe it would be very difficult to find in the mercantile marine of any other country.

After the drill on shipboard the men went on shore, and in a large shed which has been constructed for the purpose finished their day's work with a warm bout of cutlass practice, in which their proficiency was quite as conspicuous as in the previous management of the great guns. We should add that in this shed is also placed a moveable target, with which the men are, by an ingenious contrivance, taught to take aim at moving objects. The target is placed at one end of the shed, and made to oscillate as a ship's side would do in the water. The man stands at the other end holding a string which communicates with the target. When he has covered his object he pulls the string, and, if his aim has been correct, the target ceases to move and presents a full front: if the aim has been incorrect the stoppage takes place at an angle of more or less acuteness, according to the imperfection of the aim. In this way gunnery is taught without any expenditure of powder, and the same may be said of the great gun drill on board ship, where only caps, or friction fuses, are used for the broadsides.

The above slight and imperfect sketch of the mode of training pursued on board the *President* will be sufficient, we trust, to show that the Royal Naval Reserve is now a real living fact, and that all that will be necessary to give it its full development will be such a relaxation of the conditions of admission as shall permit of the formation of a second class of Reserve men, and a little more cordiality on the part of the Admiralty towards the Naval Reserve officers, in the concession of the blue ensigns, and other small matters by which the dignity of the Royal Navy would not be in the slightest degree compromised, but which would have a powerful moral effect in disposing the best officers in the Mercantile marine to accept Reserve service under Her Majesty.

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#### TROUBLES OF HYDROGRAPHERS.—*Where is Monte Gordo in the Cape Verd Islands?*

A remarkable instance of the manner in which errors creep into charts and give trouble to Hydrographers has just had a good illustration in the Admiralty chart of the Cape Verd Islands, about the real position of Monte Gordo. In the western part of the group there is a small island called "Branca," to which the chart assigned a mountain called Monte Gordo, the summit of which is named in it as being 4200 feet above the sea. Notwithstanding the small size of this island, which does not seem sufficient to afford room enough for the base of so high a mountain, the island being rather more than half a mile across and about two miles long, the assertion is corroborated by Purdy's *Atlantic Memoir*, even down to his last edition, which says in p. 616

that Monte Gordo of "Branco" is 4200 feet above the sea, giving as reference for the information Owen's voyage in *H.M.S. Leven*. The same is repeated by that beautiful large *Gazetteer of the World* published by Fullarton in 1856. But the monstrous assertion of so small an island carrying a mountain of that height attracts the attention of two careful navigators recently, who each report independently of the other a considerable reduction of the height of Monte Gordo in "Branca" making it about 800 feet high instead of 4200 feet.

Before taking so important a step as altering a chart, nothing was left of course but to fall back on authorities:—the *Gazetteer* might be supposed to depend on the Admiralty charts and also Purdy who quotes Owen's voyage. So to Owen the reference is made, and here instead of the small trumpery island of "Branca," (which, by the way, is called by Purdy "Branco,") being in consideration, we find, that Monte Gordo is really in the Island of San Nicolas, and poor little Branca is left entirely out of the question. It appears from the account in Owen's voyage, that a plan being devised for measuring the difference of time between Sal and St. Vincent's, that for this purpose "Monte Gordo" in San Nicolas, a large island between them is selected from which to fire rockets, the times of their explosion to be observed from the two former islands simultaneously. Unfortunately for compilers of books which are looked on as authorities, as in the case before us, the rocket party passes through a village on their way to Monte Gordo called "Praya Branca," and here lies the source of all the confusion. It is, of course, mentioned by the botanist in his narrative of the proceedings, and is laid down in the chart of San Nicolas. But unfortunately there is a "Branca" island close by, just to the south of St. Vincent, and to this island is immediately affixed from the aforesaid authorities the name Monte Gordo with the height 4200 feet, which a very little close reading would have shown those authorities that Monte Gordo really is in Isle San Nicolas and has nothing to do with Isle Branca whatever.

But the confusion does not end here, for San Nicolas by the chart not only has no Monte Gordo in it, but the summit in question visited by the party is therein called "Olho do Mar," and made 4415 feet high, while, in Owen's book, although roughly named previously in p. 20 4200 feet, it is actually stated by the measurement of the party to be p. 25 4380 feet. Here then is a mass of confusion. The difference between the two of 35 feet is no great deal, and the authority for the name Olho do Mar may not improbably have come from Otho, the term Otho having nothing Portuguese about it. But Olho do Mar, as the mountain commands a most extensive view, might very properly express it as the eye of the sea. Still Monte Gordo, the account says, justifies its title to the name by its robust character, and we have no doubt will now be allowed to wear it.

However, the expedition was not successful as the rockets were fired but not seen by the parties on either side of them although they produced much consternation in Praya Branca, arising from the fear that the mountain was sending forth its volcanic fire, and although the account of the expedition has decidedly led to the confusion about the

height of Branca islet, the proper reading of that account explodes the "Otho" and establishes Monte Gordo not only in its legitimate place on San Nicolas island but also with its legitimate elevation. Indeed it is remarkable how the plan of the island originally constructed could have omitted Monte Gordo and how it has remained so long out of it.

We find that the height of the mountain in question 4415 feet has been recently determined by Mr Wildes the commander of the *Swallow* trigonometrically in passing, and may therefore be considered a very fair agreement with that given by Owen as 4380 feet by barometer.

Another remarkable instance of that tendency to change, observable in charts especially appears in the same chart to which we have been referring—where Isle Raza has somehow obtained this name for that of Redonda which it bears in the original Portuguese chart of the Cape Verd Islands,

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### ON CHARTS AND REMARK BOOKS.

An Englishman is a prejudiced animal often obstinately blind to his own interests. Sailors are perhaps more than ordinarily so. To introduce an improvement is often a work of difficulty, so much are they wedded to their ancient prejudices. I have been induced to make the above remarks, because, year after year, I have watched the Masters of the Mercantile Marine plodding on with their well known blue backed charts, quite regardless as to their dates. A moment's reflection must show them that the pretenders whose names are affixed have never sent a single surveyor to the shores they delineate, in fact they are nothing but piracies from the labours of English and foreign officers, men who too often fall victims to the diseases of unhealthy climates.

From the charts I pass on to the Sailing Directions. Here the same anomaly exists, the antique productions of Captain Stewart Menteith and a host of ancient worthies are preferred to the elaborate works of the compilers of the present day. Search nine ships out of every ten and you will rarely find an Admiralty chart or book on board.

I will quote a few paragraphs from an expensive and popular work in extensive circulation in the merchant service. It is entitled Sailing Directions for the Gulf of Mexico, and Bay of Honduras, and for the Islands of Porto Rico, Haiti, &c.

It says in page 138:—"As the north point of the Grand Turk lies in latitude  $21^{\circ} 31'$  N., ships coming from sea should run down in the parallel of  $21^{\circ} 40'$ , and when night comes on, if nothing is seen, should stand to the northward under easy sail, and endeavour to be as near the same place at daylight as they were the preceding evening, or not further to the westward than could be seen the night before, and then keep running down in the above latitude. There may be occasion to do the same thing the second night, if not the third." Now, can any one in these days of chronometers excuse a man in charge of a ship

who was obliged to lie to for three nights in succession when running for Turks Island. Our great grand fathers might have listened to such advice, but they would have incurred risk from it. Probably nothing throws a ship so much out of her reckoning as the uncertain drift which attends on low sail. To this must be added the uncertain set of the current in this vicinity, which, in my opinion, is much influenced by the wind and other causes, so that to keep a reckoning to ensure being in a certain spot at daylight would be almost an impossibility during many months of the year.

Again, in page 43 it says, in the Directions for running into Port au Prince by night:—"You must range this coast within a short distance, which you may do without fear, to avoid the shoals of the Sandy Cay, which lies a short league northward of the point." Considering that Sandy Cay lies only one and a half miles from the shore it must indeed be a very short league. (See Owen's Chart of Port au Prince.)

Except in a few large firms, the Charts of the Merchant Service are not sufficiently attended to. At this day it is not uncommon to see men purchasing Horsburgh's old charts of the China Seas (because they are cheap.) In the long run the underwriters suffer from this neglect, while the miserable parsimony of the shipowner in not finding his ships with correct charts, often lengthens the voyage considerably, as many a ship heaves to in thick weather, which would have proceeded had the charts been on a large scale. While shipmasters are compelled by their employers to find the means of navigating their ships, few will have a sufficiency on board for the purpose.

I remain, &c.,

AN ENGLISHMAN.

*To the Editor of the Nautical Magazine.*

#### LIFEBOAT INSTITUTION.

We have received from the Secretary the following report of the last two meetings of the National Lifeboat Institution:—

It is stated that rewards, amounting to £21, were voted to the crews of the lifeboats of the institution stationed at Arklow and Wicklow, for going off, in reply to signals of distress, to the assistance of the crew and passengers, consisting of nearly 300 persons, on board the emigrant ship *Constitution*, from Liverpool to New York, which had stranded on Arklow Bank on the night of the 20th July. As the weather was not very boisterous, steam tugs were enabled to approach the vessel and take the passengers on board, and afterwards to bring the ship to Wicklow. The Arklow lifeboat had remained by the ship at the earnest entreaty of her captain.

Rewards amounting to £62 were also voted to the crews of the lifeboats of the institution stationed at Pembrey, Margate, New Brighton, Caistor, and Arklow for going off to vessels in reply to signals of distress in stormy weather, but whose crews had been saved by other



means before the arrival of the lifeboats. It was reported that the lifeboats had on every occasion behaved very well.

The silver medal of the institution and a copy of its vote on parchment were voted to Miss Le Geyt, a resident of Bath, in acknowledgment of her noble and courageous conduct in rescuing two lads from drowning, at Lyme Regis, on the 4th August. Miss Le Geyt had been a visitor at Lyme Regis for some few weeks, and on the day in question was out rowing in a small boat in company with a lady friend. The two lads were out playing at the extremity of the outer pier, and by some means unfortunately fell into the sea. Upon seeing the accident, Miss Le Geyt immediately rowed at much risk through the broken water to their rescue, and, throwing an oar to one of the boys, and holding the other lad in her arms until further assistance came, she fortunately was the means of saving them both from a watery grave.

A reward of £2 was also voted to a boat's crew for putting off and saving three out of five of the crew of a fishing boat which had capsized in a heavy sea near Clogher Head, Louth Harbour, on the 11th June last. Two men were unfortunately drowned on the occasion.

A reward was likewise granted to four men for putting off in a shore boat and rescuing at considerable risk of life eight persons from a fishing boat which had struck on a sunken rock during stormy weather off North Roe, Shetland, on the 24th May last.

A reward of £3 was also voted to several fishermen for saving six coastguardsmen whose boat was capsized off Ferriton's Cove, Dingle, on the coast of Kerry, on the 5th July.

A reward of £4 was also voted to the crew of a shoreboat for saving, at considerable risk of life, two men from the cutter *Phantom*, of Preston, which during squally weather had stranded on Taylor's Bank, in Liverpool Bay, on the 2nd July. It was stated that, owing to the promptitude and skill of the salvors, the two men of the cutter were saved.

A reward was likewise granted to two men for rescuing at some risk of life, in a small boat, one out of two men whose boat had capsized in a strong wind and heavy sea off Inniskeragh, county Donegal, on the 17th July. One poor fellow unfortunately perished before assistance could reach him.

The society had recently sent new lifeboats to Blackpool, New Brighton, Sennen Cove, Cardigan, and Porthdinllaen. They were all the gifts of benevolent persons to the institution. The several railway companies had, as usual, given the boats free conveyance over their lines. The meeting also decided to station a new Lifeboat at Caistor, near Great Yarmouth.

The committee expressed their deep condolence with the family of the late Admiral Bertie C. Cator, who had been for many years past a valuable and zealous member of the committee of management of the institution.

Payments amounting to upwards of £2700 were made on various lifeboat establishments.

The committee decided to place a lifeboat on the coast at a favour-

able opportunity, and to call it the "Sir Jamsetjee Jejeebhoy," in acknowledgment of the munificent gift of £500 to the institution by his son, the Hon. Rustomjee Jamsetjee Jejeebhoy, of Bombay.

The executors of the late Miss Emma Keate, of Kensington, had paid her legacy of £300 to the society; and the bequest of the late Mrs. Duroure, of Blackheath, of £50, had also been received.

Lieutenant Rodney Blane, R.N., had collected in China £27. 15s. 10., and £6. 2s. had also been received by Lady Blane, his mother, from her friends and others in Derby, in aid of the funds of the institution.

The Seaman's Association at Drontheim, Christiansund, and Nalesund, in Norway and Sweden, had forwarded to the institution £59. 13s. in admiration of its great and national objects, and in acknowledgment of the services some of its lifeboats had rendered to their shipwrecked fellow-countrymen on our coasts.

The Horse Guards had applied to the institution for an additional supply of its new instructions for the restoration of the apparently drowned, in order that the same might be extensively circulated in every hospital and barracks of the British army at home and abroad. Some of the French ports were having these valuable rules translated and circulated on the coasts, and we trust that mayors, town commissioners, and others, will at this period of the year assist the institution in extensively distributing these directions on the coast, banks of rivers, docks, and elsewhere. The French Government had instructed Captain (de vaisseau) de la Roch Kerandraon, of the Imperial Navy to visit the institution and some of its lifeboat stations, with the view of making himself acquainted with the mode of the operations of the society on the coasts of the United Kingdom. Messrs. Forrest are now building three lifeboats for the French Government, under the superintendence of the institution.

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#### S.E. CURRENT TO THE WESTWARD OF THE AZORES.

In a former communication I made the remark that a chart showing the exact force and direction of the Gulf Stream would be exceedingly useful and interesting to the navigator. Much more so would be one containing all the known currents of the globe.

Many, such as the Gulf Stream, the Equatorial, and the Lagulhas, follow a well known direction, varying slightly according to the season of the year. Others are so uncertain, the whereabouts of their commencement, that it is only the passing voyager who has an opportunity of meeting with them, and his observations too frequently can only give in an approximate degree their force and direction, because he seldom passes over the same expanse of ocean in distant voyages under precisely similar circumstances.

Again, time is so important to a merchant steamer in these days of

competition, when minutes often decide the fate of an Atlantic voyage, that many a useful fact is left without being recorded, because delay cannot be incurred in examining a new phenomenon correctly.

I have been induced to make these remarks as an apology for any error which I or others placed in a similar position may unwittingly fall into when endeavouring to increase our knowledge of the causes which govern the movements of the great ocean, or changes in the shores we visit.

To the westward of the Azores, between the parallels of  $43^{\circ}$  and  $47^{\circ}$  N. lat., and long.  $35^{\circ}$  W., in the months of July, August, and early part of September, I have met with a current running to the South and East, with a velocity varying from three quarters to one and a quarter mile per hour. In July it set more southerly and ran with a greater velocity than in the other months. During the period in which I have made these observations, the ship was under steam only, working at a uniform rate, with a perfectly calm sea and clear horizon, which rendered any chance of the observations being in error an impossibility.

In passing over the same space in winter and spring, I have never met with this current.

From its high temperature,  $78\frac{1}{2}^{\circ}$  in July, while the air was only  $77^{\circ}$ , the surface water evidently belongs to the Gulf Stream; but why it should be deflected so much to the South and East, with such an increased velocity, is a problem I cannot satisfactorily solve, although I believe it must be connected with the breaking up of the ice in high northern latitudes, and consequent increase in the rate of the Labrador Current, which boring into that of the Gulf Stream, probably far below the surface, gives this temporary increase of velocity and deflection in direction to the disturbed waters of the latter.

The surface of the sea during the time the ship was in the current was thickly covered with small flecks of foam, such as we see near the mouths of tidal streams when waters of different density and temperature meet.

To the South of the 37th parallel the temperature of the sea fell to  $77\frac{1}{2}^{\circ}$  while the air increased to  $80^{\circ}$ , and the most careful observations failed to detect any current.

In running between the Azores and St. Thomas, the seaweed (*Fucus natans*) is found in greater quantities in winter than in summer. I mention this fact because I have seen it stated that the weed grows in the gulf of Mexico, and being torn from its roots by the violence of the current, is borne on it across the Atlantic. I am not of this opinion, as I have never observed large quantities in the strength of the stream in June, July, or August, when it is running at its maximum velocity; but during the northerly gales in October, November, and December, the sea between Capes Hatteras and Canaveral, is literally covered with it, floating in long parallel lanes, like nets at an anchor.

There are other phenomena along this track worthy of a critical examination. How is it that in a region where geographers state the

N.E. Trade wind is always blowing, it seldom or ever blows at all? It is not uncommon for a steamer, especially in summer and autumn, when the Trade wind in other longitudes is at its highest northern limit to run to Turks Island or St. Thomas without meeting it at all: the prevailing winds being W.S.W., S.S.W., and S.S.E., with a barometer until close to the tropic seldom under 30.40. Can it be that the heated air over the Gulf Stream causes that which is cooler to the southward of it to rush northward and form a miniature Trade at this season. From the great height of the barometer, the wind is evidently a polar one, which it is possible may descend when this region is heated by the summer sun, and blow North from the cause before stated.

Owing to this irregularity in the wind sailing ships should always go by the Madeira route to the West Indies. A departure from which is sure to lengthen the voyage to an incredible extent. A brig in April last arrived at St. Thomas sixty-eight days out from Cardiff, although she sighted the Western Islands on the fourteenth. She sailed well, but encountered during the remainder of the passage an unbroken succession of light southerly winds.

From this cause the sea between these ports is almost a desert, seldom does a sail heave in sight until within the tropic. This route is therefore well adapted for steamers of small power, as the light head winds they meet scarcely impede their progress.

W. W. KIDDLE,

*Commander of W. I. and Pacific (s.s.) Bolivar.*

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#### THE COMPASSES OF THE MERCHANT SERVICE.

We constantly read in the newspapers accounts of the losses of iron ships. A return of the slain on the battle field bears but a small proportion to the wounded. In a like manner, the escapes and stranding of ships in comparison with total wrecks, bear the same proportion.

The legislature have stepped in to punish the unfortunate shipmaster. But little is done to ensure that he has the instruments which the perilous service on which he may be employed imperatively demands. I allude more particularly to the present loose system of fitting iron ships with the most important of all instruments, viz., the compass.

It is but reasonable to suppose that the shipowner would in all cases employ only those men who had an established reputation. So far from this being the case, they contract for the compass in the same manner as they would for a coil of rope, and the cheapest tender is accepted by the majority. This system has brought a host of quacks into the field, men who pretend to be the masters of a science, which is yet but imperfectly understood by the first men of the day.

It would be ludicrous, were the subject not too serious a matter for jesting, to see the assurance of some of these individuals. A few weeks since I was bringing round a fine steam ship from a northern

port. Previous to starting the compasses were adjusted. When the swinging was completed, the operator turned to me with the air of a Solomon and said, "I always correct the compass on Professor Airy's principle. This is for taking the azimuth with," and suiting the action to the word, he stuck a piece of coarse brass wire into a hole in the glass without even taking the trouble to ascertain that it was perpendicular (which it was not). I found the compass half a point out on the passage, and I need not add that the wire was not of the slightest service in correcting the error.

Many first rate makers have informed me that they have ceased to tender for small firms, as the invariable reply has been, "We have suited ourselves on more advantageous terms." The result is that often in thick weather a steam ship is either hove to or run at a frightful risk.

It is not uncommon to see men in trying situations steering at one time with the bridge compass, and then by the steering, 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 in iron ships, that few Liverpool pilots ever trust to them in running from Point Lynas to Liverpool during a fog.

Again, the utter disregard to consequences which is shown in loading ships with machinery on deck is enough to excite one's indignation. When a ship has been swung, it is thought that nothing can affect the compass; railway locomotives or boilers are *then* often placed in dangerous proximity, thus vitiating the corrections which may have been applied.

While the shipowner is blind to the consequences of such a disregard of the laws of magnetism, the shipmaster is too often totally ignorant of the nature of the instrument on which he must solely rely in the hour of danger. Many go long voyages without taking a single observation. If a great error in the reckoning is detected, an allowance is made which approximates to the truth, or a course is checked by a run between two known points.

The use of magnets is still a vexed question. Unless the errors be unmanageably large, I am strongly opposed to them, and have never adopted the system in either of the iron ships I have commanded.

From experiments carefully conducted I am of opinion that there is in every ship a place where the deviation is at a minimum: but no trouble is taken to find it: the spot for the compass being generally planned with the rest of the fittings, frequently it is over the galley range, or close to an iron ventilator.

Government would do well to appoint a special Inspector of Compasses as they have for steam, a man who would not be satisfied with the card of deviation only, but who would ascertain that every ship had at least one good compass, and that the master was competent to correct it.

AN ENGLISHMAN.

## Nautical Notices.

## 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.]
40. Whittle Rock	Beacon	.....	..	..	..	(a.)
41. Archipelago	Kalolimno Island	37° 3' 5' N., 27° 7' 4' E.	E.	394	10	Est. 15th Aug., 1864. Once a minute.
Ditto	Hussein Point	26° 57' 5' N., 27° 17' 5' E.	F.	83	5	Est. 15th August, 1864. Green light.
Ditto	Kos Island	26° 55' N., 27° 18' 3' E.	F.	50	5	Est. 15th August, 1864. Red light.
42. Cork Har- bour	Roche Point	.....	R.	..	..	Est. 1st December, 1864. Altered to Red light every minute.
Cork En- trance	Ditto	.....	F.	..	..	Est. 1st October, 1864. Additional White light at foot of tower. (b.)
43. Cape Charles	U. States Am. Smith Isle	37° 7' 1' N., 75° 53' 2' W.	Ffl.	160	21	Est. 7th September, 1864. Flash every minute.
44. Cape Gata	Cyprus South coast	34° 38' 7' N., 38° 2' 4' E.	Ffl.	190	15	Est. 5th September, 1864. Flash every two minutes.
Cape Kiti	Ditto	.....	F.	..	8	Est. 15th. October, 1864. Altered from Red.
Karamania Cape	Kahbeh Lighthouse	.....	..	..	..	Has been destroyed by fire.
Naples	Mole	.....	..	..	..	Extended. See note.

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

(a.) 40.—In order to show the position of the Whittle Rock to vessels entering Simons Bay, a triangular white beacon (35 feet high) with a red band in its middle has been fixed on a large flat topped rock near the edge of the water at Oakland Point, 8½ cables from the white beacon under Simons Berg. These beacons with the Whittle Rock and a large patch of whitewashed rocks on a hill N.W. of Simons town are all in line N.N.W. ¾ W., and the opposite. Thus a vessel will easily not only find the Whittle, but will know on which side she may be of this rock by the bearing of the beacons and that under Simons Berg.

(b.) 42.—To show the position of Daunts Rock.

The light will be visible between the bearings of N.E.b.E. and N.E. ¼ N., or between Roberts Head and a distance of half a mile to the eastward of Daunts Rock. Mariners are therefore cautioned, when approaching Cork Harbour at night, to keep eastward of the limits of the *fixed white* light until they have passed the rock.

*Fog Bell.*—Also, that the fog bell lately erected at Roche Point, will in future be sounded *eight* times in a *minute* during thick or foggy weather.

## LEGHORN AND ANCONA.

Among the improvements making by the Italian authorities a notice has been recently published of two important buoys laid down for the benefit of navigation at these two important ports. It is known to seamen that a new curvilinear breakwater forms what is now called the new port of Leghorn, and that the southern entrance of it has a shoal inside the port directly in the way of shipping, extending from

the lighthouse shore. A white buoy has been placed on the end of this shoal, carrying a pole, on the upper end of which is fixed a triangular beacon, showing the depth of water in which it lies. To enable navigators to place it in their charts, the light-tower bears from it S. 67° E., and the column on the southern end of the breakwater, S. 7° E. Vessels entering by this channel must leave the buoy to *starboard*, passing between it and the pier.

At Ancona there is a prolongation of the northern arm of the breakwater,—(in what direction is not given, but apparently to the westward,—) which reaches out something more than a cable's length. A black buoy, carrying a staff on which is a green flag, has been moored at a short distance off the end of this prolonged part,—which buoy must be passed to *port* on entering the harbour. Excepting the end of this continuation under water to be thus avoided, there is nothing else in the way.

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#### VIRGIN ISLANDS.

The small black Beacon Buoy on the Scorpion Rock (Harbour of St. Thomas) has been removed to the outer part of the Rhode Shoals, to the N.E. of the Scorpion.

The Scorpion is now marked by a large red Nun Buoy surmounted with a Staff and Cage.

On the outer edge of the Triangles is a black Nun Buoy with a Staff and Cage.

The light at this port is very inferior in hazy weather, it cannot be seen till Frenchman's Cap Island is close to.

W. W. KIDDLE,

Commander of *W. I. and Pacific (s.s.) Bolivar.*

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#### PORTLAND BANK, WEST INDIES,—*Current off East End: Doubtful.*

In sheet 1 of the Admiralty chart of West Indies 70 miles S.E. of the East end of the Portland Bank is the following remark:—H.M.S. *Basilisk*, Sept., 1859, found the current running  $3\frac{1}{4}$  knots, I presume per hour for it is not stated.

This remark has been anathematized by many a sailor, for, while all men guard against the danger, no one has yet found the necessity of so doing. The consequence is, that all ships coming from the Spanish Main keep so far to windward that the voyage to Kingston is unnecessarily lengthened by making the land too far to windward, especially if sights had not been obtained.

My opinion is that the current never runs with the velocity stated, and I should like to see the data published. For, be it understood that, owing to the peculiar state of the horizon at this season, A.M. and P.M. sights differ considerably. This voyage the moon being only one day past her full, I took observations of her and the sun at the same time, the difference in the results amounted to 12 miles, and on making the land the moon gave the correct position.

There are sufficient dangers in the Carribean Sea without any imaginary ones being introduced.

I have before mentioned that I never could meet with the extraordinary currents which are said to exist here. I am now of opinion that they exist only in imagination.

AN ENGLISHMAN.

ADDITIONAL LIGHT,—MORETON BAY.

On and after this date, a fixed bright Light will be exhibited from Cowan Cowan Point, 18 feet above high water mark. This Light will be visible between the bearings of S.b.E.  $\frac{1}{2}$  E. and E.  $\frac{3}{4}$  N., and between N.E.  $\frac{1}{2}$  N. and N.N.E.  $\frac{1}{4}$  E.; it will also be again seen to the eastward of N.b.E.  $\frac{1}{2}$  E.

Comboyuro Point Light will, on and after this date, be also visible between the bearings of N.  $\frac{1}{2}$  E. and N.b.W. northerly.

*Directions*:—Vessels entering Moreton Bay, during the night, by the Middle Channel—keeping the Lighthouse and Yellow Patch Light in one, and hauling up to the southward on the opening out of the Comboyuro Point Light, will (supposing the eye of the observer to be 17 feet above the water line) open out the light on Cowan Cowan Point, when they are well clear of the western edge of the Venus Bank, and by keeping this light open, they will not approach too close to any portion of that Bank. When the Yellow Patch Light is shut out, a vessel should haul up S.b.E.  $\frac{1}{2}$  E., the Comboyuro Point Light being obscured as formerly, on an E.N.E. bearing, and again opening out when bearing N.  $\frac{1}{2}$  E. 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 15 feet water, at low water.

The Light on Cowan Cowan Point will be obscured when it bears E.  $\frac{3}{4}$  N., and will open out at N.E.  $\frac{1}{2}$  N., remaining visible between that bearing and N.N.E.  $\frac{1}{4}$  E. 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 3 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 6 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.  $\frac{3}{4}$  E. bearing.

By order of the Marine Board,

G. P. HEATH, Lieut. R.N., *Portmaster*.

*Port Office, Brisbane, 22nd June, 1864.*



**CADIZ ROCK, Oosima Harbour,—South Coast of Japan.**

A sunken rock and reef in the middle of the narrow pass between the islands of Oosima and Miogasima, (at the eastern entrance of the Inner Sea of Japan) has been reported by the commander of the P. and O. Company's steamer *Cadiz*, as having been struck on by that vessel in the morning of the 5th of June last, when endeavouring to pass between those islands. The report adds that the Admiralty chart (No. 356) of 1861, shows a clear passage with 14 fathoms water.

The importance of these dangers has most properly induced the commander of the *Cadiz* to report them to the Admiralty; but he might have added that the passage which he was attempting is not completely surveyed, as appears by the chart, although there is 14 fathoms marked in it near the Oosima shore. Moreover, that the distance across this supposed channel is little more than half a cable, and no directions are given for it in the *China Pilot*, (fourth edition, 1864.) But taking the chart as it is with the unfinished state of this supposed channel on it, along with its very contracted breadth above mentioned, to say the least, it was a venturesome attempt at exploring an unknown passage, and much to be deprecated, especially when there was the proper channel of 3 cables across West of Miogasima, for which directions are given in the *Pilot* (p. 454), and which is sufficiently sounded for navigation. In fact, this channel West of Mioga Island is the proper one used for the southern entrance of Oosima harbour and the *Cadiz* may be considered as having had a very narrow escape from destruction in attempting to take a passage which she was not justified in doing. It is probable, however, that the saving of a few minutes prevented her commander from seeing the risk he was running by the unfinished condition of the chart, a system of saving distance that has often occasioned the loss of a valuable ship.

Since the foregoing remarks were made we have met with a little collection of remarks on the Inland Sea of Japan, drawn up by Commander Charles Bullock, R.N., and published by the Admiralty in January, 1863. Although the passage in which the *Cadiz* grounded may not be alluded to in the third edition of the *China Pilot*, and the fourth edition perhaps was not on board, we find in page 18 of this collection the following in reference to the southern entrance of Oosima harbour. Speaking of this channel, Commander Bullock says that "it is somewhat narrow (we have said it is only 30 fathoms across) and winding, as it is necessary to pass to the westward of an island well inside the entrance." Here then the passage attempted by the *Cadiz* is repudiated entirely, and the navigator is plainly told that he must pass West of the island to the eastward of which he was attempting. Thus the *Cadiz* had neither chart nor directions in her favour.

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**SMOKING.**

At the meeting of the British Association an elaborate paper on the use of tobacco was read by Dr Richardson. After describing the

various elementary compounds of tobacco, he mentioned the different diseases to which excessive smoking gave rise. It deranges the digestion, causes thirst and nausea, palpitation of the heart, impairs both vision and hearing, and renders the muscles flaccid; sore throat is often produced. Tobacco is especially injurious upon youths who are still growing, and there is no doubt that if a race of children were raised from parents of whom both smoked that there would be a marked deterioration in the offspring as compared with the children of non-smokers. Put down the smokers of Great Britain at a million in number—they are more than that, but let it pass—why should there exist perpetually a million of men, not one of whom can at any moment be writ down as in perfect health from day to day? Why should a million of men be living with stomachs that only partially digest, hearts that labour unnaturally, and blood that is not fully oxydised! In a purely philosophical point of view, the question admits of but one answer—viz., that the existence of such a million of imperfectly working living organisms is a national absurdity, a picture which, to a superior intelligence, observing the whole and grasping it, would suggest a mania, foolish, ridiculous, and incomprehensible. I cannot say more against tobacco, however, without being led into a wider question—I mean the use of luxuries altogether; on which question, if I were equally fair for tobacco as against it, I should be forced to give it a place as one of the least hurtful of luxuries. It is on this ground, in fact, that tobacco holds so firm a position, that of nearly every luxury it is the least injurious. It is innocuous as compared with alcohol, it does infinitely less harm than opium; it is in no sense worse than tea; and by the side of high living, altogether contrasts most favourably. A thorough smoker may or may not be a hard drinker, but there is one thing he never is—a glutton; indeed there is no cure for gluttony and all its train of certain and fatal evils, like tobacco. In England this cure has been effected wholesale. The friends of tobacco will add to these remarks, that their “friendly weed” is sometimes not only the least hurtful of luxuries, but the most reasonable. They will tell of the quiet which it brings to the overworn body, and to the irritable and restless mind. Their error is transparent and universal; but universal error is practical truth, for in their acceptance, tobacco is a remedy for evils that lie deeper than its own, and as a remedy it will hold its place until those are removed.

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### New Books.

TABLES OF THE SUN'S TRUE BEARING, or, *Azimuth from Sunrise to Sunset at intervals of four minutes, for the parallels of lat. from 48° to 56° North.*—By John Burdwood, Staff Commander, R.N.,—Potter, Poultry.

If Staff Comr. John Burdwood had really desired to leave a monument behind him of his labours for the benefit of navigation he could have done

no better thing than compile these valuable tables. A monument indeed? What are those of Egypt?

“Where Isis and Osiris once held sway,  
O'er kings who sleep in pyramic pride,”

but huge unmeaning emblems of antiquity, which one must go and see if worth while it be to do so. But here we have in a few unpretending pages what will be in the hands of every navigator while iron ships hold sway on the bosom of old ocean—done with figures better than hieroglyphics for all time to come, and more congenial with the real wants of navigators, because ministering to their comforts and soon to be in every hand.

But of the advantage of these tables we cannot do better than let Mr Rundell speak, who well knows their value, and which will be speedily found by every ship captain afloat that knows anything about the difficulties of the compass.

The following important letter on the detection of compass errors was exhibited in the Underwriters' Rooms yesterday:—

*Compass Committee, Liverpool, July 30, 1864.*

Thomas Court, Esq., Secretary to the Liverpool Underwriters' Association.—Dear Sir,—Herewith I send you a “Copy of tables of the sun's true bearing or azimuth,” which have recently been published by the Admiralty. They are exactly what I have long wished to see printed for the special use of commanders of iron vessels when leaving or approaching the shores of the United Kingdom; and I trouble you with this letter in the hope that it may assist to call public attention to this valuable publication. You will understand the interest which I feel in these tables, when I state that with them, and a watch set to apparent time, the error of the mariner's compass may be easily found by inspection anywhere within the latitude 48 to 56 degrees north or south, when the sun is visible. The importance of this is self-evident to any one acquainted with navigation and compass management in iron ships. The tables are calculated to intervals of four minutes from sunrise to sunset, the time being given in a vertical column on each side of the page (A.M. on one side and P.M. on the other); and the corresponding bearings of the sun are placed in intermediate columns for every whole degree of declination from 0 to 23 degrees both north and south. At the end of the azimuth tables are tables of the sun's declination for each day in the year at mean noon at Greenwich; and tables for reducing mean to apparent time. Also a small chart of the British Isles, showing the curves of equal magnetic variation. This chart is to enable the commander or officer in charge of an iron ship to ascertain how much of the compass error which he observes is due to terrestrial variation, and how much to deviation of the compass—variation being the angular difference between the magnetic and true meridian of any place; and deviation being the angular deflection of the compass needle from the true meridian, which is caused by the iron of the ship. The tables have been calculated with great care by Staff Commander J. Burdwood, R.N., and are very conveniently arranged.

As the work is issued at 3s. 6d. a copy, it is within the reach of the humblest officer on shipboard; and ignorance of the compass errors of an iron ship, or in fact any ship, when leaving or approaching the United Kingdom when the sun is visible should henceforth be held as inexcusable. One effect of these tables will, no doubt, be to show that the compass errors arising from iron used in the construction of the ship, or from iron cargo, which now sometimes escape notice in consequence of their reaching a maximum only when the ship is upon particular courses, frequently exist both in iron and wooden ships, where they are now little suspected, and the result should be, greater caution and increased safety in their navigation.

Though intended chiefly for the English and Irish Channels and the ports of the United Kingdom, these tables are applicable for all places between latitudes 48 and 56 degrees in both the northern and southern hemispheres.

I am, &c.,

W. W. RUNDKELL,

*Secretary to the Liverpool Compass Committee.*

We are glad to find that Comr. Burdwood's services have been recognized by the Admiralty, but there is not a Commercial Board or one that has to do with merchant ships on the ocean but is under a debt of deep obligation to Comr. Burdwood.

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**THE DOCKYARDS, SHIPYARDS, and Marine of France.**—By P. Barry, *Author of Dockyard Economy and Naval Power.* London, Simpkin and Marshall.

To say the least of it, this is a most important book. We have here an account of the state and condition, the advantages and defects, of all the French dockyards in black and white before us, thanks to the liberal feeling of the Emperor of the French for historical literature. The press has obtained what we are told was denied to office claims and privileged persons of rank and degree! The humble author of *Dockyard Economy and Naval Power*, &c., has unlocked the secrets of French dockyards to the world; he has told us what he saw of this vast French collection of naval resources of all kinds, with a frankness, a *naïveté*, and withal a good generous feeling, (yet not without a stray shot at our own naval administration,) all of which make such dry detail palatable to landmen or even yachtmen, who are not without their remembrance also. And as for our own dockyards, we are told that "it is no exaggeration to affirm that in Portsmouth Dockyard there is a greater quantity of general stores than in all the five French dockyards together." This is consolatory in some degree, although but a temporary advantage, as a kind of set off against a host of other comparisons in which John Bull, in the estimation of the author, suffers sadly.

For instance, we are told in the preface (on which a whole chapter might be written) that—"In the present condition of the British navy, war with France would bring England to *its* [? her] knees in a single week or fortnight." Englishmen think of that,—would you know the reason?—but reasons are troublesome things. Never give a reason, once said a learned Lord Chancellor, unless you can't help it, when you make a good round assertion, for it may spoil said assertion sadly. But why is Britannia to be thus on her

knees in a week or a fortnight's war with France in her present condition? Listen, John Bull, to Mr. Barry's reason. "War with France in the condition in which the British navy might be placed by such men as Richard Cobden or Lord Stanley at the Admiralty, would assuredly bring Frenchmen and France to grief." There's reasoning for you. Whatever may come across Mr. Barry in his visits to the French dockyards, although Portsmouth may contain more stores than all put together, still that or anything else is of no avail. England now! would be on her knees in a war of a very few days with France because Mr. Barry is a Conservative. Well, if the penalty of Liberalism is great, fortunately for us the transition to our old glorious condition is, according to Mr. Barry, very easy. But really, as we said, reasons are very trying, and Mr. Barry's assertion tried by his reason is shattered into fragments of political dust.

Well, after all, we are told by some one that—

"The noblest study of mankind is man,"

and Prince Napoleon showed himself, when he gave permission to Mr. Barry to visit his dockyards, a greater man than he may think himself for so doing after reading this gentleman's preface to the account of his visit.

That our navy is in a state of transition from wood to iron does not seem to be appreciated by our author,—or that if ours is so that of every other country must be so likewise which has any pretence to a navy,—and that our model ship of war for future fleets is not yet constructed;—all this seems to be beyond our author's views altogether, as might well be supposed from any landsman.

And then he tells us that "England is afflicted with a weak government," and gives some speculations of his own mind about the Channel Fleet being at Denmark and another "Cochrane" or "Napier" to be found in the Austro-Prussian service to come and do something unpleasant at "Woolwich." Really Mr. Barry's preface spoils his book. But it is a book to be read and one that must be referred to closely to arrive not only at a just estimation of what is said in it, but to see what an inferior condition our well supplied yards are in when compared with those of the French. We have heard that the British navy is unarmed, at least so says Admiral Halsted, and therefore no wonder when an Admiral says so that it must be inferior to the French in the opinion of a landsman. Besides this, there is a multitude of reasons for reading Mr. Barry's very valuable book.

**CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,  
ADMIRALTY, in September, 1864.**

- Syria, Ras En Nakúra to El Arish, Commander Mansell, R.N., 1862, (3s.)  
 North America, Lake Erie, with plans, various, 1861 (3s.)  
 Nova Scotia, Ram Island to Port Metway, Commander Shortland, R.N.,  
 1862 (2s. 6d.)  
 Newfoundland, Bay of Bulls to Placentia, with views, Captain Orlebar,  
 R.N., 1863 (2s. 6d.)  
 China, Amoy Inner Harbour, E. Welds, Master, R.N., 1863 (1s. 6d.)  
 Australia, East coast, Port Stephens to Point Korogoro, Commander F.  
 Sidney, R.N., 1863 (1s. 6d.)

EDWARD DUNSTERVILLE, *Commander, R.N.*  
*Hydrographic Office, Admiralty, September 23rd, 1864.*

THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle.

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NOVEMBER, 1864.

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THE NORTH-EASTERN BOUNDARY OF THE UNITED STATES.—  
*Report from the State of Maine.*

The subject of our future communications with Canada, or rather now, the whole of British North America, including British Columbia along with Canada Upper and Lower, is one of such vast extent and implicating so much wide spread interest, that we cannot in this country but look with some jealousy on all matters bearing upon it. Whether the Canadas are to continue as British colonies, or are to be severed from this country for state reasons, there will still be enough to engross the attention of a large society among us in the concerns of their future fate, and to make us all keenly alive to their well being. What that would be in either case it is not for us to discuss now, whether annexed to a neighbouring border state or still independent and British and able to look after themselves, are questions on which we do not pretend now to enter.

But there has been a report closely connected with this subject made by the State of Maine to the Federal Government of the United States, that takes a general view of the whole subject, and may become of more importance hereafter than it is at the present moment. And as it may at least become ere not very long a matter of discussion, we propose preserving in our own pages the substance of this report. We do not care for the political terms of "bad faith," or commercial cupidity or duplicity mentioned incidentally therein as any other than little exaggerations from a one sided view of the question

that would naturally be taken by parties interested on that side. But the historical nature of the matter treated on, and the views entertained by the people of the State in question, are the reasons for which we consider it of sufficient interest and importance to preserve the substance of the report in our pages.

It is somewhat remarkable that it comes about the same time as that of a Convention of the delegates of the different provinces of British North America generally on the important subject of a union of those provinces into one Confederation,—at which meeting most satisfactory and excellent reasons were given why such a union should become fact.

It was well said at that meeting in reference to the perfection of the United States Government by one of the delegates:—"It has been said that the United States Government is a failure. I don't go so far. On the contrary, I consider it a marvellous exhibition of human wisdom. It was as perfect as human wisdom could then make it, and under it the American States greatly prospered until very recently; but being the work of man it had its defects, and it is for us to take advantage by experience, and endeavour to see if we cannot arrive by careful study at such a plan as will avoid the mistakes of our neighbours. In the first place, we know that every individual state was an individual sovereignty,—that each had its own army and navy and political organization,—and when they formed themselves into a confederation, they only gave the central authority certain specific powers. The dangers that have arisen from this system we will avoid if we can agree upon forming a strong central government—a great central legislature—a constitution for a union which will have all the rights of sovereignty except those that are given to the local governments. Then we shall have taken a great step in advance of the American republic. If we can only obtain that object—a vigorous general government—we shall not be New Brunswickers, nor Nova Scotians, nor Canadians, but British Americans under the sway of the British sovereign." This is sensible language and to the purpose, and we hope to see it well realised, which seems likely to be the case, as it appears that a public meeting of the delegates has been convened by the Governor at Quebec on the 10th of October.

However, the two subjects before us are in themselves quite independent of each other, although not without relation to each other from the contiguity of one to a portion of the other. We trust, however, yet to see a union of the different provinces of British America and Newfoundland, New Brunswick and Nova Scotia, as is contemplated, enjoying the benefits of a union of interests common to all, side by side with the Federal American States.

#### *Report.*

That subjects of the gravest character are necessarily involved in the resolutions and other legislative proceedings of the State of Maine submitted to the committee, calling for inquiry into systems of military defence, the value of railways as a means of attack and defence in

time of war, and a careful consideration of the force of national obligation and of public faith growing out of the complex relations of federal and State governments under our national constitution. With every desire to present the matters referred to them intelligently to Congress, the committee have sought to abridge into the narrowest limits possible the statements of fact and of argument which have influenced their judgment in reaching the conclusion that the general government should co-operate with Maine in its efforts to provide defences for the north-eastern frontier.

The north-eastern boundary dispute has been one of the most embarrassing subjects of American diplomacy, and has filled a large space in the public discussions and in the annals of the State Department, more so, perhaps, than any other public question since the foundation of the government. It will always forcibly recur to the thoughts of public men and to the minds of our people on the suggestion of a possibility of a disturbance of our friendly relations with Great Britain. The political disclosures of the last twenty years, the gradual modification of the colonial policy of England, and the increasing intimacy of the people on each side of the line along the eastern and the northern border, enable us the better to understand the motives of England in seizing upon that north-eastern section of the Union. The possession of this territory afforded her the means of communication between her upper and lower provinces in the war of 1812-16, and she held it with unyielding pertinacity, menacing a war, until she induced our government to acquire the consent of Maine, and to surrender a military route through the valley of the River St. John, and yield up to her this key to her North American possessions.

Maine held this territory by an unquestioned title. Without her consent there was no power to agree on a conventional line of boundary which should secure to Great Britain this greatly coveted advantage. Such was the explicit statement of our government in all its negotiations with Great Britain, asserted by Hon. Edward Livingston, Secretary of State in General Jackson's administration, in his dispatch of July 21st, 1832, to Charles Bankhead, and by Hon. Mr. Forsyth, and others, from the time of the failure of the award of the King of the Netherlands, to the conclusion of the treaty of Washington, August 9th, 1842. The facts, therefore, set forth in the preamble to the resolutions of Maine, of March 25th, 1864, in the words following, to wit:—"Whereas it is made the duty of the federal government, under the Constitution of the United States, to protect and preserve the integrity of the Union, and defend each State in the maintenance of its sovereignty over its lawful territory; and whereas the original boundary of Maine extended northward to the dividing ridge that separates the St. Lawrence waters from those of the St. John's River, the title to which was clear and unquestionable; and whereas the United States government neglected and refused to maintain and enforce the right of this State to the upper basin of the St. John River, permitting British troops to march across said territory:



in the war of 1812, and at the time of the Canadian rebellion in 1837, and afterwards to hold military possession of the country; and whereas the State of Maine, in 1838 and 1839, attempted to repossess herself of her lawful territory, and to protect her soil from spoliation by provincial trespassers; and whereas the United States government interposed its paramount authority, calling upon Maine to withdraw all armed forces detailed for the protection of its territory, and assumed the duty and insisted on its right to exclusive control over all matters of needful defence of the same; and whereas this duty of defending the territory of Maine was so imperfectly performed by the United States government, that the territory was stripped of its most valuable timber before Maine could get possession of what remained to her after the ratification of the treaty of Washington, whereby a just and valid claim now exists against the general government which has been practically recognized by the federal authorities at Washington," cannot be called in question.

The matters involved in that controversy have often been presented, but their importance could not be realized at the time, and cannot be measured now without estimating the value of our institutions and forms of government in contrast with those of that nationality that now divides and holds dominion with us upon the continent of North America, and comprehending in some adequate measure the future of the race under two independent governments speaking a common language and striving for the same objects and the same destiny upon this broad theatre of the New World.

Vast as is our present national domain, it is less in extent than that of the colonial empire of Great Britain under the government of her North American provinces, and that empire in possession of such elements of strength as might lead her people to aspire to supremacy upon the continent had they commercial advantages such as would be secured to them by the possession of the sea coast of Maine. This sea coast was the chief object, as it was also the principal theatre, of the terrific struggles between France and England from the first occupation of the country by the European races, till its final surrender to Great Britain at the close of the French war.

Waiving, for the present, all discussion as to the comparative advantages of the two systems of government now brought prominently into contrast by the expansion of the colonial empire of Great Britain in North America, and looking only at the chances of war, we must estimate the importance of the question before us, in view of our exposure to danger by the wresting from us of a further section of the eastern frontier—affording thereby, as it would, increased means of offence to an enemy, and diminishing our own strength, in the event of a European war. All external dangers to our country—all dangers arising from the possible diminution of our territory—lie at the east and north, along our eastern and northern frontiers. An enemy might burn and destroy the cities and towns of the seaboard and in the central and southern States for the purpose of inflicting injury, as done, to some extent, in the war with England in 1812-15, but no

one would think of penetrating very far into the interior of the country. No foreign power will ever wage war on us for the conquest of the heart or central portions of the country. The eastern seaboard, the northern lakes, and portions of the Pacific States, would be seized upon as worthy objects of conquest. The possession of these, or either of them, would give strength to our northern neighbour, whether the country continued under the dominion of England or was transferred to France.

A war between France and England would naturally lead to a struggle for the control of Canada; and in the event of a war between the United States and Great Britain, Maine, all British North America, and the entire frontier from the mouth of the St. Croix to the Pacific Ocean, would be directly involved in the struggle.

The upper or interior provinces of Great Britain, originally belonging to France, with over a third of its present population of French origin, speaking their original language, and inheriting all the prejudices of their race, are situated, in reference to the commerce of the world, like the empire of Russia, dependent on the frozen Baltic or the narrow confines of the Black Sea. These British provinces form a vast empire at the north of our boundary, extending across the breadth of the continent. Shut up in winter from active participation in the traffic of the Atlantic Ocean, the great theatre of the commerce of our day, it was long since perceived that they must have better access to the sea than is afforded by the natural outlets of the country. The merchants of Montreal had long realized this necessity, and they naturally fell in with the views of their neighbours in Maine in 1844, and embarked their means in a common enterprise—a railway from Montreal to Portland. This railway has given Canada an open seaport, inviting thither, by means of this new avenue to the St. Lawrence, the capital and trade of British North America. Portland is made the winter port of Canada, and the packet station, for twenty-four weeks of the year, of its lines of ocean steamers.

This line of railway is as important in its military aspects as in its commercial bearings; yet it had never entered into the military calculations of our government till attention was called to it by the authorities of Maine. All former plans of the War Office and of the Engineer Bureau were based on the idea that the route by the valley of Lake Champlain was the only one between the St. Lawrence and the seaboard till the valley of the Kennebec was reached, while the prescience and forecast of commerce connected the St. Lawrence and the Atlantic seaboard, in a favourable latitude, at the points where the navigable waters of each approach nearest—Montreal and Portland. One of the boldest and most successful of the commercial enterprises of modern times was the construction of this line of railway, with its extension across the Victoria bridge at Montreal, and to the foot of Lake Huron, affording an uninterrupted line of railway, of uniform gauge, for the transit and transfer of freight, without change of cars, from all the lake ports from Sarnia to Montreal, into ocean steamers and sailing vessels at Portland harbour.

This magnificent river of commerce, though but a few years in operation, has already influenced the direction of business, if not changed the course of trade. Western produce, destined to Boston and other eastern New England ports, comes, to some extent, already by the way of Portland, over the Grand Trunk Railway, while eastern Maine and the lower provinces look more and more to this route every year for their supplies. Montreal is commercially situated, in reference to Portland, as Albany and Buffalo are to New York city, or Paris to Havre, in France. With the growth of the north-west, and the development of the lake trade, this comparison will be the more striking, for at this point on the St. Lawrence, during the season of navigation, the transfer of goods from canal boats to sea-going vessels is effected. Hence, Portland and Montreal will naturally seek one commercial law for themselves, if not for the entire English-speaking and English-governed people of the continent. The commerce of these two cities has been rapidly developed by the railway. The import trade of Montreal increased from 9,245,884 dollars in 1852, to 20,529,893 dollars in 1862. Her exports were 2,119,228 dollars in 1851, and 10,415,738 dollars in 1861. The foreign imports into Portland in 1849 were 498,346 dollars. In 1863 they amounted to 9,034,520 dollars, including 8,419,005 dollars passing into Canada, without the payment of duties. The exports of Portland to foreign countries were valued at 643,529 dollars in 1849; in 1863 they reached a valuation of 5,018,356 dollars. These recent triumphs of the arts of peace, disclosing more distinctly the natural relations of the two countries, must influence the action of our national government—called upon to meet the new necessities which the experience of the hour and the civilization of the age call forth.

While extending national dominion, by the rapid expansion of our population, wealth, and material power, on each side of the continent, on the north and east by the surer conquests of the arts of peace, and the more intimate relations of commerce and trade, unmindful of political dangers at home, the people of the northern States are summoned to new duties by the stirring scenes of civil war. Called to meet this new order of events, it is their duty to contemplate the certainties of the future. The future that lies before us is not that golden age anticipated and heretofore predicted by a hopeful view of past history. Our golden age is past. The future of our government must be one of stern responsibility, in view of the accumulated experience and burden of this hour of trial.

Our nation must soon be called upon to take the responsibilities of a great military and commercial power among the nations—duties heretofore unknown to American statesmanship—instead of yielding a blind submission to manifest destiny—a half formed trust in accident and Providence.

British North America, holding the chief command of the North American fisheries, and all the outposts of the continent east of the St. Croix, has to-day an extent of territory greater than was ever included in the boundaries of the American Union; and though its

frontage on the Atlantic Ocean and the northern seas above the St. Lawrence is of comparatively little value for settlement, the eastern districts are full of all the elements of wealth; and the vast interior above our northern border, including the Pacific slope and the regions drained by the rivers of the north, contains more arable wheat growing land than the entire region of the United States lying between the Missouri River and the Pacific Ocean. This country is destined, in time, to sustain a population as dense as that inhabiting the same latitudes on the eastern continent, in northern Europe and Asia, and could sustain a population as great as that now under the dominion of the governments of Russia. Wheat is raised over a breadth of more than eleven degrees of latitude north of the forty-ninth parallel, and Indian corn can be grown north of the forty-ninth parallel of north latitude, over the vast and well watered table land plains of the north-west.

Dividing with us the empire of the great lakes; holding the outlet of that vast mediterranean sea, the St. Lawrence, from the forty-fifth parallel to the ocean, they can control the trade and the transportation of all the north-west, competing with us for the trade of the entire lake basin. Ships of a size capable of navigating the ocean can pass through the canals to Chicago and Superior city; and there is no reason to doubt that railroads and canals will yet connect Lake Superior with Lake Winnipeg, and the 750 miles of the navigable waters of the Saskatchewan send its traffic through this route to the Atlantic. There are those far seeing enough to predict that in time, through these great watercourses of the north-west, by connecting Frazer's River with the Saskatchewan River by canal, goods may be waterborne from the St. Lawrence to the Pacific seas.

British statesman ship, if not British diplomacy, has for the last fifty years concerned itself mainly with questions of colonial empire. The war of 1812 revealed the weakness of her North American possessions, and confirmed the opinion of King George the Third, who objected to the St. Croix in 1783, and insisted on the Piscataqua as the boundary; and they agreed to a peace, as they saw our government gathering strength for a continuance of the struggle. Maine penetrated like a wedge from the Atlantic seaboard to within almost cannon shot distance of the St. Lawrence, practically severing the communication between the upper and lower British provinces. The only route between them, from the harbour of Halifax, her great naval station on the continent, to Quebec, the military fortress of the St. Lawrence, was across the territory of Maine, through the valley of the St. John's. Troops were landed at Halifax in midwinter, pushed through to Canada by this route, enabling her to strike our forces on the northern frontier, with their glazed veterans from the battle-fields of Europe, before our forces in the north-west were aware of their danger. The value of the St. John valley for military purposes was then fully understood by her, and she closed the war by the treaty of "peace and amity," concluded at Ghent, December 24, 1814. By the 2nd article of this treaty it was agreed that every-

thing was to be restored to the *status ante bellum*, except certain islands which were to be made the subject of examination and future settlement. By this treaty, however, we were completely overreached and outgeneraled.

Prior to this no question was ever raised as to the boundary between New England and the British possessions, for, to use the language of the best English geographer, Professor Long, "No language could have been made use of, with the then existing knowledge of the physical geography of the country, more clearly establishing the right of the United States to the entire territory than that employed in the treaty of 1783."—(See Library of Useful Knowledge, *History of North America*.)

The treaty of Ghent, article 5th, provided for the appointment of commissioners to run the line, &c. It further provides that, "If the said commissioners shall agree, &c., such decision shall be final and conclusive."

"And it is further agreed, that in the event of the two commissioners *differing upon all or any of the matters so referred to them, or in the event of both or either of said commissioners refusing or declining, or wilfully omitting to act as such,*" &c., "some friendly sovereign or state to be then named for that purpose who shall decide," &c.

By this language Great Britain found a chance to escape from her treaty obligations. She set up a show of good faith; appointed her commissioner, under the 5th article of the treaty, to run and mark the boundary line, from the source of the St. Croix to the head of the Connecticut River; appointed her commissioner to determine the channel of the St. Croix, as provided for in the 4th article of the treaty, and another commissioner to establish the line in the channel of the St. Lawrence River, as required in the 6th article of the treaty. The two latter commissions were executed; one on the 24th of November, 1817; the other on the 18th of June, 1822.—(See *Statutes at Large*, vol. viii. pp. 250, 274.)

But the attempt to execute the commission for the running of the line, under the 5th article of the treaty, failed. The commissioners were named in 1816. Our government appointed Mr. Johnson; the British government selected Mr. Bouchette; they met at St. Andrew's, September 23, 1816, and the work was undertaken and partially performed in the years 1817 and 1818. Mr. Bouchette was removed, and Mr. Odell, a more pliant surveyor, substituted, and under imperial instructions the contingency provided for in the 5th article of the treaty of Ghent happened, by the *refusal* of the British commissioner, on the 23rd of October, 1820, to carry out the work; and our government was forced into the agreement for an umpire—a reference to a friendly sovereign or state. Such an opportunity for the exhibition of bad faith was never suggested as a possibility to the minds of the honourable American gentlemen who negotiated the treaty, any more than the thought that it was possible for Great Britain to demand in our day the surrender of the rebel emissaries, (emissaries,) Mason and Slidell, contrary to all her previous declara-

tions, the uniform hereditary policy of her government, or, what is still more recent, an apology from our government for the seizure of the pirates of the Portland steamer *Chesapeake* in a provincial harbour.

Maine always comprehended the question and insisted on maintaining possession of the territory. The State of Massachusetts holding, at the time of the treaty of 1783, jurisdiction over the district of Maine, granted the townships of Eaton and Plymouth in 1807 and 1808, both lying north of the Aroostook River, and within the territory subsequently brought into dispute.

Hon. Mr. Stevenson, writing to Lord Palmerston on the subject of the British claim, under date of April 21, 1838, says:—"It has only been since the treaty of 1814, and the failure to obtain the territory by cession and purchase, that the claim has been set up," &c.—(Parliamentary Papers of 1838, appendix, page 80.)

The instructions to the commissioners in 1816 were to run due north till they reached the waters flowing into the St. Lawrence, which carried the line far north of the St. John River.

From the time of her refusal to run and mark the boundary line, to the ratification of the treaty of Washington, the conduct of Great Britain was alike distinguished for the absence of honourable dealing and the abundance of her expressions of her distinguished consideration. Our government dreaded war on what was esteemed so slight a pretext as the loss of a portion of our territory, and hesitated, instead of insisting on running the line, or an interruption of friendly relations. Had they insisted, there is no doubt that the line would have been run and established, and the whole matter closed, twenty years earlier, without loss of territory, of honour, or the shedding of blood.

The appointment of the King of the Netherlands, under the convention of September 29, 1827, as arbitrator, failed to settle the controversy. He awarded the bed of a river, in the execution of a commission to find the highlands separating the waters that flowed in opposite directions, from the north-west angle of Nova Scotia to the head of the Connecticut River. The absurdity of such an award served only to excite ridicule, and the Senate of the United States, by a vote of 35 to 8, rejected the award, as not responsive to the submission. But Great Britain gained time. While agreeing to abstain from exercising jurisdiction over the territory, she hesitated not to violate this contract. Sir Howard Douglas, as governor of New Brunswick, in 1824, gave licences to cut the timber, and assumed jurisdiction over it. Our government protested against these proceedings, as extracts from public documents will show.

*From President's message, December 4, 1827.*

"While these questions [boundary, &c.] have been pending, incidents have occurred of conflicting pretensions and of dangerous character upon the territory itself in dispute between the two nations.

*By a common understanding between the governments, it was agreed that no exercise of exclusive jurisdiction by either party, while the negotiation was pending, should change the question of right to be definitively settled."*

*Mr. Clay, Secretary of State, to Mr. Vaughan, British Minister, November 17, 1827.*

After reciting instances of British jurisdiction on the Aroostook River, Mr. Clay concluded his note in these words:—"The proceedings which it discloses *being incompatible with the rights of the United States*, at variance with that forbearance and moderation which, *it has been understood between us were to be mutually observed*, and exhibiting the exercise of rigorous acts of authority within the disputed territory, which could only be justified by considering it as constituting an incontestible part of the British dominions, I have to request such explanations as the occasion calls for." Subsequently Maine was ousted of all jurisdiction.

*Mr. Van Buren, Secretary of State, to Governor Smith, March 18, 1831.*

"I am instructed by the President to express his desire that, while the matter is under deliberation, no steps may be taken by the State of Maine, with regard to the disputed territory, which might be calculated to interrupt or embarrass the action of the executive branch of the government upon the subject."

*Mr. Livingston, Secretary of State, to Governor Smith, October 5, 1831.*

"In directing me to make this communication, the President has instructed me to ask for such information on the subject as you may possess, and to add the expression of his earnest wish that no measures may be taken by the State authorities that will change the state of things, before the whole subject can be acted upon at the ensuing session of Congress."

*Same to same, October 21, 1831, in reference to a note to the British Chargé d'Affaires.*

"You will observe the extreme desire of the Executive of the United States to conform with scrupulous good faith to the *arrangement made with the Minister of Great Britain* for preserving the state of things as it then existed on both sides until a final disposition could be made of the question."

*Governor Smith to Mr. Livingston, November 10, 1831.*

"In your last letter I am informed that an arrangement was made with the Minister of Great Britain for preserving the state of things as it then existed on both sides, until a final disposition could be made of the question, and that the arrangement was communicated to me. I can only state in reply, that until your last letter no notice of such

an arrangement was ever received by me, and no copy of it can be found among the archives of this State. Though allusion is made to such an arrangement in the correspondence between Mr. Clay, former Secretary of State, and my predecessor, the late Governor Lincoln, it was then stated to have been violated by the British authorities.

During the whole progress of this negotiation Maine has continued respectfully but decidedly to remonstrate against proceedings directly involving her rights and interests as a State, and to which her assent was never requested. She contends that the United States have not the power, by the federal Constitution, to alienate, by negotiation or otherwise, any portion of the territory of a State without the consent of such State. She opposed the submission of the question to arbitration."

The ascertainment of the line of boundary in the manner provided for in the treaty of Ghent was exhausted by the reference to an arbitrator and the rejection of his award. The only mode left for carrying out the treaty was the appointment of a new commission and the running out of the line. Great Britain declared this to be impossible, and so pertinacious was Great Britain in insisting on holding on to the territory, that our government was induced to enter into negotiations for its purchase. It is a source of mortification to an American citizen to read the correspondence and to observe the paltry quibbles and silly subterfuges by which, for years, our government was deluded and led off from the question in issue, till at last the unthinking mass of the people of the country got tired of the dispute, and favoured a settlement on any terms. In all her negotiations the British government kept this one idea in view; to use the language of her Minister at Washington, Sir C. R. Vaughan, of July 4, 1833, to Lord Palmerston:—"Great Britain must contend for ever for an uninterrupted communication by the usual and accustomed road between Halifax and Quebec.—(Parliamentary Papers, p. 36).

Our government proposed new lines of boundary, for the sake of peace. It offered to treat on other matters in connection. This inspired England with courage, and our national government finally listened to proposals for "a conventional line."

Maine was offered one million acres of land in Michigan by General Jackson's cabinet, selected by her and located in a square form, in case she would submit to the award of the Dutch King. This offer she declined, and by resolutions unanimously adopted, called on the federal government to run and mark the boundary line.—(See resolutions of Maine, of March 25, 1837.) Great Britain renewed her demand for a conventional line. On the 28th of April, 1835, Mr. Forsyth, United States Secretary of State, informs Mr. Vaughan, the British Minister, "that the President does not possess the power to establish a conventional boundary without the consent of the State of Maine."—Parliamentary Papers, p. 83.)

Lord Palmerston, in his reply of November 19, 1837, daunted by nothing, notices this statement of the rights of Maine, and combats it to avoid giving an answer to the distinct proposal made by Mr.



Forsyth for a new commission "to trace out the line." The proposal made by our government, "that a commission of exploration and survey should be appointed for that purpose," is evaded and finally declined. Lord Palmerston proposes the removal of "*the constitutional difficulties*" by "a new agreement for a conventional line." and says, "*it would be indispensable that the State of Maine should be an assenting party to the arrangement.*"—(*Ib.* p. 98.)

Maine, seeing the stripping and wasting of her lands, renewed her request year after year. Our government would do nothing. New Brunswick, without any shadow or pretence of title to the territory, lying as it did west of the due north line from the St. Croix, which had always been the western limit of the territory of Nova Scotia, and in later times of New Brunswick, was giving permits to cut the timber, appointed a warden over it, and hesitated not to grant titles to the land.

Maine sought to protect the territory from spoliation by force in 1838 and 1839, and brought on what is known as the Aroostook war. The general government then interposed its paramount authority, and forced Maine to retire from the territory, or encounter a war with the United States.

Great Britain achieved her object. She made Maine the party on one side, and the government of the United States the nominal party for her benefit on the other, ready to agree to any terms that could be extorted from Maine.

Mr. Webster found the controversy thus made up when he became Secretary of State in 1841. He was not inclined to regard it in any other light than as one belonging to Maine, rather than one affecting the highest interests and honour of the nation. The country demanded at his hands a settlement of the question, for which task no one of his predecessors had been equal. His great power, and his vast influence over the minds of the people of New England, alone enabled him to force a settlement of the dispute. The general government during all the previous negotiations, had declined to look at its merits, and demand a settlement on the ground of title, and face England on the true issue, though the Senate had declared the title of Maine "clear and unquestionable."

Maine, deserted by the national administration, was forced to yield to the demands of power, or wage war single handed for her rights, not only against the British government and her colonies, but against the government of the federal Union. She was, in this way, robbed of 5,012 square miles (3,207,180 acres) of territory, larger in extent than the State of Connecticut, or rather forced to yield it; dispose of it for the paltry sum of 300,000 dollars, a sum not one tenth the value of the timber taken off the territory by provincial trespassers.

Great Britain would, no doubt, have paid millions sterling for the acquisition of this territory, but such an idea as making a bargain for money never entered the minds of the people of Maine. They knew the value of the territory,—for it was covered with timber; its rich soil and favourable position for purposes of settlement; and its mili-

tary importance to the country, and they scorned the idea of making money out of it by a surrender. In the heated secret debates of the legislature of Maine, on the proposal of General Jackson to pay the value of the land taken by the Dutch King's award, no man ever dared to raise the suggestion of making money out of the question. He would have been for ever execrated as a traitor. The feeling throughout Maine was universal, that it was a crime to sell it; parting with an invaluable military outpost would be a political offence, akin to the treason of Arnold. The United States government, with the same reason, might, as they believed, give up by treaty, and surrender the right to levy duties on imports, to appease the commercial cupidity of Great Britain.

To make a show of title, England, after 1817, set up a claim to, and exercised jurisdiction over, the entire St. John basin, including that part of Maine lying west of the due north line from the source of the St. Croix, containing 12,027 square miles, equal to 7,697,280 acres, though she only wanted a military road across it. The treaty of Washington gave 5,012 square miles of this territory to England, and left 7,015 square miles to Maine, equal to 4,489,600 acres, from all which the more valuable timber had been taken off.

(To be continued.)

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#### DARTMOUTH HARBOUR AND ITS IMPROVEMENTS.

The harbour *proper* of Dartmouth may be considered as included within a line drawn East and West (true) from Kingswear Castle to St. Petrox Church, and extending in a North and South direction for rather more than two miles: the *average* width between the shores being about one fourth of a mile. The depth is considerable, there being in the outer portion of the harbour one eighth of a mile in width with from 24 to 66 feet, and at some points between 70 and 80 feet of water; whilst in the inner portion, lying to the North of Kingswear, there is a width of nearly one eighth of a mile with a depth for the most part from 8 to 30 feet, and in a few cases somewhat more, at dead low water of ordinary springs.

The anchorage is good holding ground, and from the configuration of the shores and the great height and proximity of the surrounding hills, the inner portion is completely landlocked, and affords admirable shelter from every wind, without any sea wave whatever. It is a most valuable natural Harbour of Refuge, and is largely used as such, as well as a port of call for "orders."

In all ordinary weather vessels may enter during the period of flood tide and leave during the ebb, or with strong leading winds they may enter or leave independently of tide. But with strong foul winds entering or leaving is found to be a matter not so easy for sail-

ing vessels, and the assistance of a steam tug under these circumstances is necessary. With such assistance, however, vessels enter and leave regardless of the state of the tide, as there is ample depth of water for the largest class of merchantmen at dead low water. There is at present a steam tug at Dartmouth, whose rate for towing vessels in or out of harbour is twopence per ton, a charge which is quite just and reasonable.

It has been said that Dartmouth is at present what is called a "blind harbour," the meaning of which applied to this port is, that it is not easy to make out or discover, and this arises from the narrow entrance, the general similarity of the cliffs on either side, and the absence of any special or remarkable feature close to it. The remark, however, does not apply to vessels at any great distance, as the peculiar configuration of Berry Head, which is about five miles on the N.E., and the great projection into the channel of the Start Point, which is seven and a half nautical miles on the S.W., will always enable the mariner when working up or down Channel by day in ordinary clear weather to shape a good course for Start Bay, in the north-eastern part of which Dartmouth is situated, and the first class revolving light on Start Point serves equally as a guide by night. But it is by vessels coming in from the southward and south-eastward, when within about ten miles of the land, that at present difficulty is experienced in discovering the entrance of Dartmouth Harbour, and this it is proposed to remove by some of the works which we are now about to describe.

They consist of the erection of a new lighthouse on the Kingswear shore, the blasting of the Pin Rock, and the erection of a day beacon on the eastern shore of the harbour, of the expediency of which there can be no question whatever as the Elder Brethren of the Trinity House have given their full approval of these works, and the advantages which will be derived from them when completed will be the greatly increased facilities which they will afford to vessels taking the harbour either by day or night. In accordance with the recommendation of the Elder Brethren, the lighthouse will show a green light on the S.W. side of the line of channel, and a red on the N.E. side, the fairway being shown by a white light between them. The turning point up the harbour will also be marked by a gas lamp showing green on the S.W. and red on the N.E. and white in the fairway, the white light being *masked* until the Gun Point Shoal can be cleared. Both the lighthouse and the day beacon are substantial stone structures, the works having been performed by contract, and the masonry in each far advanced, as the commissioners are desirous of bringing these works into use as early as possible during the coming winter, which is obviously most desirable. The ground at the base of the beacon, which is on high land above the outer Froward Point, is about 500 feet above the sea, and from base to summit when completed the beacon itself will be 80 feet, and will form an admirable day mark, and the site both for this and the lighthouse are well chosen and have been approved by the Trinity House.

Instead of whitening the Mew Stone, as proposed by the commissioners, we would rather that a portion of the Shorter Rock, which is only about 150 yards to the westward, be so treated. This rock is about 60 feet above high water mark, and should be whitened on the face which lies E.N.E. and W.S.W., for a breadth of 50 or 60 feet from high water mark to the summit. The southern face of the light tower at Kingswear and the East face of the building at Dartmouth, where the gas lamp will be placed for showing the turning point of the harbour, should also be painted with alternate white and black (or red) bands, to make them more distinguishable as day marks.

The removal of the Pin Rock down to the level of at least four fathoms below low water at ordinary spring tides must be regarded as an essential feature in the proposed improvements at Dartmouth, and a recent accurate series of soundings which has been obtained on it, shows that this shoal or patch of rock is about 200 feet in length, measuring from East to West, and 140 feet from North to South. That there are also two points or pinnacles, over the easternmost of which there is 15 feet of water at low water of ordinary spring tides, and 21 feet over the westernmost point or pinnacle. To lower the Pin Rock to such an extent as that no portion of it shall have less than four fathoms of water at low water spring tides, it is ascertained will require the removal of about 70 cubic yards, and it further appears that the quantity necessary to be removed between the 4 and 5 fathom lines, would be about 600 cubic yards or more. Samples of the rock were obtained by a diver, from an examination of which it appears that it is not of the same character as those on and adjoining the shores on either side of the harbour entrance, since the samples taken from different parts of the rock prove that it belongs to the *trap* formation, and is very hard, whereas the rocks along the shores belong to the "clay slate" formation.

In addition to the above there will also be constructed a quay and jetty within the harbour, the advantage to be derived from which when completed is the great facility which will be afforded to vessels for discharging and taking in cargoes directly into or from the railway trucks, which will be brought along the jetty and wharf. The northern face of the jetty, as designed, will have 21\* feet depth of water at low water of spring tides, and the other part of the wharfage about 7 feet at low water of springs, which will be a great accommodation to fishing and other small craft.

These improvements are all that Dartmouth can require to finish what nature has done for the harbour: such abundance of depth is a quality rarely found, and this Dartmouth has both inside and out, with the only drawback of the 15 feet danger off its entrance which it appears may be easily removed if not easily avoided, and with marks by day and the light by night, it will we believe be rendered one of the most accessible as it undoubtedly is the *safest* of all the ports which we possess in the Channel, applicable alike both to mercantile and naval purposes.

\* This may and probably will be increased to 25 feet or more, if found necessary, by dredging.

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

[(Continued from p. 474.)

The great establishment which bears the name of the Bank of England extends over a piece of ground bounded by four streets. In one of these, Lothbury, is a long line of building which we may call the back front of the bank. Here there is the large door of a wide entrance, studded thickly with heads of large iron knobs, the door being fixed in a stone archway with an iron grating behind it fitted to two solid iron folding doors. At the inner side of this archway is a second iron grating, and beyond it an open court, facing which is a third iron grating, closed and doubled to a certain height with strong sheets of iron. In the thickness between these are narrow wickets, or a sort of recess, from which soldiers behind the gratings could fire on a crowd of assailants without being in any way exposed. This arrangement was made at the time of the chartist movement. In England state reforms being all effected by legal means, it might have been easily supposed that the object of the chartists was plunder. This third grating is the protection of a second court, covered over at a good height with glass. Some conveyances which, judging from the strong horses attached to them and the impressions of their wheels on the roadway, must have been very heavy, entered from time to time by the two archways into this second court, where they stopped before a door over which appeared "Bullion Office."

The English give the name of Bullion to gold and silver in any other condition than that of money. These conveyances, in fact, deposited at the door of this office some white wooden boxes which contained the metal. As may be supposed, the public is excluded from this court, and any one having admission either on account of business or by special permission, on entering finds himself in a glass roofed passage, where right and left of him he sees large rooms with high arched windows, a profound silence prevailing. In the room to the left of the door the ingots of gold are received, weighed, and verified. In fact, the Bank of England is required by law to purchase gold of standard purity, which generally costs £3 17s. 9d. the ounce. When the Californian and Australian discoveries were made, it was said that the value of gold would soon fall. Since 1848 nearly 160 millions of pounds sterling have been added to the riches of Europe and America; but the predictions of the economists have not yet been realized. Did they consider well the state of the case? First, the manufactures in which gold is employed are always on the increase, and then there are the very few places in which it is found on the surface of our globe, and in consequence of this last condition, geologists have never joined the opinions of economists on the future depreciation of gold. But the gold of the Bank, wherever it may come from, and in whatever form it may be, is first as a measure of precaution weighed on its receipt at the bank. It is quite true that there are means of determining the quality of it,—the method adopted of doing this is to cut off a

piece of an ingot and assay it: but even in this way fraud might not be avoided. The ends of the ingot might be pure and still the middle of it might not be so. And therefore to avoid all chance of deception (for a very serious business this would be) the bank finds it necessary to melt down all the gold and silver that is brought there. This very delicate operation, which requires a furnace and chemical applications, is not performed at the bank itself, but is entrusted to a distinct set of workmen of an establishment in London, known by the name of gold melters and refiners.

This same street of Lothbury, which runs along the back of the bank, contains a little alley called Founders Court. As often happens, the name remains although the origin of it is unknown, and being in the vicinity of the bank would imply that it was formerly the resort of founders; but there are none there now. There are only three great establishments of this kind in all London, which are those of Rothschild, Browne and Wingram, and Johnson and Matthey. These are in reference to the Bank of England, for there are others, and especially in Clerkenwell, where many more applications are made with it and it is prepared for the goldsmiths. The foundry of Rothschild is far more considerable than either of the others, but as it only employs foreigners, it may be as well to confine ourselves to an English house. On visiting that of Messrs. Browne and Wingram, gold refiners for the Bank of England, in company with one of the chiefs of the Bullion Office, I was enabled to pick up some information on the subject of gold. We proceeded across a number of streets to Wood Street, encumbered by carts and drays discharging merchandise by means of cranes into warehouses. Over our heads there were always clouds of pigeons flying about in spite of the smoke, no doubt waiting for the conclusion of business, when they might descend to their repast on the corn spilt here and there by the feeding of the horses. This flight of nature if so they may be called, is soon over, and we found ourselves in Wood Street, one entirely dedicated to commerce, but at the corner of which at Cheapside stands a large tree, which shelters, in spite of everything, a cold empty court, which was formerly a cemetery. It is for the antiquaries to reckon the number of trees, here veritable prodigies in their way, that have survived, one scarcely knows how, the deluge of population in the city of London, in spite of the smoke of factories along with the progress of bricks and mortar, disputing always for every inch of ground.

We entered a large doorway, where no name appeared and nothing to indicate what it was, and found ourselves in the middle of a court in which, in the midst of some stone steps, stands a pump, which looked like a gaslight pedestal. And here we saw before us three passages, on the left a common looking house which seemed to be a Methodist chapel, on which appeared in distinct characters, "No Admittance," and on its right those of "Counting-house," and it was by this door we entered what the English call the premises.

The counting-house, which is literally where the accounts of the establishment are kept, is an old large room, tolerably lighted, with

wooden steps, tables, and a kind of circular counter, behind which were the operatives. But what most attracts the attention on entering is the number of scales of all sizes and capacities, for in the business of gold and silver it is necessary to have the most exact instruments even to a scruple. Nor would the nuggets of gold lying about here and there in a kind of negligent profusion fail soon to claim the attention. The master refiner, a most intelligent and amiable gentleman, immediately volunteered to initiate me into the secrets of the establishment, when from the counting-house we passed to a place called the safe or treasury. This is a sort of arch roofed chamber in which the gold and silver is collected, and here are riches that would set even Croesus himself longing; massive ingots of silver, far too heavy for one to lift, and masses of gold as well as dust in the condition in which it has come from the boxes in which it crossed the ocean. The work here consists of three kinds, each confined to a separate department: there is the melting room, the refining room where the lead or copper is separated from the metals, and the parting room, that in which the gold is separated from the silver and this from the gold. We will first look at the foundry.

This is a large handsome room with floor and roof of iron and brick walls, and what when outside of it we considered was a chapel; but the interior has much more resemblance to those condemned places to which Methodist preachers often condemn their auditory. At any rate it may be safely called the purgatory of the precious metals. In this melting room there are twenty-two furnaces, which burn coke, and when they are all in operation 32,000 ounces of silver or gold are undergoing the process. At the time of our visit there were nuggets of gold which had been in the exhibition of 1862, one with another weighing 200 ounces, and these were from Australia; and at the same time there were masses of silver some of which had been previously broken by a steam hammer, the weight of which was 12 tons. The gold nugget was first placed in a clay pot or crucible. These pots are made in all sizes, but of the same form nearly, and are ranged by hundreds on their smoky shelves along the whole length of the room. Then the iron doors which shut up the ovens were opened, and a fire in each was seen of so powerful a brilliancy that the eye could scarcely withstand it; the crucible is placed in this fire, and as soon as the metal becomes in a state of fusion a workman with an iron instrument skims the surface of the boiling metal, be it gold or silver. This scum of gold is still precious; it is carefully preserved and undergoes a washing process for removing the valuable portions from it. In about twenty minutes, the face of the melted gold (for that is the expression of the refiners) shows clear, and the light of it is so vivid that the workmen only can look at it, but strangers are more inclined to contemplate it through the medium of a violet coloured glass, similar to that used in an eclipse of the sun. However, the workman has a mould prepared terminating in a point, and after throwing a little black powder on the luminous surface of the metal, he takes the crucible from the fire with pincers, and pours the liquid metal into the mould.

It is then carried into another room to be cooled by being immersed in water, and in three or four minutes is brought back to the foundry, (for gold soon cools,) but it changes colour while doing so—from red it has become yellow. Gold generally requires to be melted several times, and to have borax applied to it before the extraneous matter can be separated from it entirely; but here the general process only is mentioned.

As to silver, this goes through much the same process, only it is generally melted in much larger quantity and in deeper pots. On the day of my visit to the establishment there was in the fire a crucible already heated, into which were thrown some old Spanish coins, and which gave a clear harmonious sound in falling. The workman had prepared a mould, in the inside of which he scattered some powdered chalk, as a cook would use flour, then taking the crucible from the fire neatly, a stream of liquid fire ran from it, and the mould being afterwards overturned, the workmen with large pincers laid a large mass of burning silver on the iron table, from which went forth scintillations of fire.

Next to the melting room is another in which silver is refined, and is called the refining room, in which there is a reverberating furnace, a name given by the workmen to a large furnace so constructed that the flame reacts on the metal exposed in it. The mouth of this furnace when lighted presents a beautiful sight; for some moments nothing but a rushing of fire and flame, at others, on the contrary, the liquid metal is seen like the surface of a lake under a light breeze, with the whiteness that would be imparted by moonlight to its gentle waves. This serves to separate the silver from the lead and copper, which drips into a compartment under the furnace. We have said where the gold comes from, but whence comes the silver? It would seem that nine tenths of this metal that comes to England is from South America and Mexico. But Great Britain produces thirty millions of ounces of silver from her own mines, thanks to science for the method of separating it from the inferior metals. The refining process then is an operation for purifying the metals.

One of the principal sources of profit in the business of the refiner consists besides in extracting the gold from the silver or the silver from the gold, and in this respect he works on his own account. For instance, he buys the ore in the metal market, for which he pays more than the current price, intending to make up the difference by his means of separating the two metals. This is a delicate operation, in which the resources of chemistry are employed in the parting room. This is lighted from a glass roof and contains gas furnaces resembling those of oil, but each of which, known in England by the name of retort, is formed of platinum, and costs each about a thousand pounds sterling. It is true that they have the good quality of being most enduring, for after the work of ten years they are as good as on the first day of use.—One must not suppose therefore that they practice the maxim of doing nothing for a long life: the impure silver is being continually spilled on gold ore, and this on an amalgam of



nitric acid, while a thousand jets of flame are acting on the bottom of the vase. Instead of this nitric acid sulphuric acid might be used more economically, but it is interdicted in the city of London for sanitary reasons. Mr. Rothschild, whose establishment is on Tower Hill, uses sulphuric instead of nitric. The liquid is soon in a state of ebullition, and after a certain interval of time one of the first results is a divorce between the gold and silver. The gold falls into a lower reservoir of the retort in the form of grains, with a brownish colour, not to be mistaken by experienced eyes. There remains then the silver water, that is to say, the nitric acid in which the silver is in a state of suspension. This water is thrown into large troughs, and the part of the refiner is now to detect the silver, which to a certain extent disappears in the liquid. It is a business of several days, but the progress of separation may be detected gradually going forward by which the metal and the acid are recovering their natural conditions. The first troughs to receive the liquid, show a murky green colour, the surface of it being covered with a thick froth, which froth, of a nasty appearance, contains the dissolved silver. After three or four days this same water becomes azure and transparent, something like that used by washerwomen when they blue the washed things. Slight pieces of froth appear here and there on the surface, and copper plates being introduced into the fluids, produce a galvanic action, and throw the silver into the bottom of the trough. There may be in each of these tubs 800 ounces of silver, or, I may say, of silver slime, for the most valuable metal next to gold appears up to this part of the process as a dirty substance from which little might be expected. In fact, the refiner's art consists in worrying the metal in all possible ways; he changes it into water, into slime, into crystal or salt. I have seen in a neighbouring outhouse the result of each of these metamorphoses, and among others on a kind of tray a dry powder of a dull gravel colour spread over it, at which I could not help exclaiming, "You don't mean to say that is silver?" I hope so, answered the master refiner with a smile, otherwise I should be a great sufferer! It was, indeed, silver of the purest kind, and only required to be passed through the fire to prove it.

These establishments require a very considerable capital. Not satisfied with refining gold and silver for others, the master refiner purchases for himself and works on his own account. The establishment of Wood Street employs twenty-eight workmen: it was formerly the custom of the house to employ only Welchmen, but this has been departed from, and the workmen are from any where, but they are always a race of men distinguished for their stature, well formed, and of Cyclopean proportions. They work generally in blue jackets, brown paper caps, and thick gloves to defend the hands from the heat of the fire, and there has never been an instance of any portion of the metals perpetually before them being improperly abstracted, an honesty of character which is considered most important. Most of them receive something less than two guineas per week. It would seem that the habit of seeing gold and silver flowing through their hands produces

an indifference towards it. A portion of the metals goes from the foundry into commercial hands, as for the purposes of the arts two million five hundred thousand pounds sterling are said to be employed annually, while in France not more than one million sterling is thus employed. But a very much larger amount of gold and silver goes from the establishment to the Bank of England.

The ingots marked with certain figures which declare their identity, are received at the Bullion Office of the Bank of England, where they are weighed afresh in the most unerring scales, and such is the sensitiveness of these machines, that a morsel of paper not larger than the palm of the hand thrown into either balance will turn it. The quality of the gold is next tested; and when all the ingots have gone through these proofs they are placed on a truck and conveyed to one of the vaults of the bank. These vaults with their stone passages branch off from each other like the subterranean galleries in the crypt of a Romish church. Gas lights burn there all day and mingle their light occasionally with that of the sun. In these arched passages what the ancients used to call the sun solidified also shines. The trucks in their characteristic form are here seen on which the bullion is carried, but now ranged along the wall and loaded with their massive ingots, which by their form and thickness resemble bricks of gold. What these obscure carriages have transferred from one part to another in the way of riches is almost incalculable. On the day when I visited these places attended by Mr. Alfred Latham, the Governor of the Bank, there were one hundred enormous ingots in each truck, representing the value of 80,000 pounds sterling, and I counted in one recess only twelve of these trucks similarly laden. One need not be astonished then at the iron gratings or the other means of safety for the exterior as well as the interior of these casemates of gold. But if tradition is to be credited, (which it must be added the officers of the Bullion Office do not admit,) even all these precautionary measures have failed to afford security, and many years have not added proof to a circumstance said to have occurred, which is thus related:—

The directors of the bank one day received an anonymous letter telling them that some one had found the means of penetrating into the part where the bullion was kept. This was looked upon as a mystification to which no attention was paid. A second letter followed, and afterwards a third, in which the writer proposed to meet the directors in the bullion room at any hour which they might name. The most lively curiosity was excited and an answer was sent to their strange correspondent by the channel which he had named, and the time of midnight was appointed. Accordingly, persons deputed by the directors, with lanterns in hand, repaired to the place to wait the result of the mystery. At the appointed hour a subterranean noise was heard. Some flags of the massive stone pavement were lifted and a man appeared from them. He stated that he had possessed the secret of an old water course which ran under the room, and by means of it he had formed a passage. His statement was verified, and he was rewarded for his honesty for having found this defect from which

he might have largely profited. But now such discoveries are not possible: there is no subterranean conduit, and at night a guard of soldiers and policemen watch like the dragon of old this modern golden fleece.

For what purpose is the bullion destined which sleeps in the Bank of England? Sleep is the proper word, I think, for as yet it has done nothing else, and besides it is surrounded by silent twilight, like a millionaire to sleep in its chamber. But one day or other it will be sent to the Mint to be converted into pieces of money. The bank, in fact, serves as the intermediate establishment between the gold merchant and the ancient company of money makers who belonged to the government. Is then the intervention of the bank in this respect necessary? By no means. The proprietors of the bullion can go to the Mint at any time. In so doing they have the slight advantage of three halfpence for every ounce of gold coined, for the bank pays three pounds seventeen shillings and nine pence the ounce, and the Mint takes it at three pounds seventeen shillings and ten pence halfpenny. But they must attend several days previous to coining the sovereigns, and following up the maxim that time is money, they find it the more to their advantage to receive the bank notes immediately in exchange for their ingots. The Bank of England then purchases nearly all the gold which is to be made into money, and according to its wants applies to the Royal Mint.

As late as 1806 it was at the Tower of London that the duties of the mint were carried on. But the government finding that the kind of work could not be properly developed in the limited space of a fortress under the further disadvantages of military routine, resolved on separating these two branches of the public service. The building now called the Royal Mint was finished about 1811, from the plans of Johnson and Smirke. It is a stone building of three stories in the Greek style of architecture more or less, with two wings and a decorated colonnade, bearing the arms of Great Britain in front. The present building called the Mint has preserved from its ancestor certain relations with the Tower of London, the sombre mass of which, standing before it, is flanked with bastions and crowned with pieces of artillery, which slyly command the corner between the slopes of the parapets. Such vicinity evidently shows that it is preserved in case of assistance being required from it. To the left, a person standing with his back to the Mint has the principal entrance to the St. Catherine's Docks, the massive and high surrounding wall of which is prolonged with interminable monotony along an endless street: and to his right stands a gin palace, with all the pomp and tinsel embellishment for which these establishments are celebrated. Iron grating doors open to two entrances of the establishment, one of which, attended by a policeman and a sentry, admits the persons employed in the Mint; the other, which is always closed, has the guard of soldiers near it. But to have an idea of the extent of the building and its offices one must turn down the lane to the left, which leads to the back. Here one enters at once into one of the lowest and most questionable neighbour-

hoods of London, called Mint Street, formed of old wooden houses of two or three storeys, with angular roofs, separated by damp narrow alleys, the lower rooms, with dirty half glazed windows, answering for cellars or anything else, some of which, according to the notice on a sign board, are shops of bleaching establishments. I would not say what might be the colour of the linen that could issue from such places; but certain it is that the cellars themselves stand much in need of bleaching. One of the most dismal places about them is St. Peter's Court. Here, seated by the doorways, may be seen the aged, immovable as statues, and paralysed, veritable specimens of decaying humanity, along with the younger tribes, vegetating in dirt, with pale discoloured faces, like flowers without the light, and women whose features bear none of the inroads of time, but which are nevertheless clouded by the veil of sadness. With all this, there are children sprawling in the dirt or seated in groups on the pavement of eight or ten together, playing with broken pieces of crockery. This court is limited in its whole length by a high wall, above which are high brick buildings, belonging to the Mint, and separating the extreme of riches from that of indigence.

Very few visitors take the trouble to go round this building. Supplied with a written order from the Master of the Mint, they generally enter it from Tower Hill, and follow a paved pathway over a grass plot, which leads to the hall of the building. Here the visitor writes his name in a book, and is then conducted into the establishment by guides, who have the tact to make any one believe that he has seen everything when he has seen nothing nor had anything explained to him. There seems to be a kind of mystery hanging over coinage, and it is to the obliging attention of the director that I have been enabled to raise a corner of the veil. Formerly pieces of money were made by hand, and by means of the hammer pieces of gold and silver were beaten to the proper thickness. From these square pieces were cut that had then to be rounded; then these were placed between dies containing the effigy in reverse and the lettering which it was desired they should have on each side. The blow of a hammer then gave them the impression on both sides, and hence the expression to beat money. One of these ancient dies was found some years ago in Westminster Abbey, and lodged in the Mint, where it remains as a curiosity. But now it is no longer beaten, it is stamped. As far back as 1623, a French workman, named Briot, invented a machine for making money by hand, but very imperfectly; he proposed it to his government, but as it was not adopted, he passed across the Channel to England, where he met with a favourable reception. He was appointed manager in chief, and his machine was erected at the Royal Mint, then in the Tower of London. For about forty years there then began a contest between the coining press and the hammer, to which recourse was occasionally had. However, in about 1662, the former prevailed, and from this period English coining made rapid progress in what may be considered the form and neatness of the work. From 1806 to 1811 the art of coining was still further improved by machinery, which is

at present in use at the Mint, and known by the name of the inventor as Boulton's machinery. But it is not that the modern system has rendered great assistance to the art of coining in that light only, it has done so especially in the rapidity with which it is performed. And such is the power of the mechanical means now at the disposal of the Mint, that a piece of gold of the value of £50,000 sterling may be received in the evening at the Mint in the shape of bullion, and tomorrow it will reappear as sovereigns.

The treatment which that piece of gold has received in the interval from the hands of workmen and the action of machinery I learnt by a walk through the establishment. On leaving the ante-room the visitor finds himself in a large square court, enclosed by high brick walls, the monotonous yellow colour of which contrasts with the back of the building, which is of stone. The pavement of this court is intersected in various directions by tramways of iron, let into the ground, for the transfer of the little waggons with their loads of gold in sacks. He has here before him three departments, the names of which give a good idea of the general division of the work: the first is the melting house; the second, the rolling house, and the third, the coining press-house. Following these in their natural order, we take the first, wherein the gold once more undergoes the process of fire.

*(To be continued.)*

As an interesting extract connected with this subject, the following is from "the Science of the Gold Question":—The following are the most famous nuggets of Victoria, mentioned by the colony's historian: the Dascomb nugget, found January, 1852, weighing  $27\frac{8}{12}$  lb.; a second nugget, found September, 1852, weighing  $28\frac{4}{12}$  lb.; and presented to the Queen; a third nugget, found October, 1852, weighing  $47\frac{0}{12}$  lb.; the Sarah Sands nugget, found January 1, 1853, weighing  $134\frac{1}{12}$  lb.; the Blanch Barkly nugget, found August 27, 1857, weighing  $145\frac{4}{12}$  lb.; the Welcome nugget, found June 11, 1858, weighing  $184\frac{0}{12}$  lb. troy. This large lump was found at Ballarat, at a depth of 180 feet in the drift. It was first sold at Ballarat for £10,500, and was subsequently resold for £9,325 or £4 4s 11d per ounce. It was finally melted in London, November, 1859. Until the discovery of the Sarah Sands nugget, the great Russian mass found in the Ural in the year 1842, and weighing  $96\frac{1}{2}$  lb. troy was the king of "*pepitas*," as nuggets were generally called till the Australian and Californian word rendered the Spanish term obsolete.

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#### SCURVY AND ITS ANTIDOTES.

It is said that our mercantile shipping are again suffering from that scourge of the sea, known of old by the name of Scurvy. Why are

not these things looked after by owners and captains? In former days the antidotes were not so well known as of late years. But we commend the following remarks and directions to their attention from the pen of an experienced medical gentleman on the subject.

Two centuries ago scurvy was a common disease throughout all the northern countries of Europe. The writers, from whom we have derived accounts of it, agree in stating, that it generally showed itself towards the end of winter, or in the early part of spring, and that it uniformly disappeared during summer and autumn; but that it was at the close of long and severe winters, or when the country had been laid waste by war, and during long sieges, that its ravages were principally felt.

As agriculture and gardening improved, scurvy became gradually less frequent, and we have witnessed its almost complete extinction, *on land*, as the influence of these arts has extended to the most remote parts of Europe and to the humblest classes. But, even in recent times, there are instances, in which, under the peculiar circumstances I have specified, it has produced disastrous effects on shore,

In the spring of 1796, it was general among the French soldiers in the army of the Alps; and in 1801, during the siege of Alexandria, it prevailed among the inhabitants and garrison to a most frightful extent. During the siege which was commenced by the English in May, and which lasted only to the end of August, 3,500 scorbutic patients were received into the military hospitals which the French had established in that city. But it is not only in armies, and during sieges that we meet with even modern instances of scurvy arising on land. In the reports of the inspectors of prisons for the years 1836, 1837-38, there is frequent mention of its occurrence in our goals and prisons.

These examples are sufficient to show that scurvy is not peculiar to sea-faring men; but it is, unquestionably, during long voyages that its fatal effects have been most felt, and its existence, as a prevalent disease, maintained.

The narratives of all our early navigators abound with descriptions of the frightful ravages of scurvy. Vasco de Gama, who first discovered a passage to the East Indies by the Cape of Good Hope, in 1497, lost a hundred of his men, out of a hundred and sixty, by this distemper.

In the first voyage of the establishment of the East India Company the equipment, consisting of four ships, with 480 men, sailed from England on the 2nd of April, 1600; and by the time they arrived at Saldanha, on this side of the Cape of Good Hope, there had died of Scurvy 105 men, nearly one fourth of their complement.

The memorable expedition under Lord Anson, in 1740 and the four following years, offers another example of the mortality formerly occasioned by scurvy during long voyages. At the end of two years from their leaving England, the vessels engaged in the expedition had lost,

from this disease, a larger proportion than four in five of the original number of their crews.

Scurvy continued to prevail in all the fleets of this country, until the year 1795, when an Admiralty order was first given for furnishing the navy with a regular supply of lemon-juice, which had been long known to be a remedy for scurvy, and which some recent experiments had proved to be equally efficacious in preventing it. From this time we may date the extinction of scurvy in the British navy. It has, indeed shown itself on several occasions since, especially in some of the expeditions for the discovery of a north-west passage; but it has prevailed only in a slight degree, and has almost always been suppressed by an additional allowance of lemon-juice.

This happy result is far, however, from being realised in the commercial marine of this country. The means, which experience has proved to be of such certain efficacy, and which are so easily adopted, are in many instances neglected. In the space of a year and a half, nearly fifty cases of scurvy have been admitted into the Seamen's Hospital, Dreadnought; and from information obtained from these patients, I am led to estimate the number of sailors who have entered the port of London, affected with scurvy, during this period, at not less than double that number. The wretched condition of some of these men has convinced me, that the descriptions of the sufferings occasioned by scurvy in voyages of the early navigators, have not been exaggerated. Most of the cases of scurvy received into the Dreadnought are from vessels that have come from the Mauritius, Sidney, Ceylon, China, or some port in India.

**CAUSES OF SCURVY.—Salt Provisions.**—In consequence of the frequent occurrence of scurvy at sea, and on shore in persons whose diet, like that of sailors, consisted chiefly of salt meat, it was at one time supposed to be occasioned by excessive use of salt. A more extended view of the circumstances under which scurvy arises, is sufficient to show that this opinion is erroneous. The history of the disease furnishes us with numerous instances in which it has occurred in persons living entirely on fresh provisions. No longer ago than the autumn of 1836,\* scurvy prevailed to a great extent among our troops stationed in the New Province of Queen Adelaide, at the Cape of Good Hope; when, according to the report of Dr. Murray, the principal medical officer at the Cape, the men had no harrassing duties, and were abundantly supplied with good fresh meat, without having had an ounce of salt provisions. They had been, however, a long time without fruit or fresh vegetables.

The circumstance that scurvy may occur among persons living solely on fresh meat, and the fact, which the history of modern navigation

\* Autumn at the Cape corresponds to spring in the northern atmosphere. In the appearance of scurvy at that season and in many other particulars mentioned by Dr. Murray, there is perfect agreement with some of the accounts left us of the occurrence of scurvy in armies on the Continent in the early part of last century

has fully established, that it may be prevented for any length of time in persons who subsist on salt provisions, and can be readily cured even in those who continue the use of them, are sufficient to justify the conclusion that salt has no share whatever in producing it.

*Sea-Air.*—The frequency of this disease during long voyages, led also to the supposition that the sea-air, or some unknown marine agency, had an especial influence in causing it. At present this opinion scarcely needs refutation. Modern experience has amply proved, not only the harmlessness, but the extraordinary salubrity of sea-air: the fact, that it exerts no particular influence in the production of the scurvy, was, however, first established by Captain Cook, who, in 1772–3–4–5, in the *Resolution*, performed a voyage of three years and eighteen days, in all climates, from 52° N. to 71° S., with the loss of only one of his crew by disease.

*Cold: Moisture.*—The fact that scurvy when it first attracted attention, prevailed exclusively in northern countries, early led to the opinion, that cold and moisture had a considerable share in causing it, and this opinion has been maintained up to the present time by the highest authorities on this subject. An attentive consideration of the history of scurvy, is, I believe, sufficient to show that the influence of these causes, if indeed they have any influence, has been much over-rated, and that the comparative immunity from this disease formerly enjoyed by fleets in warm latitudes, was mainly owing to supplies of oranges and other fruits, with which Cadiz, Madeira, or the Islands of the West Indies, furnished them.

Scurvy may occur in all climates; either on land or at sea; in persons who subsist on salt meat or fresh: and in situations in which the utmost attention is paid to cleanliness and ventilation. There is one condition, however, which is necessary for its production: namely, *prolonged abstinence from succulent vegetables or fruits, or their preserved juices, as an article of food.* When this condition is fulfilled, we find scurvy arising in persons whose situations are the most various in every other respect; while not a single instance can be cited of its occurring in a person well supplied with these vegetables or fruits. This circumstance, together with the fact, that scurvy is in all cases rapidly cured when a supply of such vegetables or fruits is furnished, lead us to consider the abstinence in question as its essential and sole cause. I have said that this abstinence must be prolonged: it would seem, indeed, that in a person previously well supplied with vegetable juices, privation of them from two to five months is necessary to produce the disease. On land, scurvy has shown itself generally at the end of winter, or in spring: at sea, it has appeared after voyages of very different durations—in some cases, at the end of a month or six weeks, in others, after the lapse of five or six months. This difference depended on the time of year when the vessel left port, or rather on the previous diet of the men. The fatal effects of scurvy have, in fact, been most felt during sieges commenced in spring, and in voyages entered on in spring from cold countries. The siege and the voyage have in these cases prolonged it to the inhabitants and the sailors, not the cold



of winter, but abstinence from fresh vegetables, which, in former times, the cold of winter always occasioned.\*

*Preventives.*—The most powerful means for the prevention of scurvy is the use of oranges, lemons, limes, shaddocks—in fact, of any fruits of the orange tribe. I have already stated that lemon-juice was first systematically introduced into nautical diet in 1795, by a general order of the Admiralty, and that it has completely realised the expectations of those who proposed it.†

The present allowance of lemon juice in the navy consists of a fluid ounce, which, after ships have been a fortnight at sea, is served daily with an ounce and a half of sugar, to each of the men.

It was originally sent to sea in the form of a *rob*, made by evaporating the juice by a slow heat to the consistence of a thick syrup. This, however, was found to be very inferior to the fresh fruit; and it was in consequence recommended by Sir Gilbert Blane, that the juice should be preserved by the addition of a certain portion of spirit, without the aid of heat. When prepared in this manner, its virtues seem unimpaired,

The juice with which the navy is supplied, is brought from Sicily, and kept good by the addition of one part of strong brandy to ten of the juice.

Most sour fruits are, in all probability, anti-scorbutic, and instances are well authenticated of the good effects of grapes and apples.

As the expense of lemon-juice offers some impediment to its employment in the merchant ships of this country to the extent necessary for the complete extinction of scurvy, it deserves to be ascertained whether the juice of apples, preserved, like that of lemons, by the addition of a certain proportion of spirit, would not be an effective substitute.

All succulent vegetables that are wholesome are, perhaps, as well as fruits, more or less anti-scorbutic; and this property seems to be possessed, in a high degree, by many of the vegetables in common use, as the cabbage, turnip, radish, watercress, &c. In the earliest notices of scurvy, mention is made of the efficacy of herbs of this class in its treatment. The strongest proof of this efficacy is to be found in the fact that the disease, when it occurred on land, uniformly disappeared during summer and autumn, and that it gradually became less frequent, as the consumption of vegetables increased.

There seems to be no country naturally destitute of remedies for the scurvy. The fruits of tropical and temperate climates are replaced in countries within the polar circle by herbs of almost equal virtue. We are told that in Greenland, where scurvy was formerly very common,

\* I have already noticed the great prevalence of scurvy among the garrison at Alexandria, during the siege of that city, which was undertaken in May, and the dreadful mortality it occasioned in the first voyage for the establishment of the East India Company, which was commenced on the 2nd of April.

† In 1780, 1457 cases of scurvy were admitted into Haslar Hospital. In 1810, one of the physicians of that hospital stated that he had not seen a case of it for seven years; and in the four years preceding 1810, only two cases were received into the Naval Hospital at Plymouth.

the natives employed sorrel and scurvy-grass together; and that, by the use of these herbs, which were put into broths, the most advanced cases were speedily cured; and Sir Edward Parry, in the narrative of his first polar expedition, has given, from his own experience, an instance of the good effect of sorrel, when, in consequence of a serious loss of lemon-juice from the bursting of the bottles by the frost, he was under the necessity of discontinuing the daily allowance of this article.

It appears that vegetables are most anti-scorbutic when eaten raw. Herbs in the form of salads are more efficacious than when boiled, or in any way prepared by heat; and their anti-scorbutic properties are entirely destroyed by drying. But when vegetables are preserved as pickles, their anti-scorbutic properties are retained. It was observed that Dutch ships were formerly much less subject to scurvy than our own; and in some instances, when our fleet has acted in concert with that of the Dutch, our sailors have become affected with scurvy, while the Dutch have continued free from it. This immunity on the part of the Dutch was owing to the use of *sour-kroust* which was regularly supplied to their ships.

In 1780, *sour-kroust* was furnished to the navy of this country; and in the history of our fleets about that time, we meet with many proofs of its good effects. The allowance was two pounds a week to each man.

*Sour-kroust* is prepared in the following manner: the soundest and most solid cabbages sliced, as we slice cucumbers, are put into a barrel in layers, hand high; over each layer is strewed a handful of salt and caraway seeds; the whole is then rammed down, and the process repeated till the barrel is full, when a cover is put over it, and pressed down with a heavy weight. After standing some time in this state, the cabbage begins to ferment, and it is not till the fermentation has entirely ceased, that the barrel is finally shut up. Vinegar is not, as some have imagined, employed in the preparation of *sour-kroust*.

In Austria and in several parts of Germany people formerly ate *sour-turnip*, which was prepared in the same manner as *sour-kroust*; in fact, most vegetables may be preserved by this process, and I most strongly recommend a trial of it, with scurvy-grass and sorrel, to navigators who may in future be compelled to winter in the Polar Seas.

The fir-tribe have long been noticed for their anti-scorbutic properties; and, from a very early period, a decoction of fir-tops has been a popular remedy for scurvy in Sweden and other countries in the north of Europe. The common fir was first employed for this purpose, but other varieties of the tribe may be substituted for it; since they all, however various their mode of growth, seem to have similar medicinal virtues, and great efficacy in the prevention and cure of scurvy.

Onions, garlic, and vegetables of the same class, were at one time much used for the prevention of scurvy at sea; but they have been superseded by equally efficient and more economical means.

Potatoes, also, when raw, appear to be anti-scorbutic; and Sir Gilbert Blane informs us, that in 1780, they were used with advantage in

the fleet. They will keep a considerable time in a warm climate, and, in point of economy, have an advantage over most articles employed as anti-scorbutics.

*Fermented Liquors.*—Spruce beer seems to be the most efficacious of fermented liquors. We have abundant proof that it is not only an effectual preventive of scurvy, but an excellent remedy; and it has this advantage, that materials for it can often be procured at all seasons in countries in high latitudes, where the scarcity of fruits and vegetables renders a powerful anti-scorbutic valuable. These materials can also be carried about, and used occasionally; a plan adopted by Captain Cook with great advantage.

Malt liquors possess similar virtues. Frequent notices of the benefit derived from the use of small beer at sea are to be met with in the writings of our naval physicians; and instances are also to be found, which afford evidence of the anti-scorbutic properties of cider.

Wine ranks next to spruce beer and malt liquors in efficacy, and it is perhaps to the habitual use of it, that French fleets have been generally less subject to scurvy than our own. The superiority of wine over spirits in this respect has been frequently remarked: and Sir Gilbert Blane was so convinced of it, that, in a memorial presented to the Admiralty in 1781, he recommended the substitution of wine for rum in the victualling of the fleet.

*Vinegar.*—The good effects derived from the use of lemons and other sour fruits were naturally attributed to their most striking quality, acidity, and it was imagined that vinegar would prove of equal service. These expectations, however, have not been fully realised. I have met with many instances of the occurrence of scurvy in a high degree, in ships well supplied with vinegar, even in voyages of moderate duration; but in the cases in which I have witnessed the disease in the most aggravated form, the crews had no regular allowance of this article. From the facts that have fallen under my own notice, I am led to ascribe to it some anti-scorbutic virtue, greater perhaps than that of malt liquors or cider, but not sufficient to render it a substitute for lemon or lime-juice. There is some discrepancy in the testimony of naval physicians respecting the anti-scorbutic properties of vinegar, which renders it probable that these vary in some degree with the material from which the vinegar is prepared.

All the substances which I have mentioned as preventives of scurvy are derived from the vegetable kingdom; and, it is probable that anti-scorbutic properties are possessed, exclusively, by substances of vegetable origin. These properties exist in very different degrees in different classes of vegetables and fruit; but, in the lowest degree, if at all, in those which are farinaceous. Fresh leavened bread has, indeed been supposed to be highly anti-scorbutic, and has, in consequence, been recommended by many writers on scurvy. But the good effects ascribed to its use, have been witnessed in sailors, on their return from a long voyage, who were supplied, not only with bread, but also with vegetables, the efficacy of which was probably not duly appreciated. The anti-scorbutic properties ascribed to bread seem incompatible with the

fact, of which I could bring many proofs, that scurvy may occur in persons with whom bread forms the main article of subsistence.

*Fresh Meat.*—The belief that scurvy arises from the use of salt, led to the opinion that it may be prevented or cured by fresh meat. I have already stated that this opinion is erroneous: it is, however, still held by persons by whom it is very important that correct notions on this subject should be entertained. I have known the most fatal effects result from the false ideas of captains of merchant vessels on this point. During the course of the present year, the captain of a vessel trading to the Mauritius furnished his men, while they stayed at the island, with a plentiful supply of fresh beef, which being imported from Madagascar, is procured at considerable expense; but he neglected to provide them with vegetables or fruit, which abound in the island, and are sold at a price scarcely worth naming. The consequence was, that scurvy broke out soon after they set sail; and before the vessel arrived in this country, one half of the men before the mast, had died of it, and the rest were totally disabled.

*Symptoms of Scurvy.*—The first indication of the approach of scurvy is generally a change in the complexion, which loses its healthy tint, and becomes pale, slightly sallow, and dusky. This change is attended with lowness of spirits, and with aversion to any kind of exercise, which quickly induces fatigue, and the sailor complains of pains, especially in the legs and loins, like those produced by over exertion.

The gums soon become sore, and bleed on the slightest touch. On examination, they are found to be swelled and spongy, and of a dark red colour, especially at their edges, where they are in contact with the teeth.

Purple spots appear on the skin, particularly of the legs and thighs; but often also on the arms or trunk. These spots, which are sometimes very numerous, are generally small and circular, resembling flea-bites; but often, especially when the disease is a little advanced, we meet with other spots as large as the palm of the hand, sometimes much larger, in which the skin is of a variegated violet, and green tint, and which resemble in every respect, the marks produced by a severe bruise. These bruise-like marks occur without the infliction of any blow, or at least, of one sufficient to attract the sailor's attention, and often surround an old scar, or appear on a part which a long time previously has been the seat of some injury.

Another symptom indicative of scurvy is a swelling of the calf or ham of one or both legs, which causes stiffness and contraction of the knee-joint. The parts which are thus swelled, are painful when pressed or moved, and are exceedingly hard, so that they do not yield to the pressure of the finger. The skin covering them is thickened and adherent to the parts beneath, from which a fold of it cannot be pinched up: it sometimes retains its natural colour, but more commonly presents the appearance of a bruise.

In advanced stages of the disease, the complexion has a more dingy, and somewhat brownish hue; the gums are more swelled and more

livid, forming, in some cases, a black spongy mass, which completely covers the teeth; the teeth themselves become loose and frequently drop out; and the debility is such, that the slightest exertion, even the erect posture, causes breathlessness and palpitation, and not unfrequently an alarming faintness.

*Treatment.*—After the details into which I have entered respecting the cause and prevention of scurvy, little remains to be said of its treatment. The essential point is to give, in sufficient quantity, those articles of vegetable food, which have been distinguished for their anti-scorbutic qualities. Oranges, lemons, or fruits of that class, if they can be procured, should be preferred. The salutary effect of them is extraordinary, and such as would scarcely be imagined by persons who have not witnessed it.

If the state of the gums be such as to prevent the patient from masticating he should be kept for two or three days, on milk diet or on soups, in addition to the anti-scorbutics; at the end of this time, or at the commencement, if the case be less severe, his diet should consist of fresh animal food, and vegetables, especially in the form of salads; and as long as he continues very feeble, wine, porter, or ale should be given him.

This is all the treatment required for the cure of scurvy.

*Bleeding should never be had recourse to, although feverishness or severe pain may seem to render it advisable.* It always produces ill effects, and in advanced stages of the disease, persons do not survive it.

Blisters are apt in scorbutic persons to produce mortification, and for this reason we should abstain from their employment.

Mercury in every form, should be scrupulously avoided. In every instance it aggravates the disease; and very small quantities have been known to produce a dangerous salivation.

The points which I have endeavoured to establish in the preceding pages, are

- 1st. That scurvy, which, for a long time has been almost unknown in the navy, is still very common in the merchant ships of this country—especially in those trading with the Mauritius, Australia, China, and the different parts of India.
2. That the symptoms by which this disease may be recognised, are,—a pale, sallow, dusky complexion; a listless, desponding, manner; swelled and spongy gums, of a dark red colour, and apt to bleed on the slightest touch; purple spots and bruise-like marks, particularly on the legs; and swelling and hardness of the calf or ham, with stiffness and contraction of the knee-joint.
3. That scurvy is not attributable to the use of salt meat, to sea-air, or to any marine agency, but that it is occasioned by prolonged abstinence from any succulent vegetables or fruits, or their preserved juices, as an article of food; and that by the use of these it may be prevented or cured.
4. That probably all succulent vegetables and fruits, which are wholesome, are more or less anti-scorbutic; and that generally those which are the most succulent are the most efficacious.

5. That the anti-scorbutic property resides in the juices of the plant, and that it is in some degree impaired by the action of a strong heat; and therefore,

That the juices of fruits, as lemons, limes, apples, for sea use, should be kept good by the addition of a certain proportion of spirit, without the aid of heat:

That vegetables, for the same purpose, should be preserved in the form of pickles, as in the preparation of *sour-kROUT*.

6. That no vessel should be sent on a voyage of several months' duration, without a supply of lemon or lime-juice; and that on the arrival of a vessel in port after a long voyage, the captain should, if possible, provide his men with fresh succulent vegetables or fruits.

As in a subject like the present, particular examples are more impressive than general statements, I have subjoined the details of a case which occurred during the course of the past year. This case is certainly the worst I have ever met with; but I have chosen it, not on that account, but from its being well adapted to show the circumstances, which have the chief influence in producing scurvy.

A vessel sailed from England on the 26th of August, and arrived at the Mauritius on the 1st of December; she again set sail for England on the 17th of the January following, and entered the port of London on the 1st of June. The crew were healthy when they left the Mauritius, and consisted of sixteen persons, of whom eight were before the mast, and formed one mess; the cook, carpenter, second mate, and boatswain, another mess; the captain, the first mate, the owner's nephew, (a boy) and the steward, formed the remainder of the crew. Of the eight men before the mast, four died during the passage home, one near St. Helena, of dysentery, and three, after passing the line, before their arrival in this country, of scurvy. Of the remaining four, three were brought to the Dreadnought soon after they arrived in port, the fourth was taken to his friends; all these were in a dreadful condition from scurvy, but they all recovered, with the exception of one who died soon after he was brought to the Dreadnought. Of the four who formed the second mess, one was brought to the Dreadnought, the others went to their homes; all were in a very bad condition. Scurvy showed itself in these men six or seven weeks after they left the Mauritius, and all of them, except two, had been confined to their hammocks since the latter part of April: of these two, one had been confined to his hammock only ten days; the other, though incapable of doing duty, continued to crawl about until they arrived in port. For ten days before their arrival, the vessel was worked entirely by the captain, steward, first mate, and boy, who messed together in the captain's cabin, and continued free from scurvy. The weather, during the voyage homeward, was fine; the vessel, a good one; and the work of the men before they became affected with the scurvy was not severe. Their diet, after they left the Mauritius, consisted of salt beef or pork, with biscuit, and tea, for breakfast; beef two days, and pork one day, alternately, with biscuit for dinner; and during the first half of the voyage, flour, in puddings, twice a week, and pea-soup

twice a week. One glass of grog was given daily to each man nearly all the passage. They had no vinegar, lemon, or lime-juice. The salt provisions were of bad quality, but not of the worst; and the diet was as good in every respect coming home as in going out, yet none of the crew showed any symptoms of scurvy in their passage outward. While in the Mauritius, each man had two pounds of fresh beef daily; but no fruits or vegetables of any description.

The severity of the disease in this instance must be ascribed solely to *complete* and *prolonged* abstinence from vegetable juices. From the time of their leaving England, the men had been without vinegar, lemon, or lime-juice; and during their stay at the Mauritius, they had no fresh vegetables or fruits of any kind. In other respects, they were favourably circumstanced. They left this country in autumn, the best season, as regards scurvy, for the commencement of a long voyage; their vessel was a good one; and during the early part of the voyage homeward, the weather was fine and their work easy. The salt provisions were, indeed, of bad quality, but all the men agreed that they had met with worse; and in addition to the salt meat and biscuit, they had flour twice a week, pea-soup twice a week, and a daily allowance of grog. It is worthy of remark that none of the men exhibited symptoms of scurvy in their passage out, which lasted between three and four months, yet all of them became affected with it in less than two months after they left the Mauritius, although the provisions were quite as good when they were returning as when they were going there, and during their stay at the island, they had been abundantly supplied with fresh animal food. This is explained by the circumstance that to produce scurvy there must be abstinence from vegetable juices, and this abstinence must be prolonged. Fresh animal food has, as I have before remarked, very little effect, either in preventing or curing it; and, consequently, the time they stayed at the Mauritius may be considered as so much time spent at sea.

I have since met with an instance in which the crew of a vessel, likewise from the Mauritius, were reduced by scurvy to a condition almost as bad as in the case of which I have given the details. In both instances the disease was owing, in part, to the want of lemon or lime juice during the voyage: in part, to the circumstance, that while they remained at the Mauritius, they were unprovided with fresh vegetables or fruits.

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#### CAPTAIN COLES'S TURRET SHIPS.

The *Royal Sovereign* left Portsmouth harbour on the 27th of August, and sailed from Cowes with half steam power on the following morning at six o'clock, arriving at Portland about two the same afternoon. In the course of the subsequent experiments a fair share of rough weather was experienced, her rolling powers being then tested; but it

is asserted that she never once heeled over to a greater extent than from  $10\frac{1}{2}$  to 11 degrees. The turrets were worked and the guns fired in all sorts of weather, and it was found that the turrets could on all occasions be set in rotation by the eight men detached for that duty to each. Concentrated broadsides were frequently fired to test the concussive effects, but with no damage either to turret or armour casing, and with scarcely more than the ordinary shock between decks from single guns. The men working the guns ran no risk of that suffocation of which we have before spoken, proper ventilation being provided to each compartment by the "man holes." Of the steering powers of the ship the most favourable accounts are given. Her wheels are worked easily and she answers her helm readily, coming round certainly not quite so quickly as the wherry to which she has been compared, but still in less time than would have been expected for a ship of her class. Her engines worked smoothly and in perfect order, the vibration being less than that usually experienced; and in order to fully test her complex fittings the principal portion of the firing was carried on from the turret over the boilers, in which no leakage has been detected. As a proof of the steaming powers of the ship we may mention that the return trip from Portland to Spithead was made, with a favourable wind and tide, at about  $12\frac{1}{2}$  knots per hour, the voyage occupying close upon  $4\frac{1}{2}$  hours. The only accident which happened throughout the trials worthy of notice was that to the hawse pipe arising from an accidental shot at a too great depression of the gun. The shot struck the fore hatchway, glancing off and carrying away a piece of timber into which the hawse pipe was built. Of the story of the loosening of armour plates, displacement of rivets, leakages, &c., &c., we are convinced there is not a particle of truth, the only ground for such damaging reports being, probably the engagement of a number of men from the Gunwharf in repairing and placing in proper order the gun carriages on board, part of which work was left unfinished when the *Royal Sovereign* last left this port. The leakage story is untrue and so is that of the narrow escape of the ship from being lost. The accommodations on board are very good, and the crew of something less than 300 are reported to be healthy and happy, the men indulging in no more than the ordinary grumbling which has always been recognised as the inherent right of every British sailor as well as of every landsman. And now having given the results of the experiments to which the ship has been subjected, we have simply to refer to the reasons for which she is to be paid out of commission. We are in a position to state that she is regarded by the authorities as a complete success; that the only reason for paying her off is to allow the Captain of the *Excellent* to carry on further experiments with the turrets. She is to be a tender to the *Excellent*, and a portion of her crew, consisting of the captain, paymaster, surgeon, chief engineer, and three other engineers, with a reduced complement of men will be borne on the *Excellent's* books to instruct her men in the peculiar duties of the *Royal Sovereign* as they are now instructed in gunnery practice. The *Royal Sovereign* was sent to Portland for the trial.



of her guns and to ascertain her capabilities for coast defence; she has succeeded, so much so, in fact, as to induce her constructor, or some of his friends, to assert that she was fit for a voyage round the world, and would probably be sent to some foreign station. It is here where the mischief has arisen. The Admiralty, however, are satisfied with the results, and the order which they have given is perfectly consistent with their expressed determination to give the *Royal Sovereign* a fair trial, and to make her thoroughly efficient in the work which at some future day she may be required to perform.

[We find the foregoing in the *Hants Telegraph*, and the following remarks in the *Moniteur de la Flotte* on Captain Coles's turret principle, being a portion of the report of Rear-Admiral Goldsborough on Rams and Turret Ships that is translated into that journal. Not having met with the original, this passage is here retranslated as the opinion of an officer whose experience and knowledge of these subjects invest it with high importance. We propose adding the whole of this report in our next number.]

At present the real value of the rams cannot be mistaken. With a small number of them in each of our principal mercantile ports and with a displacement half as much as that of the *Dictator*, no enemy, however powerful he might be could effectually blockade our ports; for having the advantage of choosing their position, they might direct their fire so as to annihilate the enemy's ships. No port could be attacked successfully, defended by them. The protection of a harbour does not consist in its own works. These are totally insufficient for the purpose, in fact, of secondary importance. The safety of a harbour lies in its defence by rams with good large steam power, assisted, perhaps, with some kind of obstructions in the channels of approach. Are the forts of Charleston, I should like to know, capable of preventing that place from being taken? Certainly not. Those forts and others of every kind whatever, if they are not supported by steam rams and some obstruction, may be passed with impunity by swift and powerful vessels of a draught water of according to the depth of the channel.

Vessels which are destined solely for the service of defending the ports should not be armed with cannon, they should have their own proper projectiles which should be discharged by *steam*. The combined effect of the two defences would be absolutely irresistible. The employment of cannon I repeat would be injurious to the single purpose for which such vessels are intended as well as in other points of view. In fact, in the long run they would do more harm than good. Besides, the expense of constructing rams to receive cannon would enormously increase their cost and thus go to diminish the number of vessels. The special plating of the vessel for defence required for these guns would be better otherwise employed and placed all round the hull. The essential points to secure in rams are great solidity of hull, well extended below water, with all the invulnerability which can be obtained from a plating that should be as thick as can be

carried; a good velocity, a powerful safe engine, and the power of turning rapidly, besides general fitness for this kind of service.

As far as concerns iron shielded ships for sea, nothing has surpassed in my mind the ideas of Captain Coles, of the English navy on this subject. I consider his system to be the best of the present day. In my humble opinion he has overcome the difficulties more effectually than any one else up to the present time. He has displayed a fertility of resources, an amount of talent and good sound personal experience which does him the greatest honour.

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### MAPS AND THEIR CONSTRUCTION.

(Concluded from page 525.)

Topographical drawing was originally a branch of military drawing. In order to show the strategic movements of an army to select the most favourable field of battle, to estimate the difficulties of defending a front, the general should know the character of the ground on which he is to operate. He should be quite informed of the nature of the breaks in the ground, the course and efficiency of the roads, and should even know the kind of cultivation if any of the ground. Maps were formerly constructed with a view to their utility for war purposes, the natural consequence of which was that they were kept secret as essential to the defence of the territory, and those which represent a large extent of country on a sheet of moderate dimensions, required astronomical observations, but those were often imperfect, and oftener still laid down from arbitrary divisions not entitled to confidence. But we have rejected these exclusive ideas. Maps are, no doubt, looked on as important in war, and the proof of this is that surveying topographical engineers are attached to the army. In these days, however, they are looked on as public property for the benefit of all classes of society; for the engineer who lays out his road, or who would trace the course of a river, for the purposes of judiciary investigation, and even for the landed proprietor who consults the original drawings, and sees in them the clearest proofs, and in some measure the inventory of his territorial possessions. Topography on a large scale satisfies all such wants, and besides this, when reduced in proper proportions, the whole map being mathematically correct in all its sheets enables us to consult it a general map of perhaps a continent. It may be observed that there remains but a small portion of the earth's surface to complete on paper; and the work of fifty years is already sufficient to supply the most pressing demands.

In France, the first maps of the trigonometrical survey, which was commenced in 1818, were not engraved until 1833, and although they have been going forward since that time are not yet completed. But this is not the only work of the kind going forward in that part of the world. There are special plans on large scales, showing the details of important towns and their environs. The large map is also reduced

and copied for public service. The *depôt de la guerre* has another reduction, classing it with chorographic maps, showing the rivers, the general character of the country and other features, without sacrificing the clearness of the sheet; and this is again reduced to a portable general map, in which the veracity of the general features is still preserved.

At the same time that this survey of France was going forward, officers who have been employed on it have been serving abroad with the army, and executing similar important works in foreign countries. For Algiers, for instance, there has not been a map of any pretensions whatever to accuracy, but a map is begun the triangulation already completed, and the survey is going on in the same manner as the map of France. In China, and also in Syria, the ground occupied by the troops has been also reduced to paper. It is true that they are the production of officers on their various expeditions, and without being laid down trigonometrically, are formed from the results of astronomical observations, with heights by barometer and distances from actual travelling. For those parts which cannot be reached, the accounts of the natives are taken. Military plans are always useful to geography, especially when made in a manner previously entirely unknown.

The great ordnance triangulation of England, was commenced in 1783, and was not concluded until 1858. After being carried on to some extent on a small scale, and much hesitation as to what scale should be adopted, it was decided that the original work as far as it was carried should be published simultaneously on three different scales. This great work will yet require many years of labour. Some sheets are published, and although done in a good finished style, they do not present so satisfactory an appearance as the French maps. There is objection in the engraving, something particularly in the geological maps where colour is used that fatigues the eye. The English have besides extended these topographical works to their colonies, and especially in India. After completing an extensive triangulation there, and measured acres of considerable extent to the North, South, East and West, the work is intended to be carried on to the northward across Chinese Turkestan to the Russian territory. We cannot fail thus in obtaining important knowledge of the yet scanty information we possess of Central Asia.

The States of Central Germany, it appears, are about to undertake some geodetical operations, with a view to consider the irregularities in the form of the globe. Besides the purely theoretical on a question so often treated the new work will connect the triangulations of different countries. It is intended to determine with the utmost accuracy, by means of the electric telegraph, the longitude of principal places, as Leipsic, Berlin, Prague, and Vienna, &c. Thanks to the persevering labours of General de Bayer, Prussia is covered with a net of triangles which leaves nothing to be desired, and which extends to the Rhenish frontier of Silesia. Austria has nearly finished her triangulation, but the engineers have ascertained that it is necessary to go over again certain parts of doubtful accuracy, and they have agreed

that it will be desirable to take up on the South the Italian scheme, and also to connect the North with the Prussian triangulation. The maps that are published by the German governments would then be connected with each other. It is to be much regretted that they are on different scales. The small principalities have nearly always followed the arrangements of their powerful neighbours, their works being published at the same time as the countries adjacent to them. All these maps not published are in progress, and the geography of Germany will thus be completed in a few years.

Of all countries, Russia of late years has shown herself most favourable to geodetical operations. No doubt this has resulted principally from the zeal and attainments of some learned astronomers, among whom are General Schubert and M. Struve, the director of the Imperial Observatory of Pulkowa. The measurement of an arc of the Meridian of  $25^{\circ} 20'$  between Ismail at the mouth of the Danube and Fuglenaes, at the North end of Scandinavia, a level through the country between the Black and Caspian Seas, numerous astronomical observations in Siberia, and the Caucasus,—chronometric expeditions between Pulkowa, Altona, and Greenwich,—a triangulation nearly completed of the European provinces, and a part of the Trans-Caucasian, are the works of considerable scientific value that have distinguished the savans of the empire of the Czars. Extensive as is the Russian territory in Europe, its topography is in a very advanced condition already, and we shall not have to wait long for the publication of the whole. Meanwhile, the Imperial Geographical Society, of St. Petersburg, is co-operating with geographic travellers, and constructing a chart of Eastern Siberia, as far as the mouth of the Amour river, Spain, a country the mountainous character of which occasions considerable difficulty in these operations, is only now engaged in partial surveys. Holland has nearly finished her map, where the heights are objects of special care, in consequence of the nearly flat nature of the ground, which exposes her to much inundation. Sweden has yet to be mentioned, her geographic collection being especially interesting from one of the bases being measured in winter on the frozen surface of a lake. In Italy, the ancient Sardinian states are entirely completed, on a scale of the fifty thousandth part. Lombardy, and the central provinces, have been done by the Austrian government, on 84 thousandths. The kingdom of Naples remains alone out of the list of these contributions to geography. But the government of Victor Emanuel has fully recognised these matters, with a view to take them up in earnest throughout the whole Peninsula. Belgium, again, which has so long been satisfied with partial maps, is about to publish one of an official nature. On the whole, we may consider two-thirds of Europe to be represented on paper, and that in a few years the whole topography of this quarter of the world will be complete. At present, the survey of the different countries extends in a continued form over thirty-five degrees of latitude from North to South, and from East to West over seventy degrees of longitude. This is, however, after all but a fiftieth part of the surface of the globe.

Thus the construction of maps, as we have shown, is the work of the different governments, excepting perhaps an exceptional case here and there, where scientific societies have taken up the subject. The reason of this, no doubt, is the great expense attending such works. The expense of a good chart cannot be calculated at less than from three to five pounds the square mile, that expense, however, being more or less according to the nature of the ground. Maps showing all the details of a country have undoubtedly a value in all civilized countries for deciding questions of property and for public works and no such nation can do without them. Without them as they are now constructed by all European nations and their colonies, there is nothing for guidance but the observations and journals of travellers, very excellent documents, no doubt, but very imperfect and unsatisfactory. Men who devote their leisure and resources to long expeditions do not always possess the requisite knowledge for making good astronomical observations, or they have not the necessary instruments for making them. Three fourths of the habitable world are only known to us from the accounts of travellers, and hence the mass of gross errors which are found in maps. One has only to prove this by comparing an old map of Africa with one of the present day which has received the latest corrections. A judicious observer will know how to decide on those which he may find, and will readily see those parts which are unworthy of confidence: and in this rather than in the formation of the map lies the real value of a topographical map. There is no want either in France, England, or Germany, of compilers of maps who have submitted the detail of the maps which they publish to a most rigorous calculation, thus rectifying the old by the new work. Unfortunately this kind of labour, the result of which is only seen, does not make itself known but in those results passing in general unperceived. And thus we frequently see bad maps shamefully reproduced from old documents being as much sought after as if they were constructed with the most scrupulous care.

We have hitherto alluded only to maps showing the face of a country in this discussion, but the ocean also has its own geography. Hydrography, the name by which this subject is known, has for its object the representation of the surface and depths of the ocean and especially shores of countries. So that while topography on shore has for its object especially the facilitating of public works on *terra firma*, hydrography is intended for the instruction and guidance of navigators. Hydrography, however, directs attention to sunken rocks and dangerous banks, and shows the course to be followed by ships in order to enter a port or river. Combined with meteorology, hydrography treats of winds and currents which affect the routes of ships. It is a science cherished from the earliest days of navigation. The old pilots of former days preserved the observations which they had collected on charts which they called collectively "The torch of the Sea," "The Ocean Route Teller," because, in fact, these documents imparted to the adventurous navigator the course which he should take. The pursuit of hydrography, which the developement of commerce has rendered

of the first importance, has become one of the first cares of maritime nations, and is confided in France to the management of special engineers, a modest class of men whose labours are nearly unknown but by the limited number of persons who profit by them.\*

Good sea charts differ but little in appearance from those of the land. On these continents are the chief consideration, on those the depths of the sea are from the subject in hand. Inequalities and nature of the bottom, submarine mountains and valleys, nothing, in fact, which can affect the navigator should be omitted from the sea chart. The system of projection is also different to that of Mercator which elongates the degrees of latitude in proportion as they approach the pole. Of the land, the outline is shown only, the principal object being the position of the ship, the latitude and longitude of which are marked daily, and from which is known the route to be taken. But on charts of a large scale which are formed of frequented coasts, in fact, for all such parts of the sea where details are important, the line of the shore is traced with great care and isolated rocks are inserted in their correct places and numerous soundings with the depth of the water; then views of the coast complete the wants of the navigator.

Those governments which have a powerful navy have found that it is not sufficient to explore their own coasts only but to possess charts of every coast that their ships can reach by wind or tide. And thus they have obtained charts of every corner of the Mediterranean, and even of the coast of Morocco, where a boat cannot land, nor base be measured, nor triangulation carried on. In such cases recourse is had to various artifices. Distances are found then by means of the masthead angle or by the progress of sound. In some parts hydrography is even grateful for the sketch of a coast while sailing along it.

It was after the political events of 1815 that both topography and hydrography were taken up vigorously. The old charts of our coast were most faulty; a rigorous survey of the French coast was required, and it occupied an interval of 30 years.† In order to appreciate the correctness and importance of hydrographic operations, it is sufficient to observe that a great many banks and rocks unknown to pilots are discovered by it. The coasts of the colonies have been surveyed with the same care. In England many vessels have been thus employed and at considerable expense for the survey of the most frequented coasts of the whole world. In the United States of America the coast survey under the able management of Professor Bache, has completed some important works. Being in possession of coasts in the Atlantic and the Pacific the Americans have felt the necessity for a survey of their ports and

\* In England this remark applies as well as in France, (although we much doubt whether it does among their naval officers) for the art of marine surveying which is the basis of their construction, is as little cared for here as the charts are themselves by nine tenths of those who have to use them. ED.

† The same may be said of other coasts. That of England began in earnest in about 1826, and is only just finished, but including Ireland and Scotland, is far more extensive than that of France.

roadsteads, so much the resort of their merchant vessels. They therefore commenced on all points at once in the Northern States, in California, and the Gulf of Mexico. They have formed a multitude of triangles, partially distributed but in connection with each other, the result of which we shall have before long, if political events do not prevent the work being completed of the geographical positions of that vast continent. The survey of the coasts of the United States began in 1832, and was but half completed when the civil war broke out, although the readiest and the most expeditious proceedings have been adopted.

Notwithstanding all the activity of 50 years of geodetical operations on the surface of our globe and the explorations that have been made by us, it is hard to be convinced that as yet it is but little known. Beyond Europe and the European colonies one can give but a mere outline of countries; the features of the countries, the direction of the mountain ranges are but grotesquely represented in maps. Some central portions of continents remain absolutely blank in the map, and these vacancies increase from day to day. Meanwhile these operations progress so slowly that it is impossible to foresee the completion of the great enterprise of the true representation of the surface of our globe. The works of our modern savans are at least complete and definite, or it would be necessary to begin hereafter a new survey of France in the same manner as the map of Cassini was done. There can be no doubt that the methods and the instruments of the present day were being gradually improved, will admit of more correctness still being attained. In these days we are not satisfied with results which would have been sufficient, Delambre and Mechain at the beginning of this century. It is a question even now whether the longitudes shall not be tested by the electric telegraph. It has found that the heights, although safe from being disturbed, as geographical points are not quite right, and a general series of levels is already determined on along the main roads of intercourse, and which will hereafter be extended over the whole of France. The maps will be reformed gradually and kept up to the science of the day.

One thing, perhaps, there is to be regretted to this day, and that is the complete isolation of the greater part of the countries which contribute operations of this kind. Each country has its own measure, its own scale and conventional signs for maps. Still Geodesy will never be confined to one place; it oversteps frontiers most easily and gains in preciseness as it does in range. But the harmonious union of topographic works of different states depends somewhat on the uniformity of weights and measures, a question which geodesy itself attempts to solve and which has much to do with the progress of science by the extension of commerce and industrious pursuits. The decimal system in measures, weights, and money for a long time the legal adoption of France, has only been as yet followed in a few European countries, Belgium, Holland, Switzerland, and Italy, and by the new states of South America, which have partly adopted it modified to their own usage. National prejudices, no doubt, prevent other nations from re-

ceiving it. This opinion may have some foundation, but there is no doubt that prejudice and even habit are not the only obstacles to the general adoption of the decimal system. Geodesy, generally speaking, shows that there is a certain amount of arbitrary dealing in the primitive value of the unit of the measure of length. In fact, a new theory has appeared which considers the physical forces in nature at different manifestations of an only and unique power. Under this title the units of time, length, force, heat, light, and electricity, are connected, and should be knit together by means of certain numbers called co-efficients or equivalents, which observation would supply. We have taken, according to nature, the unit of length; others have taken that of force, creating a system of measures different from ours and still as natural. Unfortunately the determination of physical equivalent is a complex problem and too delicate for a ready solution. It is necessary at present that we content ourselves with weights and measures arbitrarily fixed. In spite of its imperfections the decimal system may still be considered the superior, and those who are interested in the progress of geography should look to the reasons why it should be encouraged, for advancement which it would introduce into a thousand different delicate and varied branches of science that from its foundation would be very easily perceived.

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#### THE REGISTER OF WRECKS FOR 1863.

The return of the Registrar-general of Seamen, recently published, shows that during the past year 413,972 vessels—representing a tonnage of nearly 62 millions—entered inwards and cleared outwards from British ports. The estimated value of the goods carried on board these ships was upwards of four hundred millions sterling.

When the mind contemplates the magnitude of these facts, it is absolutely lost in realizing their full import. A feeling approaching that of awe overwhelms it while thinking of the activity, intelligence and wealth of our countrymen, and their consequent responsibility in connection with the great commercial undertakings in the united kingdom thus succinctly delineated.

But our object at present, in dealing with the dry but instructive statistics detailed in the annual return of the Board of Trade, is not to follow out the train of thought naturally suggested by these figures. We will at once, therefore, proceed to deal with the important facts which are brought by this accurate register under our notice.

We accordingly find that the number of wrecks and casualties, including collisions, reported as having occurred on the coasts of the united kingdom during 1863, is 2,001. This number, which is in excess by 174 of the wrecks reported in 1862, is above the annual average of the ten years ending 1863. The numbers for the last five



years are as follows, viz.—1859, 1,416; 1860, 1,379; 1861, 1,494; 1862, 1,827; and 1863, 2,001: total, 8,117. The fearful increase in 1863 was owing to the great number of casualties in the gales of October, November, and December of that year; and the marked increase in 1862 is owing mainly to the 542 wrecks and casualties which happened in the gales of January, October, and December.

One word as to the character of those three fearful gales in 1863. It will be remembered by many that the first of these gales occurred on the 30th October, and was in part indicated by the steady fall of the barometer from 29·84 inches on the 27th to 29·10 inches on the 29th; and although it rose slightly to 29·32 inches on the morning of the 30th, it was but to fall with greater rapidity to 28·80 inches by 3h. 30m. p.m., when the unprecedented pressure of 29½ lbs. to the square foot took place in the force of the wind.

The second storm which we have to notice occurred on the 21st November, and was foretold by a rapid decline of the barometer from 29·91 inches on the night of the 20th, to 29·70 inches by the morning of the 21st, and then to 29·44 inches by 5h. p.m., accompanied as before by an extreme gust of wind of 17½ lbs. to the square foot, the great pressures continuing only between 4h. and 5h. p.m.

The third, and by far the most remarkable storm, occurred on the 2nd December, and was amply presaged by the rapid fall of the barometer from 29·46 inches on the night of the 1st, to 28·84 inches on the morning of the 2nd; the wind, however, did not begin to blow violently till 2h. 30m. p.m., when a sudden gust of 9 lbs. was recorded; from 2h. 30m. till 2h. 50m. p.m., the pressures varied from 5 lbs. to 9 lbs.; it then increased greatly in force: at 2h. 50m. p.m. there was a pressure of 16 lbs., and at 2h. 55m. p.m., one of 22½ lbs.

We may surely learn from these examples—firstly, that the chief severity of a gale may be expected at or near the time of minimum barometer reading; and, secondly, that after the minimum has passed, the worst of the gale has passed, and that the storm will moderate as the barometer readings increase.

It is an interesting fact that our fishermen are rapidly educating themselves on the use of the barometer; and many, without doubt, have been the instances where the watching of the barometer indications has saved valuable lives and much property. The National Life-boat Institution has about 100 of these instruments at its life-boat stations, and the Board of Trade about the same number at other places. Aided by a diagram or chart, showing the daily variations of the barometer, a glance at it by the fisherman clearly tells what he is to expect from coming weather; and we confidently believe that if similar precautions were taken by our seamen—in addition to exercising due vigilance in the use of the lead—the prevention of a large number of shipwrecks every year would inevitably follow.

Out of the 2,001 wrecks and casualties in 1863, 882 are reported to have occurred by stress of weather, and 214 from various and unknown causes. Again, 61 were lost from defects in the ships, or in their gear or equipment, and 176 from inattention and negligence.

The 1,096 vessels lost by stress of weather and various other causes unknown, we must charitably suppose were inevitable; yet we cannot help thinking that if the storm warning signals on the coast had been diligently attended to, a considerable proportion of those 1,096 shipwrecks might have been avoided. But the loss of 237 ships from negligence and defects in their equipments is inexcusable, and calls loudly for investigation—if not on account of the valuable property thus lost for ever to the country, surely on that of the precious lives sacrificed on these disastrous occasions—in order that every effort might be made to prevent such an annual waste of life and property.

During the same period, 5,096 lives were saved by life-boats, and the rocket apparatus, fishing-boats, and other means. In the absence of these appliances, the sacrifice of human life would, no doubt, have been terrible to contemplate.

The number of collisions reported in 1863 is 331, against 338 in 1862; and 323 in 1861; or 317 being the annual average of the seven years ended 1863. Of these 331 collisions, 216 happened at night, and 115 in the day time, 133 were caused by “bad look out,” “neglecting to show lights,” and “neglect or misapplication of the road at sea.” The remainder were more or less the result of accident, “unsound gear,” or “negligence.”

Here, again, there can be no doubt that, with proper precautions, and a good look-out, a very large proportion of these dreadful accidents might have been prevented.

During the past six years, 399 lives have been lost from collisions in our seas—a truly distressing fact—and if fishing-smacks and boats were not often at hand to render prompt and efficient services to the poor people, this large number would, undoubtedly, be enormously increased.

“The life and property lost by collisions at sea—ever increasing with extending trade—are so appalling,” says Sir David Brewster, “that no expense should be spared in indicating the approach of vessels during ocean fogs, or heavy falls of snow. A small dioptric apparatus, with a Bude or a Drummond light, ought to be a part of every ship’s equipment, whether of war or of commerce. A floating reef is a more dangerous enemy than one fixed on a shore; and there is no source of protection against its shock, but the light which indicates its approach.”

The accompanying wreck chart has a melancholy interest; and many a widow and orphan can point out on it the site whereon perished all that was dear to them in this world. It will be observed that the site of *each* of the 2,001 shipwrecks and casualties during the past year can be distinctly traced out on this chart.

The total number of wrecks and casualties from all causes, reported during the year 1863, is 2,001, against 1,827 reported in 1862. It is above the number reported during any one of the eight years preceding, and is 661 above the annual average of the eight years ending 1862. The tonnage of these wrecks is thus given:—

Vessels under 50 tons	Vessels.
51 and under 100	404
101 " 300	494
301 " 600	867
601 " 900	158
901 " 1200	46
1201 and upwards	18
	14
<b>Total</b>	<b>2,001</b>

Of the total number of ships to which casualties have happened in 1863, 1,649 were British ships, 272 foreign ships, and the country and employment of 80 were unknown.

This a lamentable disclosure. The bravery and skill of our seamen are proverbial; but we regret to add, that their recklessness is also unrivalled; and hence after making due allowance for the greater number of British ships, this striking contrast between the loss of British and foreign vessels on the shores of the united kingdom is accounted for.

The greatest number of casualties happened to ships laden with coals, ores, bricks, &c., or in other words, to ships of the collier class, as will be seen from the accompanying list, viz. :—

Colliers laden	614
Colliers light	114
Iron and Copper Ore, &c.	146
Stone, &c.	115
Timber	101
Fishing-smacks, and other laden vessels	689
Vessels in ballast (not colliers)	174
Passengers and general cargo	48
<b>Total ships</b>	<b>2,001</b>

The winds most fatal, during 1863, were from the N.W., W.N.W., S.W., W.S.W., and W. During the former year, 1862, the most fatal winds were S.S.W., S.W., W.S.W., W., and N.W.

Again, it appears that 614 casualties happened with the wind at and under force 7, or from a calm to a moderate gale, and that 1,050 happened with the wind above force 7, or from a fresh gale to a hurricane.

The number of persons who perished in 1863 from wrecks was 620, while in 1862 it was 690.

It is satisfactory to know, that notwithstanding the larger number of casualties in 1863, there is a great falling off in the number of lives lost, and that it is 161 below the annual average of the last twelve years.

The total number of lives lost from 1854 to 1863 is really frightful

to contemplate. It was 7,786; and this, let it be remembered, is not a casual loss. It is a continual, if not an ever-increasing one. The drain on our sailors and fishermen goes on year after year, notwithstanding all the benevolent and strenuous efforts made at the present day to stay the ravage. The sea is dreadfully exacting in its demands; and season after season, when the equinoctial gales blow, when the winter sets in, our shores are converted into altars, on which the ocean, as during last winter, offered his victims by hundreds. It is unlikely that we shall ever effectually obtain the mastery over the waves; but even at this moment we are able to contend successfully with them in their blind efforts to swallow up life against our endeavours to save. During the fearful gales of October, November, and December last, nearly 500 lives were rescued by lifeboats alone; and undoubtedly a very large proportion must have perished in the absence of these noble services.

Let us recall to the reader's recollection an instance of a noble battle that was thus fought with the storm on the Girdler Sands off Margate, on the 3rd of December last.

The huge waves were lapping and curving in from the German Ocean, with the tide behind them and the wind against their crests, breaking from black water into white over a hundred concealed sands and shoals, sweeping in their fury along a hundred narrow channels, where a ship's length that side or this is destruction; and the only sign of man in the dark, dancing panorama of the hurricane is the tossing light-ship and the rolling buoy. Such a night was the 3rd December, when two large vessels lay in that miserable predicament—the *Fusilier* on the Girdler Sands, the *Demerara* on those known as the Shingles; The former was an emigrant ship full of men, women, and children; the latter had a crew of 18 men and a pilot; and the best seamen on board of each must have felt, as darkness gathered over the stranded vessels, that the chances were a hundred to one against any from either reaching the shore, except as water-washed corpses, with the marsh bird screaming above them, and the fragments of their ship drifting in with cargo, dead men, and sea-weed. Thanks to the Ramsgate lifeboat, however, and to the gallant fellows who manned her and the steam-tug *Aid*, every soul consisting of 120 persons, was brought from those vessels safe and sound to Ramsgate, where they arrived at 12h. 15m. p.m., on the 4th December.

Can our readers comprehend such a night's performance? We do not mean in its results or its gallantry, but in its details. Can they quite grasp what it is to be sixteen hours hard at work, fighting the winds and waves in a December hurricane, with a sea "on" that sweeps tons of grey water over the lifeboat at every third stroke, and a wind that seems to turn the soaked clothes on the body into ice?

The lifeboat men at Ramsgate, Holyhead and many other places on the coast during that fearful December hurricane, experienced it—and they saved altogether 246 lives that would otherwise probably have perished.

The number of lives saved during the past year was 5,096; and the total number of lives rescued by lifeboats, the rocket and mortar apparatus, smacks, and other means, during the past eight years, is 25,254!—a number sufficient to man a considerable fleet.

The Board of Trade, the Coast-guard, and our boatmen and fishermen, continue to work cordially with the National Lifeboat Institution in the great and important work of saving the lives of shipwrecked persons on our coasts, and when one remembers that by means of its lifeboats and fishing-boats—to the crews of which it has given liberal rewards for their laudable exertions—it has contributed to the saving of nearly 14,000 persons, cold must the heart of that man be which does not feel a thrill of joy coming over it at such an announcement.

There are at present 182 lifeboats on the coasts of the united kingdom belonging to the Royal National Lifeboat Institution and other bodies. The mortar and rocket apparatus stations now number 239, and are under the management of the Coast-guard and the Board of Trade.

During the past year, 417 lives (besides 17 vessels) were saved by the lifeboats of the National Institution alone, and upwards of 300 by shore-boats and other means, for which it granted rewards. A sum of £1,297 was expended by the Institution in rewards; and £13,819 on its various establishments round the coasts of the British Isles. Who would not wish it well in this season, when the equinoctial gales are warning us of the approach of winter? Who would not bestow upon it some substantial token of sympathy for the great and national work in which it is engaged, if he could? The lifeboat is one of the proudest of England's many inventions. She is but a little vessel to contend with a caldron of sea like that which was experienced at Holyhead, Bude Haven, and other points on our coasts in the memorable storms of last winter; but her rowers are stalwart, weather-beaten men, whose sacred object is to preserve human life, and who peril their own in their noble enterprise. The thing is altogether characteristic of our country,—the build of the lifeboat, her hardy crew, and her system of maintenance by voluntary contribution.

Do we not all think so? Are we not filled with a glow of national pride when we read of the courageous endeavours of our lifeboats to carry safety to sinking hearts and imperilled ships? And if so, shall we not, all of us, according to our opportunities, entitle ourselves to cherish the satisfaction which springs from noble efforts humanely made?

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## Nautical Notices.

## PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 553.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist in Mils.	[Remarks, &c. Bearings Magnetic.]
44. Cape Gata	Cyprus Isle.	34° 35' 7" N., 32° 2' 4" E.	Fd.	190	15	Est. 5th Sept., 1864. A Flash every two minutes.
Cape Kiti	Ditto	.....	..	..	..	Altered from Red to White Fixed.
45. Grundkalle Shoal	Bothnia Gulf	60° 30' N., 18° 55' E.	..	..	..	Est. 30th Aug., 1864. Lightvessel. (a.)
46. Downs	.....	.....	..	..	..	Changes in position of buoys. (b.)
47. Gull Light-vessel	.....	.....	..	..	..	Changed in position. (a.)
St. Anns High Light	Milford	.....	..	..	..	Opened. (c.)
48. Stangholm	Norway	68° 10' 6" N., 15° 38' E.	F.	42	11	Est. 10th Sept., 1864.
49. Cape Caccia	Sardinia W. Point	40° 33' 6" N., 8° 10' 1" E.	Fd.	610	26	Est. 1st Oct., 1864. Flash every four minutes.
Cape Sandale	Ditto South-west Coast	39° 8' 7" N., 8° 14' 3" E.	Fd.	436	28	Est. 1st Oct., 1864. Flash every minute.
Port Longone	Elba	.....	F.	46	8	Est. 1st Oct., 1864. Harbour light.
Port Ferrajo	Ditto	.....	F.	21	..	Est. 1st Oct., 1864. Harbour light.
Pianosa Isle	On Battery Tower	West of Port	F.	78	10	Est. 1st Oct., 1864.
50. Nab Light-vessel	.....	.....	..	..	..	To be shifted 1½ miles East of her present position on 1st January next.
51. Isle Verde	Gibraltar Bay	S. part of Fort	F.	62	9	Est. 1st Oct. 1864.
Port Alfaques	Tarragona	40° 36' 7" N., 0° 34' 7" E.	F.	30	6	Est. 1st Nov., 1864. Red light.
Port Fangal	Fango Point	40° 47' N., 0° 47' 2" E.	F.	25	8	Est. 1st Nov., 1864.
52. Cape Tortosa	Spain South Coast	40° 43' 4" N., 0° 57' 1" E.	R.	174	20	Est. 1st Nov., 1864. Buda Island. (d.)
Bana Point	Ditto	40° 34' 5" N., 0° 39' 1" E.	F.	62	18	Est. 1st Nov., 1864. (e.)
53. Cape Spartel	Africa, Gibraltar Strait	35° 47' 2" N., 5° 55' 7" W.	F.	312	20	Est. 15th Oct., 1864.
54. Jaffa	Syria	32° 3' 2" N., 34° 44' 8" E.	R.	69	14	Est. 5th Oct., 1864. Every minute, alternately a red or white flash.
55. Rodo Island	Norway, W. Coast	64° 22' 5" N., 10° 27' 4" E.	F.	273	16	Est. 20th Sept., 1864. (f.)
56. Trincomalee	Ceylon, East Coast	.....	..	..	..	Changed from Red to a light of natural colour.

F. Fixed. Fd. Fixed and Flashing. R. Revolving. I. Intermittent. Est. Established.

(a.) 45.—Mariners should bear in mind that when in a direction right ahead or astern of the lightvessel both lights may at some distance blend and show as one light. The lightvessel will be placed at her station every year as soon as the danger of the ice is no longer to be apprehended, and will be when the season no longer admits of her remaining out.

(b.) 46.—The South Brake Buoy has been moved 6½ cables to the southward, and now lies half a cable southward of the Brake patch, (on which there is less than 24 feet at low water,) in 7½ fathoms at low water springs, with the second mill south of Sandown castle, just open of the north end of Deal terrace bearing W.b.N.; St. Margaret and Kingsdown churches in line S.W. ¼ W; South Middle Brake buoy N.N.E. ¼ E. distant 1.3<sub>10</sub> miles; Gull lightvessel N.E. easterly, 1.8<sub>10</sub> miles; Bunt Head buoy S.E. 6 cables; South Sand head lightvessel S.b.W. westerly 4.3<sub>10</sub> miles; and Deal Bank buoy S.W.b.W. ¼ W., 1.2<sub>10</sub> miles.

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*South Middle Brake Buoy.*—A new buoy, painted red and white in vertical stripes, and marked South Middle, has been placed in 6½ fathoms, nearly midway between the South and Middle Brake buoys, with St. Peters church at Sandwich, in line with the north end of No. 2 battery, bearing N.W.b.W.; St. George church at Ramsgate, in line with the pier lighthouse N.½ E.; Middle Brake buoy N.b.E.½ E., distant 1½ miles; Gull lightvessel E.½ N., 8 cables; North-west Bunt buoy S.E.½ E., one mile; Bunt Head buoy S.½ W., 1.7<sub>10</sub> miles; and South Brake buoy S.S.W.½ W., 1.7<sub>10</sub> miles.

*The Bunt Head Buoy* has been moved half a mile to the southward, and now lies in 5 fathoms, with the second mill south of Sandown castle, just touching the south end of Deal terrace, bearing W.b.N.½ N.; St. Margaret church, in line with the coastguard house in Old Stairs bay, S.W.b.W.½ W.; South Brake buoy, N.W., 6 cables; South Middle Brake N.½ E., 1.7<sub>10</sub> miles; Gull lightvessel N.N.E.½ E., 2 miles; N.W. Bunt buoy N.E.½ N., 1.7<sub>10</sub> miles; and the South Sand head lightvessel S.S.W., 4 miles.

*North-West Bunt Buoy.*—A new buoy, chequered black and white, and marked North-West Bunt, has been placed in 6 fathoms, with Upper Deal mill in line with Deal castle, bearing W.b.S.½ S.; St. Peters church at Sandwich, in line with the south end of No. 2 battery, N.W.b.W.; Gull lightvessel north, 7 cables; N.W. Goodwin buoy N.E.½ E., 2.7<sub>10</sub> miles; Bunt head buoy S.W.½ S., 1.7<sub>10</sub> miles; South Brake buoy W.S.W., 1.7<sub>10</sub> miles; and the South Middle Brake buoy N.W.½ W., one mile.

*The North-West Goodwin Buoy* has been moved to the north-westward 2 cables, and now lies in 12 fathoms, with St. Lawrence mill, in line with the obelisk at Ramsgate, bearing N.N.W.½ W.; Northbourne mill, in line with the south end of No. 1 battery, W.½ S.; North Bar buoy N.½ E., 1.9<sub>10</sub> miles; Gull Buoy N.N.E.½ E., 2.3<sub>10</sub> miles; Goodwin Knoll buoy E.N.E., 2.7<sub>10</sub> miles; N.W. Bunt buoy S.W.½ W., 2.1<sub>10</sub> miles; and the Gull lightvessel S.W.b.W.½ W., 1.7<sub>10</sub> miles.

(c.) 47.—*Gull Light-Vessel* has been moved 5½ cables in a S.S.W.½ W. direction. The vessel now lies in 8 fathoms water, with the South Foreland High light on with the south side of Old Stairs bay bearing S.W.½ W.; Ashchurch, one third from St. Peters church towards St. Clements church at Sandwich, N.W.b.W.½ W.; Middle Brake buoy N.b.W.½ W., distant 1.7<sub>10</sub> miles; North Bar buoy N.E.b.N., 3.7<sub>10</sub> miles; Gull buoy N.E. 3.8<sub>10</sub> miles; Goodwin Knoll buoy E.N.E., 4.2<sub>10</sub> miles; N.W. Goodwin buoy N.E.b.E.½ E., 1.7<sub>10</sub> miles; Goodwin lightvessel E.b.N.½ N., 5.6<sub>10</sub> miles; N.W. Bunt buoy South, 7 cables; Bunt Head buoy S.S.W.½ W., 2 miles; and South Brake buoy S.W. westerly, 1.9<sub>10</sub> miles.

*Caution.*—It is reported that the south-eastern edge of the Goodwin Sand has extended outwards, and that it is intended to move the buoys accordingly. Vessels are therefore warned to give this part of the Goodwin a wide berth.

(c.) 47.—*St. Anns High Lighthouse.*—A red strip of light is now shown from the High lighthouse on St. Anns head, at the west side of the entrance to Milford Haven, in the direction of the Chapel and Harbour rocks, visible when bearing from N.W.½ N. to W.½ N.

(d.) 52.—The breakers on the bar of the Ebro extend south-eastward 4½ cables from the lighthouse, which is the limit of the depth of 3½ fathoms. Vessels passing the lighthouse in a heavy sea should give it a berth of at least a mile.

(e.) 52.—Vessels entering or leaving Port Alfaques at night, should give Bana light a berth of at least half a mile. At the distance of 6½ cables from Galacho point on the east side of entrance to the port is a Bell buoy, 2 cables from the shore, which should be left to the eastward.

(f.) 55.—It is seen from seaward between the bearings of S.E.b.E.  $\frac{1}{2}$  E. and S.E.  $\frac{1}{2}$  S. through the channel between the Synflissa on the north and the Jupfalla on the south. Also over Svee fiord when bearing from S.W.  $\frac{1}{2}$  W. round by west to N.W.b.N.; and again in the inner or southern channel between North and N.N.E. Is of the fourth order. Approaching Rödö south of Folden fiord keep the light between the former bearings and steer for it, this will lead clear of the outlying dangers. A shoal of 8 fathoms is West about a mile from the Synflissa, on which the sea breaks; keep near the northern or southern limit of the light, but in heavy westerly gales keep on the latter. In closing with Rödö, keep the light on the starboard bow so as to give the island a berth; the northern and eastern side of it has no danger. By steering South through the inner channel, on the eastern limit of the light, a vessel may anchor in Vingsand harbour in 11 or 12 fathoms farther in. The western limit of the light in a S.S.W. direction clears Skokkel island.

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#### INDIAN OCEAN,—Ceylon, East Coast.

The following information has been received at the Admiralty through the Commander-in-Chief on the East India and Cape of Good Hope stations.

*The Alphee Shoal*,—on which the French Imperial steam vessel of that name, commanded by Lieutenant J. Gehenne, struck on the 10th of July, 1864, off the East coast of Ceylon, is from 100 to 150 yards in length North and South, with about 19  $\frac{1}{2}$  feet water on it, and 12 to 14 fathoms close to.

When the *Alphee* struck, the sea was smooth, and in passing over the shoal, the white bottom with black patches was distinctly seen. It lies more than two miles from the shore, in lat. 7° 24' N., long. 81° 50' 30" East of Greenwich. Mariners are warned not to make too free with this coast.

COAST OF COROMANDEL.—*Current*.—Commander R. Hobson, of H.M.S. *Vigilant*, reports in a letter from Madras, dated August, 1864, that during a passage from Cuddalore to that place, an unusually strong north-easterly current of at least 3 knots an hour was experienced. Mariners are hereby warned of the uncertainty of the currents in this vicinity.

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#### LIFE-BOAT INSTITUTION.

The report of the last monthly meeting of the National Life-boat Institution, received from the secretary, states that he had perused with great satisfaction, an admirable leading article recently published in the *Times*, on the great and national character of the operations of the institution. Englishmen, in all parts of the world, would be glad to see the *Times*, the leading journal of Europe, saying that it was proud of the National Life-boat Institution, and its admirable organization on the coast.\*

\* Query?—Did the *Times* ever contribute anything to the institution it is so proud of?—P. D.



The report of the meeting stated that a reward of £15 was voted to the crew of its Arklow Life-boat, for putting off in reply to signals of distress, and rendering important services to the ship *Edinburgh Castle*, from Glasgow to Singapore, which had struck on the sand-bank, off Arklow, on the night of the 20th ult. The life-boat, at the request of the captain, accompanied the vessel for some time, a portion of her crew assisting in working the ship's pumps. The captain gave the life-boat crew his note for £40, in gratitude for the valuable services rendered to his vessel by the boat.

A reward of £7 10s. was also voted to the crew of the institution's life-boat, at Selsey, for going off and rescuing seven out of twelve of the crew of the brig *Governor Maclean*, of London, which was totally wrecked during a gale of wind, on the Ower's Sand-bank, off Selsey, on the 5th inst. The remainder of the crew were taken off by a Deal lugger.

A reward of £6 10s. was likewise granted to the crew of the life-boat, belonging to the institution at Blackpool, for going off and rendering important services to the French brig, *St. Michael*, of Havre, which had anchored in a very dangerous position on the Crusader Sand-bank, during very stormy weather and a heavy sea, on the 18th ult. This was the first service rendered by this life-boat, and her crew spoke of her qualities in the heavy surf in the highest terms of approval.

It was reported that the Teignmouth life-boat of the institution had rendered important services to the schooner *Victoria*, of that port, which had struck very heavily on the North Pole Bank, at the entrance of the harbour, during a gale of wind, on the night of the 3rd inst. Rewards, amounting to £29, were also granted to the crews of the Lytham, New Brighton, Margate, and Portrush life-boats, for going off in reply to signals, with the view of rescuing the crews of various vessels in distress, but which did not ultimately require the services of the boats.

A reward of £2 was also voted to the crew of a small boat, for putting off and rescuing at some risk of life two men whose boat was stove in upon some rocks, near the harbour of Lossiemouth, in a heavy sea, on the 26th of August.

Various other rewards were also voted to the crews of shore boats, for saving life from different wrecks on the coasts of the united kingdom.

The committee expressed their deep regret at the lamented demise of Mr. Montague Gore, who had been for many years past, an active member of the committee of management of the institution, and took the liveliest interest in the welfare of sailors, sparing no expense to aid their cause when needed.

Payments amounting to upwards of £2,000, were made on various life-boat establishments.

The Horse Guards had applied to the institution for an additional supply of its new instructions, for the restoration of the apparently drowned, to be circulated amongst the several stations of the army

at home and abroad. By order of the Viceroy, and the Governors of India, these directions for the recovery of persons apparently dead from drowning, had also been extensively circulated throughout the three presidencies.

It was stated that the proprietors of the *Illustrated London News* would give a beautiful coloured engraving of the life-boat of the institution, with the number of the paper, on the 15th inst.

Letters were read from officers of the French and Russian imperial navies, expressing their acknowledgments to the institution, for the valuable information they had received from it while in England, concerning its life-boat stations.

The institution had sent during the past month new life-boats to Redcar, on the Yorkshire coast, and to Cardigan. The railway companies had, as usual, readily given the boats a free conveyance. The cost of both life-boats had been presented to the institution by benevolent persons.

A gentleman had intimated his intention, in conjunction with his sisters, to defray the cost, amounting to about £600, of a complete life-boat station on the Irish coast, in memory of their late father. They had previously defrayed the expense of the life-boat station, at Bude Haven, on the Cornish coast, in memory of their mother.

Reports were read from the inspector, and assistant-inspector of life-boats of the institution on their recent visit to the life-boat stations of the society on the north-east coast, and on the Kent and Sussex coasts. They had found all the stations in admirable order.

A model of the institution's life-boat was ordered to be placed in the Royal School of Naval Architects about to be opened at the South Kensington Museum. A letter was read from the Shipwrecked Sailor's Society, at Marseilles, requesting the institution to order for them a 30ft. self-righting life-boat, which request the committee readily complied with.

We have much pleasure in being able to report that the French government have decided to place some life-boats on the coasts of France. Preparatory to doing so, it appears to have been decided to obtain every information on the subject, and to ascertain the results of experience in this country, where life-boats have been so much more extensively used than in any other. Accordingly, after some preliminary inquiry, three life-boats, of different sizes, on the self-righting model of the National Life-boat Institution, have been ordered by the French government, complete, with transporting-carriages, and equipped in the same manner as that society's boats. They are now being built by Messrs. Forrestt and Son, the institution's chief builders, and under its superintendence, at the request of the French government.

A French naval officer of rank, Commodore De la Roche Kerandraon, in command of a division of the north coast of France, has likewise visited this country by direction of his government, to obtain a knowledge of the system of management of the life-boat establishments of this institution, and of the working of the rocket and mortar

life-saving apparatus on our coasts. He was accompanied by the inspector of life-boats of the institution to its station at Walmer, where he witnessed the launching of the life-boat; and also to two coast-guard stations, to examine the rocket and mortar life-saving apparatus.

The Commodore expressed himself as being much gratified with all he had seen, and as highly appreciating the attention he had received from the National Life-boat Institution.

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### TORPEDO BATTERIES.

The immense destructive power of the submarine mine is now one of the well ascertained facts of military science, but its effectiveness as an engine of war has nowhere been demonstrated with more convincing evidence than in the Confederate States of America, where it was brought into use in the beginning of the war, and has latterly formed one of the principal means of attack and defence in the contest between those States and the Northern government.

A most striking instance of its successful employment, and one from which we may date its adoption into general use, occurred on the Yazoo River, Mississippi, in 1863, where a Federal ironclad was totally destroyed with nearly the whole of her crew. In the same year in June it was also employed against an attacking squadron in the James River, Virginia; when one of the leading vessels, the steamer *Commander Barney*, was disabled, a portion of her armour torn off, and the fleet compelled to retire down the river with this vessel in tow, in a sinking condition. And again, this year we have accounts of the total destruction of other Federal vessels with nearly the whole of their crews, by means of the submarine mine, viz., one of the vessels attached to the fleet now in the James River, Virginia; the transport steamer *Mapleleaf*, in the St John's River, Florida; and more recently still, the new double turreted monitor *Tecumseh*, before the port of Mobile; besides numerous other striking examples of its successful employment in waters tributary to the Mississippi River, Chesapeake and other bays. Thus we are in possession of abundant proof of the importance of the torpedo as a stationary obstruction, while on the other hand its application and use, when attached to the bows of vessels, by the Confederates has presented to the world a perfectly new feature in naval warfare, which promises at no distant day to create an entire revolution in the present system of naval architecture, as well as in the existing methods of coast defence.

This novel engine of war having been attached to the bows of small wooden steamers, an attack was made by them against the Federal frigates *New Ironsides* and *Minnesota*, and so much damaged them by the explosion as to render them unfit for further effective service till docked for repairs.

It was also employed in like manner against the new sloop-of-war *Housatonic*, attached to the Federal blockading squadron off Charleston, which ship filled and went down in eight minutes after the explosion

of the torpedo under her counter. Could the Confederates have valued and brought this system of defence into general use in the beginning of the war, it is much doubted whether they would have lost the rich and productive region of eastern North Carolina, and its valuable inland water communication, so desirable for the support of their armies, as well as some other points, the capture of which gained for the Federal navy its prestige at the commencement of hostilities.

These torpedoes have, without doubt, had a demoralising influence upon some of the crews of Federal vessels while operating near the Confederate lines of defence, from the knowledge, but too well impressed on them, of the fate that awaited those who ventured too near the unseen but terrible instrument of destruction. This terror inspired by the torpedo is not confined to those on board of ships that are liable to run over them, but is shared alike by those who cruise along the coast, or ride at anchor in the roadsteads; for we see by published statements of the "war correspondents" of American journals, that the Federal "ironclad vessels anchored before the harbour of Charleston are all surrounded or encased with frames of heavy timber, extending some distance from the vessels, to prevent the approach of the rebel torpedo boats."

It is necessary to bear in mind that hitherto, in the application and use of the torpedo on board of vessels in the South, they have been invariably small craft, similar to the one described by the war "correspondent" of the *New York Herald*, of August 23, as follows:—

"When the first Monitor appeared off the harbour, the rebels essayed her immediate destruction, and brought down Mobile, a cigar-shaped torpedo boat that had been prepared in readiness for such a service. While mooring her in the lower bay her boiler exploded, killing one man, scalding another so badly that his life is despaired of, and taking off the leg of her captain. This was the entire crew. The craft is now sunk in Navy Cove, which is in our possession. When our fleet ran into the harbour, efforts were being made to raise and repair the vessel, but they were frustrated by our advent. Farragut will doubtless look after the prize when he finds an opportunity."

It will be seen, however, from the following paragraph from the *Index*, under date of 25th ultimo, that this new and formidable engine of war is being introduced into the Northern navy, as a part of the regular armament of their ironclad ships.

"The repeated proofs given during the war in America of the immense destructive power of the torpedoes, or sub-marine batteries, employed by the Confederates, and which are attached by a peculiar apparatus to a number of their vessels, has induced the Federal government to take a leaf out of the enemy's book in this respect, and a letter from the United States informs us on the best authority that this new and formidable engine of war has been extensively introduced in the Federal navy, and several ironclads are already fitted with the same apparatus as the Confederates employ, or one closely resembling it."

It is unhesitatingly asserted by competent judges, that a vessel pro-

perly constructed for the application of the torpedo battery, and possessing superiority of speed, would prove a formidable antagonist against a number of frigates, although armed with the heaviest metal, for it would present the least surface to their fire, and always under the most acute angles. One special advantage which it possesses is, that it may be worked at all times; for instance, in a rough sea, when ordinary guns could not be used; while it may be employed with certain success under cover of darkness against an enemy's fleet, disabling, destroying, or driving them away from the coast altogether.

Great economy, simplicity, and safety are further and no less valuable and important qualities claimed for the sub-marine battery; neither the battery itself nor the men working it are in the least exposed, the apparatus being situated much below the line of flotation. As this destructive agent comes more generally into use, which it assuredly must after the experience of its terribly swift and sweeping effects furnished by the American war, a new field will be opened for the inventive genius of our naval constructors, to devise ways and means to ward off or escape so unpleasant a weapon of attack, more formidable than those possessed by *Warriors, Royal Sovereigns, &c.*, for there is no ship now afloat of sufficient strength to resist its power, nor guns of heavy calibre enough to penetrate the armour of a vessel bearing it, when properly constructed for the purpose.

The Lords of the Admiralty have had this new engine of war under consideration, and referred it to a board of competent officers, who approved and recommended its adoption as an auxiliary for the defence of harbours and roadsteads. Though the authorities may not at present be impressed with the necessity of immediately taking up and applying this new and most important development of naval engineering, the changes which it is destined to bring about in the naval armaments of all countries alike, will assuredly ere long be forced upon them; and the requisite measures for keeping up in this respect with the march of events, must soon enter largely into the general estimates for war purposes.—*Daily News.*

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CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,  
ADMIRALTY, in October, 1864.

- Ionian Sea, Prevesa Strait, Commander Mansell, R.N., 1864, (1s.)  
 Syria, Jerusalem, Mr. Catherwood, 1833 (2s.)  
 Mediterranean Sea, Dernah to Ras Bulaou, Captain Spratt, R.N., C.B.,  
 1862. (2s. 6d.)  
 Newfoundland Island, La Poile Bay, Captain Orlebar, R.N., 1862 (1s.)  
 Canada, Lake Erie, Western part United States, survey corrected to 1864  
 (2s.)  
 Vancouver Island, Esquimalt and Victoria Harbours, Captain G. H.  
 Richards, R.N., 1862 (2s. 6d.)  
 Vancouver Island, Inner Channels leading to Hara Strait, Captain G. H.  
 Richards, R.N., 1862 (2s. 6d.)  
 Vancouver Island, Goletas Channel to Quatsino Sound, with views, Captain  
 G. H. Richards, R.N., 1863 (2s. 6d.)

EDWARD DUNSTERVILLE, *Commander, R.N.*  
*Hydrographic Office, Admiralty, October 20th, 1864.*

THE  
NAUTICAL MAGAZINE

AND

Naval Chronicle.

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DECEMBER, 1864.

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BRITISH MERCHANT SHIPS AND BRITISH JUSTICE.—*The Barque  
"Royal William" and the Ship "Falcon."*

The letter on the subject of the Compass in Merchant Ships, which appeared in a recent number of the *Nautical Magazine*, is in itself a tolerable index of the manner in which affairs are managed in that service. Fair enough to appearance, but when it comes to the test of duty, its blemishes soon appear, and its defects and utter worthlessness would prevent any one placing confidence in it until too late, when a ship with it at sea must find her way to the end of her voyage—if she can. Such is unfortunately the case with more matters than the compass in our merchant vessels, which sail the ocean fair and seemly to look at, but go on board and far different scenes will meet the eye.

Here is a case in point supplied by our law proceedings relating to the sea, a picture taken at random of the condition of a British merchant ship. She was called the British barque *Royal William par excellence*, to distinguish her as a specimen of the care and kindness with which British ships are sailed,—their seaworthiness, and such matters: her commander too was another specimen of the class of Englishmen distinguished for the same qualities which where they are really found constitute the happiness of a ship, but where tyranny and cruelty on his part prevail on board produce the reverse.

Now we will take the case as it stands reported in the *Shipping and Mercantile Gazette*, as occurring at the Queenstown Sessions,—  
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the statement of a French seaman, whose misfortune it was to belong to this British barque, and it reveals a tissue of cruelty on the part of the captain that could scarcely be believed had been exercised by a British master mariner (master bully he should be called) towards any of his crew.

The articulated seamen, Leone Louis, a Frenchman, is the complainant, who deposes to a bench of three magistrates, and is an exceedingly intelligent man, who spoke English with facility, that the vessel had been at Demerara and was lying in the river on the 18th of August last, when the captain ordered the crew to get up the anchor for the purpose of proceeding to sea.

The ship was in a leaky condition, making eight or nine inches of water per hour when underway, and the crew refused to heave the anchor until they should have been allowed to go on shore to a magistrate, deeming the ship in an unseaworthy state.

Now this was perfectly legal. The crew had a right to state their grievance, for who knew better than they did the certainty of work at the pump that awaited them: but it appears that,—

On their refusing to obey this order, the complainant and three others of the crew were fettered by order of the captain, and witness, with his hands lashed with a rope behind his back, was placed in confinement in the boatswain's locker—a place forming part of the wheel-house, in which he could not stand erect. Another man, named Dorán, (belonging to Queenstown,) was stowed into the same locker with him, but was taken away subsequently.

Here is a man entrusted with a little brief authority thrusting two men, hand bound and fettered, into a locker not large enough to hold one in which he could stand up, besides preventing them from stating their grievance where it would have been listened to. But it was perhaps inconvenient for securing two, and the Frenchman is afterwards left to himself to meditate in his fetters on English justice entrusted to the hands of the English captain of the barque *Royal William*. But to proceed with the narrative.

The Frenchman who comes forward to complain of this treatment says that he remained in that confinement from the 18th to the 19th, and during that time all that was given in the shape of food was a few biscuits and one pint of water between the two of them. Could not reach either biscuit or water, in consequence of the attitude he was in and being bound.

At half past seven o'clock on the morning of the 19th, the captain came aft, and told the man at the wheel to go to his breakfast, and he (the captain) would take care of the wheel.

When the man had left the wheel the captain came to complainant where he was confined, and seeing the biscuit and water beside him, exclaimed,—D—— your eyes, who gave you that pot of water?

Complainant answered,—The mate, sir. The captain took the water, and threw it in complainant's face.

It is to be hoped that this kind, paternal treatment on the part of the captain will some day meet its reward. He rejoices in the name

of Holywood, with its prefix of John, and some day or other the compliment may be returned with interest by the countrymen of the Frenchman. "T'would be a pity that so marked a favour should not have its reward.

Then this specimen of a good kind hearted captain asks, who had given him the biscuit, and on receiving a similar reply, he took the biscuit and hove it down the companion after the mate. The captain then told complainant to come out of the locker, that he might see how he was fastened.

Perhaps the fastenings were too tight, and he might relieve the suffering,—but how little, alas! do we know of our kind hearted Demerara ship captains,—for we hear that finding the rope a little slack he made it tighter.

And then follows a scene at which an Englishman might blush that he should have a countryman that could behave as he did invested with a command.

Seizing complainant by the breast while he was in that defenceless position, he knocked his head twice or three times against the wheel-house, and then told him to sit down in the house. Complainant did so, and the captain then took up a marlingspike, a sharp pointed iron instrument, and made a lunge with it at his body, but complainant slewed round and escaped the blow. "Captain," said he, "are you going to kill me?" The captain replied, "Yes, I am going to kill you." He then took up a scraper and struck him on the shoulder with it, cutting him and leaving him a scar that had not yet disappeared. The next thing he did was to seize him by the mouth, completely muzzling him, and tearing his cheeks with his nails, so as to cause blood to flow. He also struck him twice on the back with the marlingspike, cutting him in two places, and knocking him down. The captain then shut complainant into the locker and went away. The man returning to the wheel allowed him to come out. He loosed his own fetters and stole away to the fore-castle.

There is a picture for our friends on the other side of the water to contemplate! There is a specimen of the treatment to be looked for by a Frenchman in a British merchant ship,—a specimen of the manner in which the *entente cordiale* would be encouraged by this specimen of the commander of a British merchant ship. Verily, that intelligent French seaman, Leone Louis, has occasion to remember Captain Holywood and his Demerara ship, the British barque *Royal William*. But if he remembers her captain, as he no doubt will do and some of his countrymen likewise—(I hope they will not tar and feather him—of course not—) he will at least remember the man who as he returned to the wheel let him out of the locker and enabled him to loose his own fetters. And all this was because he wished to go on shore with others of the crew, five who had refused but returned to their duty to pump the ship, which they had to do on the voyage, as the ship continued to make eight or nine inches of water per hour, and this they had to do every half hour on their way home.

But what kind of justice does this French seaman obtain when he



appeals to our laws. Surely he might expect to find justice on British soil, the land of the free, in which justice is equally extended (blind as she is represented to be) to the cottager as to the peer, to the seaman as to his captain. There is something so peculiar in this that the report of the proceedings in the court of Queenstown shall speak for itself.

Let it first be remarked that Peter Hansen, another of the crew, who was bound on the deck, in view of the wheelhouse, corroborated the complainant and the previous witness's testimony.

Robert Crawford, the mate, spoke to the fact of some biscuit coming down on his head from the deck while he was sitting at breakfast in the cabin on the morning of the 19th of August. The vessel made so much water that they had to pump every half hour during the voyage.

So that the crew, mate and all, corroborate the statement. But here is the justice of the case: no complaint had been made by the crew until the vessel was on the point of sailing, and therefore when the expectations of the crew that the cause of complaint—viz., the leaky state of the vessel—would have been remedied in this interval, and it was not done,—their offence is the desire to go on shore and represent it.

One of the magistrates, Mr. Scott, says—The captain who would take a ship to sea in that condition, with those men lashed in that way on board, would, if they were drowned in her, be clearly answerable for their lives.

Then it was asked by Mr. Tarrant.—How was this ship classed?

Replies Captain Holywood—without throwing a pot of water in his face,—Diphthong Æ 1 at Lloyd's, your worship; which, to say the best of it is a questionable character for any merchant ship.

And Mr. Tarrant states his opinion that the men had acted improperly in refusing to work; that the captain had a certain discretion on board his ship; and that he was justified in imprisoning the men; that, in his opinion, he had used no more force than was necessary to keep them, and the complainant amongst them, in subjection.

This is Mr. Tarrant's justice: in all he did Captain Holywood was justified. Attend to that all you French seamen who would sail in leaky British barques. You may be confined in a box not high enough for you to stand up in, you may have pots of water thrown in your face, and be treated by the captain with all the indignities above mentioned, and in the eyes of a British magistrate there is the justice you would obtain from the evenhanded court of law at Queenstown. Such, however, was not the view taken of the case by another of that bench.

Mr. Scott pronounced the course adopted by the captain not to be that which should have been followed by a British shipmaster, on board a British vessel, towards a British seaman, where there was a British magistrate to have had recourse to. His duty was to have gone to the magistrate when the men refused to work, lodged informations against them and have them brought up. If they had

disobeyed his orders the law was open to him to afford redress; but he did not understand why he should have kept the men twenty-four hours as prisoners under those circumstances. He was of opinion the captain had done wrong in putting complainant into confinement.

This, indeed, was the view of a discreet, sensible Englishman, and it is to be regretted that there are not more such on the bench,—and in command of British merchant ships too, may be added. It is owing to the absence of such men that cases like this bring disrepute on our character.

But, says Mr. Tarrant,—I am for dismissing the case fully.

And, adds Mr. Scott,—I am for convicting the captain of unlawfully imprisoning the man. I recognise as much as any man the necessity for upholding the authority of shipmasters on board their vessels; but, at the same time, no seaman is bound to go in a ship which is not seaworthy, without applying for protection to the authorities constituted by law.

Mr. Scott may be looked on as the friend of the seaman. Had this gentleman's views ruled the proceedings of the British barque *Royal William*, the extra work of the crew in pumping that leaky barque every half hour on her voyage home would have been avoided; the crew would not have been fatigued with the extra duty, for which they had no remuneration; and the brutal behaviour of a tyrannical captain in his brief authority would have been kept to himself, to the advantage of the character of British ships.

But what availed the opinion of Mr. Scott; another person on the bench, Captain Martin, says—My feeling is that the captain has a perfect right to take upon himself the use of a certain degree of restraint towards a crew whom he finds disobedient; and if he considers that by imprisoning them for a certain time he will get the duty performed afterwards, he would prefer doing so to taking them before a magistrate. I do not think this captain has gone beyond what he has the power to do.

Mr. Scott,—Then you dismiss the charge?

Captain Martin,—It is dismissed.

Mr. Allen,—The effect of that is to disbelieve the sworn testimony.

Mr. Tarrant confessed he did not believe it.

And thus ends the hearing of this disgraceful case before the bench at Queenstown,—a case which stamps the British merchant ship as the seat of violence, tyranny, and imposition, and the character of our maritime laws as leaning towards the rule of supporting those three qualities in their commanders,—a character which by no means belongs to them. It is to be hoped, Mr. Editor, that the Frenchman, Leone Louis, and all others, English as well as French, will take a lesson from this case.

Justice seems to fare better at the Thames Police-Court than on the Irish bench at Queenstown. In the same paper that contains the foregoing case are two others, concerning wages claimed by seamen; one of which I will take—that of the *Falcon*—in contrast to the

foregoing. The magistrate here held the scales of justice with no faltering hand,—neither prejudiced with the tinge of command nor deaf to plain statements of gross ill-treatment, supported by evidence that should have gained attention instead of being thrown to the winds.

In this case the commander of the *Falcon* was summoned by Thomas Ryan, a seaman, to answer why his pay was withheld from him. He had shipped at Hong Kong for £3 per month, and it was sought to deduct £6 4s. from his wages for two months and two days' absence from duty. He joined the ship on the 24th of March last, and three days afterwards was laid up—the result of accident. He was coming down the mizen rigging, when a ratline broke under his foot and his leg was injured—skinned, in fact, by the rigging. It was admitted that he had something the matter with his leg on a former voyage. He had fallen into the hold and injured it. It had healed up long before he joined the *Falcon*. The last accident happened on the voyage from Hong Kong to Ningpo, and might have been three days after he joined the ship, but no entry in the log was read over to him relating to the accident.

The accident was proved by a seaman of the *Falcon*, who saw it, by the ratline giving way, and knew his shipmate's leg was injured.

Mr. Aubin, a surgeon, of Arbour Terrace, Stepney, said he had examined the complainant's right leg. There was the scar of a wound on the leg. It had been injured, and such an accident as the one described would have deprived the seaman of the use of his leg for some time. The man was now entirely fit for duty.

The complainant further asserted that he was in good health and strength when he joined the *Falcon*. His former wound healed up twelve months before he shipped at Hong Kong.

It was artfully attempted to be made out that he had come on board the *Falcon* with a bad leg, but to no purpose; and the presiding magistrate, Mr. Partridge, considered that he had clearly made out his case, and was entitled to the wages sued for, £16 0s. 10d., and two guineas costs, being one guinea for the attorney and one guinea for the surgeon.

Now there can be no doubt that to lose the services of a seaman in the *Falcon* was no trifling matter, but the commander's discretion ought to have shown him that this was a case of real injury in the performance of duty. A man would not be likely to incur such an injury for the sake of shirking duty, and it would have saved his owners the process by which they were two guineas out of pocket, besides the infelicitous position of being sued by their seaman for wages withheld.

SCRUTATOR.

THE NORTH-EASTERN BOUNDARY OF THE UNITED STATES.—  
*Report from the State of Maine.*

(Continued from page 573.)

A brief historic sketch, showing the origin of the title to the territory, will establish all that has been asserted in reference to the bad faith of England and the disingenuousness of her diplomacy. This history goes back to the earliest efforts at European colonization.

France and England started together in their efforts to possess this empire of the New World. Disregarding the Pope's donation to Spain and Portugal, they watched, with the same jealousy as now, every movement of each, and of every other power, to gain title to the country. Agreeing in the doctrine of Elizabeth, in 1580, that *possession* was essential to the establishment of title, France granted to Du Monts the new world, from the 40th to the 46th degree of North latitude, November 8, 1603, reserving "any lands therein held by any other Christian prince or people."

England granted in like manner, or with similar reservations, to the company of Virginia, the country from the 34th to the 45th parallel of North latitude, April 10, 1606. The French took possession at the St. Croix, in Maine, in 1604; the English at Sagadahoc, in Maine, in 1607; both claiming to the extent of their charters. The French monarch, Henry IV., through the influence of the Jesuits, was induced, in 1607, to revoke the charter of 1603 to Du Monts, a Protestant nobleman and a member of his household, after the settlement of the English at Sagadahoc; thus letting in and giving priority to the English title over the subsequent French charters to Champlain and Poutrincourt. Champlain took possession of the St. Lawrence in 1608, and discovered and gave his name to Lake Champlain. But on finding it South of the 45th degree of latitude, the northern limit of the English grant, he retired above that line, and in this way this most ancient landmark became established. The charter of New England of 1620 extended its line as far North as the 48th degree, but it met at the 45th parallel the possessions of the French on the St. Lawrence.

The future of France and England in America was practically determined by these events of 1607; and all men now see that the most important event of modern times was the establishment of the title of the English to the new world. England traces the growth of her empire, and the expansion of her commerce, to that of her North American colonies.

The struggle for the sea coast of Maine between England and France, commencing in 1607, ended with the peace of Ryswick, in 1697, and the future of the continent seemed all this time in suspense. In 1613 Argall found the Jesuit Fathers Baird and Masse, at Mount Desert, with their faithful followers from the monasteries of France, living in peace with the native tribes. He promptly destroyed their settlement, killing or carrying them into captivity. This shedding of

blood, the second act in the drama of empire in North America, aroused all Europe to the consequences of the measure, and called forth angry diplomatic controversy. France yielded again to the domination of England, who held the country to the 45th degree of North latitude. Champlain, from 1620 to 1635, insisted to his sovereign that whoever held the basin of the St. Lawrence should hold the open sea coast of Maine; and when Cadillac, the future governor of Louisiana, and the founder of Detroit, after the commencement of the long war of 1687, known as the ten years' war, submitted a plan, in 1692, for the conquest of the English posts and holding the sea board of Maine, he failed to receive adequate support from his government, till, in 1697, the peace of Ryswick, establishing by treaty stipulation the right of England to the sea board East to the River St. Croix, again defeated the hopes of France for supreme control in the New World.

The struggles of France and England on this continent—perhaps stimulated by differences of religion and race—had their origin in an intuitive faith in the leading minds of both nations in the future greatness of the country, and the hope of dominion. The French leaders, far ahead in theoretic ideas, found less support than the English in the disposition and character of their colonists.

Maine belonged to England, and was partially peopled after the St. Croix became the eastern boundary of New England; but with all these acquisitions from France, England had but a small portion of the continent. Prior to the conquest of 1759, according to Bancroft, dividing North America into twenty-five parts, France held twenty, Spain four, and England but one. Quebec was captured by Wolfe in 1759. The treaty of peace of 1763 gave new France to England. A new government was to be established. In the royal proclamation of October 7, 1763, the line of boundary between the newly acquired province of Quebec and New England ran "from Lake Champlain, in 45° of North latitude," "along the highlands which divide the rivers that empty themselves into the St. Lawrence from those which fall into the sea," &c. The same line was established by the Quebec act of 1774.

In the commission of Governor Wilmot as governor of Nova Scotia, dated November 21, 1763, the western boundary of that province was established as follows;—"Westward by a line drawn from Cape Sable across the entrance of the bay of Fundy to the mouth of the River St. Croix, by said river to its source, and by a line drawn due North from thence to the southern boundary of the province of Quebec." All this territory belonging to Great Britain in 1763, was divided into New England, Nova Scotia, and the new province of Quebec, whose lines of boundary could not be more clearly stated.

In the war of the Revolution, neither Canada nor Nova Scotia took with the other thirteen colonies. In the definitive treaty of peace of 1783, notwithstanding the efforts of the King, George III., to make the Piscataqua instead of the St. Croix the boundary, the lines were established as follows:—"From the North-west angle of Nova Scotia,

to wit, that angle which is formed by a line drawn due North from the source of the St. Croix River to the highlands, along the highlands which divide the rivers that empty themselves into the River St. Lawrence from those which fall into the Atlantic Ocean, to the north-westernmost head of the Connecticut River," &c.

"East by a line to be drawn along the middle of the River St. Croix, from its mouth in the bay of Fundy to its source, and from its source directly North to the aforesaid highlands."

By the 5th article of Jay's treaty of November 19, 1794, there was an agreement for a joint commission to ascertain "What river was truly intended under the name of the River St. Croix, mentioned in said treaty of peace," (1783,) &c. The duties of this commission were performed in 1798, the St. Croix was agreed on, and the source thereof marked and established by a suitable monument. This adjudication solved every remaining doubt, and left nothing open for dispute. To run and mark the line "from the source of the St. Croix" to the head of the Connecticut River, following the words of the treaty, was as easy as to find the summit of Mount Washington.

The lines agreed on in the treaty of 1783 coincided with the lines of boundary of 1763, then established for the convenient government of the empire, all belonging to the same power. No language could be more explicit, and no ingenuity of statement could ever throw a doubt over the matter.

From 1817 to 1842 our national government sought to avoid war with Great Britain. They could not fathom the depth of that duplicity that led them into new negotiations for the possession of the northern part of Maine. The absurd pretence that it was "impossible to execute the treaty of 1783," asseverated by Lord Palmerston with the assumed positiveness of conviction, almost ripened into an admission on the part of our government, in the specious diplomacy of Lord Ashburton in 1842. At the end of twenty-eight years after the treaty of peace and amity concluded at Ghent, which was to close all disputes and give repose to the eastern border, at the end of the war 1812-15, Maine found peace only in yielding up everything for the sake of the country. Her municipal charters, granted in good faith to her few settlers, who had gone into the territory, were vacated by the act of cession: her citizens who had been imprisoned for adhesion to the American cause, were left to seek new homes, and that portion of the territory mainly valuable in money for its timber, containing a rich soil suitable for settlement and fitted for raising wheat, left to them at the end of the struggle, which they had hoped soon to fill with enterprising citizens, stripped of its most valuable timber. The locking up of the country from settlement for the space of twenty-eight years was itself a cruel and disastrous blow to the prosperity of the State. Maine complained, and she has since been treated with harshness and neglect.

But the conduct of Maine has been consistent. She would have vindicated her rights by the arbitrament of arms, but for the inter-

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ference of the federal government. Her commissioners in 1842, in giving their reasons for rejecting the terms proposed by Lord Ashburton, were overborne by threats of war. In their communication of July 22, 1842, they say:—

“The State of Maine has always felt insuperable repugnance to parting with any portion even of her disputed territory for a mere pecuniary recompense from adverse claimants. She comes here for no mere bargain for the sale of acres, in the spirit or with the arts of traffic. Her commissioners have been much less anxious to secure benefits and recompense than to preserve the State from unnecessary curtailment and dismemberment.”

The governor of Maine, in his annual message to the legislature, January 7, 1843, says:—

“I transmit herewith a report, with accompanying documents, of the commissioners appointed under resolve of May 26, 1842, to confer with the authorities of the general government upon the subject of a proposed settlement of the north-eastern boundary of this State, and for other purposes.

“The result and final adjustment of this question, even if it should be regarded by the people of this State as preferable to further procrastination and another foreign arbitration, under present auspices, I am persuaded, is far different from what they had anticipated. For myself, I can truly say that I have been deeply disappointed, to use no stronger term. By this, however, I would not be understood as intending to cast censure upon the commissioners of this State. They were selected by the legislature as gentlemen of elevated standing—commanding in a high degree the confidence of the public, and as eminently qualified for such a service. The correspondence on their part was conducted with signal ability, and the embarrassments of their position, and the circumstances by which they were ultimately induced to submit the question to the determination of the Senate of the United States, are fully appreciated. But however their course may be regarded, the result is, nevertheless, a subject of deep disappointment. The course of the British government, so far from having been, as was anticipated, conciliatory and liberal, was marked by an unyielding and grasping spirit. Its liberality, if any was evinced, was in unmeaning diplomatic compliments, while its exactions were in acres and substantial privileges; for this State can never admit that the case presented was one of doubtful title, in which the adversary parties might reasonably be expected to compromise by ‘splitting the difference.’ The relinquishment of a claim, therefore, by the British government, to a portion of what has been denominated the disputed territory, cannot be regarded by us as in any sense a concession. If a portion of this territory was necessary for the convenience of the British government, this State had a right to expect, on its being yielded, that a full and ample equivalent in other territory would have been freely tendered. Towards the fulfilment of such an expectation there has not been the slightest approximation.

“The indirect overtures on the part of the British government for

an amicable adjustment of the boundary question, it is well known, were met on the part of this State in a spirit of magnanimous forgetfulness of the past, and with a generous regard to the supposed interests and wishes of her sister States. Earnestly entreated by the general government, and pressed as she was by circumstances, she could not hesitate to place herself in a position admitting of an amicable and honourable settlement of the question, confidently trusting that the government of the Union, in some of its departments at least, would secure her from sacrifice. For this step she has no cause of self-reproach. It was taken under circumstances that would fully justify its repetition. How this generosity and confidence on her part has been rewarded, is seen in the result! But I forbear to dilate upon the subject, especially as it would be unavailing. If in this Maine 'has not been treated as she has endeavoured to deserve,' it is far from being the first instance. All her injuries, however, cannot shake her sense of duty. As a member of the Union, she will continue to be what she has ever been, faithful and true. And if she could be satisfied that the sacrifice was necessary for the good of the country, she would in that find ample consolation. To insolent and unfounded pretension she can yield nothing; to the cause of patriotism and the Union, everything."

An able committee of both branches of the legislature in their report of March 21, 1843, say:—

"That the terms of the treaty of Washington, concluded on the 9th day of August, 1842, so far as they affect the State of Maine, are not satisfactory to the people thereof.

"That the hopes and expectations under which the State of Maine consented to participate in the negotiation which eventuated in the treaty of Washington, are greatly disappointed by the result of that negotiation.

"That the true meaning and intent of the resolves passed by the legislature of Maine on the 26th of May, 1842, entitled 'Resolves in relation to the north-eastern boundary of this State,' did not authorize the commissioners elected under said resolves to surrender any portion of the territory within the line of the treaty of 1783 as claimed by Maine, without a full equivalent therefor."

The sum of 300,000 dollars was paid over to Maine and Massachusetts, in equal moieties, "for the lands relinquished to the United States, and excluded from the dominion of the Union," by the new line of boundary. This is the only condition of the treaty that has been performed. But, for the fulfilment of this condition, the faith of both governments, Great Britain and our own, was pledged; and so great was Lord Ashburton's anxiety on this point, that he made the payment of this money a subject of public correspondence with the Secretary of State of the United States.

The advantages proposed to Maine, for this surrender of territory, were the free navigation of the River St. John and the payment over of the proceeds of the timber robbery, which was to go into "a dis-



puted territory fund," to be kept by New Brunswick. That provision of the treaty for the free navigation of the St. John, in the following words:—"All the produce of the forests grown on those parts of the State of Maine watered by the River St. John 'shall be dealt with as if it were the produce of the province of New Brunswick,' was shamefully evaded and defeated by the abolition of stumpage dues in New Brunswick, and the imposition of a high export duty on all lumber floated upon the St. John River—a plan substituted in place of the old method of selling lumber.

The disputed territory fund, it is true, reached a large sum, which Maine expected to receive; but it was all consumed by the claims for expense, and not a dollar of it was ever paid over to Maine.

Mr. Webster lived long enough to see the boasted advantages he had "secured to Maine by the treaty" vanish into thin air.

How persistently Maine has always, and since the ratification of the treaty, asserted her rights, the documentary history of the United States will show; with what success, the various bills and other matters on the files of Congress will establish. A bill reported in 1863, and again in 1864, from the Committee on Foreign Relations of the Senate, compensating Maine and Massachusetts for lands assigned to occupants under the 4th article of the treaty of Washington, lies undisposed of on the table of the Senate.

That Maine has not been disloyal, her whole history and the records of the last three years will abundantly show. After reciting, in brief terms, her claims on the government, by the resolutions of 1864 she reiterates and renews her demands in the language of the resolves of the legislature, approved by the governor January 31, 1863, "that 'Maine expects and earnestly demands that measures be taken at once by the general government for the protection of its north-east frontier;' that this can be accomplished only by a military railroad from Bangor to the St. John River.

"*Resolved*,—That the people of Maine, zealously attached to the principles of the Constitution and loyal to the government of the United States, surrounded on three sides by the territory of a foreign power, its other side fronting the ocean, where it is at all times exposed to attack by a superior naval power by force of its position of incalculable importance to, and steadily coveted by, the people of the British North American provinces, cannot fail to perceive their danger in case of a war with any one of the great powers of Europe; and they appeal to Congress for such aid and support as will enable them to protect their territory from foreign invasion, and secure them against further diminution of their ancient domain.

"*Resolved*,—That the government of the United States having forced a reluctant assent from the State of Maine to the treaty of Washington, by which treaty the most valuable portion of the territory of the United States for military purposes was surrendered to Great Britain, securing to her a military route in the St. John's valley, between Canada and New Brunswick, the only adequate measure of

compensation that can be awarded to Maine is the construction by the federal government, or through its aid, of a military railway from Bangor to the St. John's River, as suggested in the resolutions of Maine of January 31, 1863; that in order to secure this result, the State releases and assigns to the European and North American Railway Company of Maine all claims on the federal government accruing prior to the year 1860, in case the United States government affords such aid to said railway company as will enable it to carry out its line of railway from the city of Bangor to the St. John's River, or to such point in the northern part of Maine as may accomplish the objects and purposes sought for by the government of this State and of the United States."

Maine practically asks nothing of the United States government. The objects she seeks to accomplish are national in their character in every sense of the term. The defence of Maine is more essential to the maintenance of the national government than that of any other section of the country; and this can only be effected by a line of railway, extending from the central and more densely populated portions of the country, to the north-eastern frontier. An interior line of railway, free from the interruption of an attack by sea, from New York, Boston, and Portland, to the St. John River, would enable our government to concentrate an overwhelming force upon it, and cut the line of communication between Halifax and Quebec. This accomplished, the line of railway from Portland to Canada in our hands, and the city and harbour of Portland made impregnable, British North America could not resist one winter campaign in a war with us. Ability on our part to strike the power of England from the continent is our best guarantee of perpetual peace with her.

On the 14th of October, 1861, the United States government invited the loyal States on the seaboard and lakes to initiate measures for the defence of their respective States. Maine promptly responded to this call of the President, and through the measures then put in progress, the coast of Maine is being put in a condition of defence.

A correspondence with the War Office led to a report from E. F. Johnson, Esq., an able engineer, urging the establishment of this line of railway from Bangor to the St. John River.

Failing to secure the action of the last Congress for the building of this line of railway, or to realize anything to her treasury from the several just and admitted claims due to her, Maine has placed all her claims against the federal government at the disposal of Congress, to aid the building of a work of admitted military necessity, not only recommended by the Secretary of War, but earnestly advised by the distinguished military commandant of the department of the East.

The State of Maine having assigned all her claims against the United States, arising before the year 1860, to the European and North American Railway Company, it becomes proper and necessary to state, specifically, what these claims are, with the proofs of each, and the considerations which are urged in respect to them, as they

have been separately exhibited by those who represent in this matter the State of Maine and the European and North American Railway Company.

I.—*The Claim for Lands assigned to Settlers under the Fourth Article of the Treaty of Washington.*

The nature and amount of this claim are fully set forth in a report made to the Senate, at the 3rd session of the 37th Congress, by the Committee on Foreign Relations.—(See Senate reports of that session, No. 88.) This report accompanied Senate bill of that session No. 498, by which the Secretary of the Treasury was directed to pay to Maine the sum of one hundred and thirteen thousand and nine hundred and six dollars (113,906 dollars). The same committee of the Senate has reported a similar bill during the present session; and in neither case did any member of the committee dissent from the conclusion arrived at.

The following extracts from the report of the Senate committee, as prepared and submitted by Hon. Mr. Doolittle, of Wisconsin, will sufficiently exhibit the character of this claim.

“The fourth article of the treaty of Washington, concluded between Great Britain and the United States on the 9th of August, 1842, is in the following words:—

“‘All grants of land heretofore made by either party within the limits of the territory which by this treaty falls within the dominions of the other party, shall be held valid, ratified, and confirmed to the persons in possession under such grants, to the same extent as if such territory had by this treaty fallen within the dominions of the party by whom such grants were made; and all equitable possessory claims arising from a possession and improvement of any lot or parcel of land by the person actually in possession, or by those under whom such person claims, for more than six years before the date of this treaty, shall, in like manner, be deemed valid, and be confirmed and quieted by a release to the person entitled thereto of the title to such lot or parcel of land so described as best to include the improvements made thereon; and in all other respects the two contracting parties agree to deal upon the most liberal principles of equity with the settlers actually dwelling upon the territory falling to them, respectively, which has heretofore been in dispute between them.’

“So far as the United States are concerned, the foregoing article is an agreement on their part to respect the possessions of all persons found at the date of the treaty upon that part of the before disputed territory which fell to Maine by the new line of boundary. The extent to which such possessions are to be respected, is accurately defined.

“All persons in possession under grants are to have their grants fully confirmed according to their terms.

“All persons holding by mere possession, if their possession dates six years or more prior to the treaty, are to hold their lands run out by notes and bounds so as to cover their improvements, and they are

to be 'confirmed and quieted by a release to the person entitled thereto of the title to such lot or parcel of land.'

"All persons holding by mere possession, if their possession did not commence six years prior to the treaty, are entitled to the benefit of the following stipulations:—'And in all other respects the two contracting parties agree to deal upon the most liberal principles of equity with the settlers actually dwelling upon the territory falling to them, respectively, which has heretofore been in dispute between them.'

"It appears that in 1843 the States of Maine and Massachusetts instituted a joint commission to examine the claims of persons entitled to be confirmed in their grants and possessions, and authorized deeds of release to be made to the persons found to be thus entitled. The ownership of nearly all the lands in the before disputed territory was then jointly in those two States. The operations of the commission instituted in 1843 were principally confined to the settlements of the Madawaska French, which were ancient and well known. It soon became apparent, however, that a large number of cases of claims entitled to be quieted existed, and which had escaped attention by being scattered over a great territory little accessible by roads, and of which not much was known in Maine until some years after the possession of it was recovered by the treaty. Accordingly, in 1854, Maine having become in the mean time the owner of all the lands by a purchase of the half belonging to Massachusetts, instituted a new commission to ascertain and report all the cases of possessory rights which had escaped the attention of the commission instituted in 1843.

"The first commission reported as entitled to be confirmed 53,822 acres, and this was done by deeds from Maine and Massachusetts, who were the owners of the land. Of this land, 52,300 acres were the joint property of Massachusetts and Maine, and 1,521 acres were the separate property of Maine.

"The second commission reported as entitled to be confirmed 63,454 acres of land belonging to the State of Maine, and 8,107 acres belonging to private proprietors in the Eaton grant and in the Plymouth township.

"By an act of the present Congress, passed at the first session, the persons in possession of these 8,107 acres of land in the Eaton grant and in the Plymouth township have been quieted. This act made an appropriation, at the rate of four dollars per acre, to induce the private proprietors to execute the 'release to the persons entitled thereto,' which the United States are under treaty obligations to procure.

"As to the 63,454 acres of the lands of Maine, now in the occupancy of persons entitled to be quieted in their possessions, Maine has indicated her willingness to quiet them by the necessary releases of title, upon receiving from the United States an adequate compensation for these lands, and for the lands conveyed under the report of the commission instituted in 1843.

"And the call is now made upon the United States to execute the fourth article of the treaty of Washington, by making such an appro-

priation of money in payment for the lands of Massachusetts and Maine falling within the purview of the article as will compensate their fair value, and thus justify Maine in executing the releases of title which are stipulated by the treaty.

“The duties of the United States under the fourth article of the treaty of Washington have been acknowledged not only by the passage of the law to quiet titles in the Eaton grant and in the Plymouth township, but by the payment to Maine and Massachusetts of the expenses of the commissions before referred to, as instituted in 1843 and 1854.

“Upon the whole case, the committee believe that the United States are under obligations to quiet the settlers upon the public lands of Massachusetts and Maine, under the fourth article of the treaty of Washington, by procuring for them releases of the titles to their lots, and that for this purpose an appropriation should be made equal to the fair value of these lots.

“In 1852 the Committee on the Judiciary of the Senate reported that this fair value would be one dollar and fifty cents per acre.— (Senate reports, No. 361, 32nd Congress, 2nd session.)

“An agent of the United States, who visited the Eaton grant and Plymouth township, under authority of a resolution adopted by the Senate on the 18th of July, 1856, reported as his own opinion, which is confirmed by the evidence accompanying his report, that the value, in a state of nature, of the lots taken by settlers in those tracts, was two dollars per acre.

“It is not probable that the value of the lots taken by the settlers in those tracts exceeds the average value of the lots taken by them upon the lands of Maine and Massachusetts. They are all selected and choice lots, in a region of great fertility.

“The committee, however, have reason to suppose that under the difficulties of the times an appropriation at the rate of one dollar and twenty-five cents per acre, the minimum price of the lands of the United States, will be sufficient to obtain the releases of the title which the United States are bound to procure.”

It will be seen that the Senate committee fixed the indemnity for the lands of Maine, appropriated to settlers under the fourth article of the treaty of Washington, at one dollar and twenty-five cents per acre, rather from the belief that, “*under the difficulties of the times,*” Maine would accept that sum, than because it appeared by the evidence to be an adequate compensation for the property taken. For lands of private proprietors in the Eaton grant and Plymouth township, probably no better in quality and location, the last Congress had fixed as the measure of indemnity two dollars per acre, and not upon *ex parte* testimony, but upon the estimate of an agent of the United States, who had visited the locality under the authority of a resolution of the Senate of the United States. In 1852 a committee of the Senate had fixed the value of these lands of Maine at one dollar and fifty cents per acre.

Considering that these lands were assigned to settlers, a portion of

them ten years ago, and another portion of them more than twenty years ago, and that the United States have so long delayed to make compensation for them, it is believed that an allowance at the rate of two dollars per acre, as made by the last Congress for similar lands of private proprietors is not more than justice demands. Upon this resolution, the sum to be awarded to Maine for this claim would be one hundred and eighty-two thousand two hundred and fifty dollars (182,250 dollars).

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THE QUESTION OF ARMOUR PLATED SHIPS IN THE UNITED STATES OF AMERICA.—*Report of Rear-Admiral Goldsborough.*

The great questions of the day between heavy guns and iron shields remain yet unsettled. The iron plating of our ships and the guns which they are to carry—the actual type of the future ship of our navy, in fact, is yet undecided: how she is to be armed and how protected—all are subjects, as yet, of doubt, and therefore experiment. Large and costly experiments must be made if England is to maintain that position which she has hitherto held among nations. It has been said we are leading the way in these experiments, but the *Monitor* class and the heavy gun we find in actual service in American states, and we have hints in the way of shields with plating and chain cables from that quarter that have been so many examples for us to profit by.

We are indebted to the *Moniteur de la Flotte* for a report on these matters by Admiral Goldsborough, of the United States Navy—for our friends across the Channel look after the question of turret ships and rams as well as ourselves,—in which report may be seen the glimmerings of the answers to the questions above proposed. In fact, in these two classes of ships we almost see the shadowing out of our future fleets; the first forming the bulldogs, and the last the ordinary ship, every ship in herself being a ram. These two classes seem destined to form the principal of our future ships of war, with lighter craft for shoal water.

There is also another formidable vessel, alluded to in our last, called the torpedo, that seems to have been extensively used in American waters, but of which we have as yet had but little experience. They have not yet appeared in the British fleet of war ships. If this insidious craft, in her invisible but most vigorous condition for offensive operations, is really to form one of the resources of our navy, the sooner we become acquainted with her the better; at present she is of the *ignis fatuus* class—heard of but unseen. But with all these vessels that are or are to be Admiral Goldsborough deals with a masterly hand in his report, which in substance runs nearly as follows:—

Notwithstanding all that has been done hitherto to settle the question of armour plated ships, and the enormous expenses incurred in

endeavouring to obtain a perfect ship with an invulnerable hull, a due regard to her sea qualities or other essential conditions being observed, but little success has as yet been attained. And this state of things, along with the complicated difficulties of the whole subject, has already led many competent persons, excepting perhaps among ourselves, to despair of accomplishing much more. The efficiency or real importance of a plated ship for service at sea or on foreign coasts must depend on the strength of every part of the hull, on her qualities as a sea boat, the disposal and calibre of her guns, the possibility of her being employed against an enemy under all conditions of weather, the height of her deck above water—so as to be able to resist being run down, the absolute defence afforded by her plating, her sailing qualities and readiness in turning quickly, the space afforded for berthing her crew, and, in fine, if you will pardon the expression, her habitability.

Such are the qualifications on which depend the powers of offence and defence of a ship, and they are all so intimately connected with each other that no one of them can with impunity be dispensed with. In fact, the harmonious combination of them all in one model is the problem which has not yet been solved.

The *Warrior* has been built: according to some she is the masterpiece of the iron plated fleet. But the honour of having solved the problem cannot be claimed for her, for there is no doubt that she rolls over to an angle of  $38^{\circ}$ , that her plating is easily pierced and shattered, that her two ends are not protected, and that her quickness in turning depends on the power of a single screw acting on her great length of hull.

Besides the effects of her iron plates on her qualities as a sea boat, and her working in a seaway, &c., careful and costly experiments, made with the utmost care, leave no hope whatever that a man-of-war, as a seagoing ship, can be plated in all her vulnerable parts in a manner to protect her from rifled cannon, even at a moderate distance, or to shield her from the more destructive effects of heavy round shot delivered at extraordinary high velocities.

It is perfectly clear that a ship of reasonable dimensions cannot carry an entire armour plating over all her vulnerable parts beyond a very limited thickness; even now a plate of a thickness which a ship cannot possibly carry in order to be fit for sea has been penetrated by a heavy gun, under favourable conditions. These guns, when of large dimensions and heavily charged, have penetrated a plate of at least  $5\frac{1}{2}$  inches in thickness, besides producing most destructive effects. But it should not be forgotten that it is not necessary that the plating of a ship should be penetrated in order to destroy it. Every iron plate which is fixed to a vessel is liable to be shattered to fragments by heavy shot, if not by those of a gun of heavy calibre. Besides, it is certain that any iron plated ship may be sunk by such projectiles without the plating being completely penetrated. The severe concussions which the hull would receive would tell severely on her; in fact, the effect of the blows and the vibration they would produce would break the rivets, and doubtless would make way for a fatal leakage,

especially if produced by a concentrated fire on a ship of slight frame compared with the weights on her upper works. The scantling of the hull below the water-line, compared with that above it, in an ordinary wooden ship is much greater in proportion than it is or can be in an iron plated ship. Nevertheless, it is quite evident that no ship more than one that is iron plated requires this defence; and this is an important fact, worthy of the most careful attention.

The destruction of plates by concussion doubtless would be more disastrous to a ship than if they were merely penetrated by non-explosive projectiles or rifled shot anywhere, except below the line of flotation. Iron communicates the shock with astonishing facility, and in this respect becomes a perfect conductor. Thus from the moment that a way for the water to penetrate is made in a plated ship in this manner she cannot fail to experience the effects of it; and in all probability it would cause the loss of the vessel either during the action or very soon afterwards.

The *Weehawken* had been struck 137 times before she sunk in Charleston Harbour, a few weeks after her last engagement; and her recovery was useful in showing the real cause of that disaster to have been the result of a general concussion of the hull, occasioned by shot. If we desired to make some reduction in the defence of the plating to a ship—some defence in proportion to the expence and the efficiency abovementioned,—it appears to me that it might be increased in those parts which are most exposed, the most vital, indeed, by giving them more thickness, sufficient to render those parts absolutely invulnerable against the explosive effects of the shells of the howitzer, and the oblique fire of other guns. A ship so protected would receive besides, as a temporary expedient, in the way of armour over such parts of her hull as are not plated, her chain cables hung in festoons, when employed in the defence of ports and rivers. Besides this kind of protection, watertight bulkheads are indispensable.

The hull of a ship thus provided, with turrets for her guns, is in my opinion sufficiently shielded for a ship, considering the different points of the whole question. But even this would have small effect if the other elements of efficiency abovementioned are lost sight of. Among these elements is the facility of rapidly turning, and as this is a quality to which sufficient attention does not yet seem to have been given, I will state my convictions on this subject.

All iron plated vessels should be in themselves rams, so that they might be capable of being employed as though each ship were a projectile in herself, and could be turned towards any point with the utmost rapidity. But rapidity of turning should not be estimated on account merely of the advantage which it gives a vessel in offensive movements, for it is also of the greatest importance in defence. It admits not only of preventing the concussions with which she may be threatened from an enemy's ram, but also of avoiding her altogether. The offensive and defensive qualities of a ship of war are so intimately linked together, that each one generally constitutes an essential part of another.



Again, considering the great importance of turning rapidly, it might be no less deserving of attention whether it would not be worth while so to construct a ship as to render her capable of resisting the blows of even a heavy ram. Now, no combination of any known materials could ever realize such an object. The *Warrior* herself, noble ship as she is, of extraordinary dimensions and enormous strength, would find her side crushed by a blow from the *Dictator* as if she were nothing more than a huge eggshell. She might, in fact, be so severely stove in as to be sunk by the blow of a ship of less weight than that of the *Dictator*!

In order to appreciate this assertion it is only necessary to calculate the momentum of the displacement of 4,500 tons when at the normal draft of twenty feet, increased by a velocity of fifteen knots an hour. This would be found to amount to 252,000 lbs. This rate is consequently equal (in point of the blow) to that of a shot weighing 252,000 lbs. (above a quarter of a million), striking with the velocity of 1,000 feet in a second; or, rather, a shot with the diameter of 10 ft. 2½ in. striking with a velocity of 1,000 feet.

This comparison, it must be understood, only concerns the force of the blow. As to whether the ship or the shot would produce the most injurious effect,—the stem, in the shape of a quoin or wedge, and cutting vertically, affords a contrast with the spherical form of the shot sufficient to leave no doubt on that question.

In my opinion the *Dictator*, with a rate of fifteen knots, striking effectually any ship whatever of the present mode of construction, or any other whatever, would inevitably cut her in two. Even a blow in an oblique direction would be attended with fearful consequences; and it is by no means certain that an ordinary blow would not be sufficient to split an iceberg of formidable dimensions. Judging, however, from what we know of the effects of collisions, would not the *Dictator* have a chance of avoiding disastrous effects in being run end on to a ship of the *Warrior's* scantling if her heeling were not better calculated than it is to resist violent concussions, and if she had been made as strong as she might have been with her present upper works, heavy and massive as they are, for the kind of service on which she is likely to be employed?

But, to return to the question of quick turning, no practical means, in my opinion, should be neglected, especially in constructing an iron plated ship, to secure this important quality. The conclusions which I draw from experience hitherto, and the discussions thereon, are that the best way of obtaining it is to employ twin screws, with independent engines.

With the same amount of power, the system of twin screws affords not only a velocity superior to that of the single screw, but much more facility in turning. The simple fact of moving one in advance and backing the other is sufficient to settle the question. This system has also another great advantage, the power of steering without using the rudder, or doing so should the rudder be destroyed, by simply varying the power applied to either screw. There are, besides this, other ad-

vantages of an accidental character that are important, and need not be alluded to here. But I observe that this system of propulsion is being looked after in England, if not elsewhere.

The quality of swiftness, enabling a ship to be present anywhere quickly when required, to be converted when necessary into a fearful projectile, to be turned rapidly, and thereby to avoid hostile intentions, is a quality of first rate importance, and therefore the absence of it must be regarded as fatal to her efficiency. As to the question of the guns best adapted for a plated ship—and which should be few, considering the weight necessary for fortifying the hull,—I am decidedly of opinion that, as a general rule, those throwing round shot should be preferred, provided that they are of the very largest calibre which can be used with facility and safety, and which can throw their shot with large initial velocity. I say this because I attribute much more importance to the far greater destructive effect and crushing power of a solid round shot over rifled projectiles; not that I am disposed to doubt rifled cannon, but I am for limiting the use of them, and making them the exceptions and never the rule, whether for plated ships or any other vessels of war.

The nature of the service to be performed should regulate the choice to be made between the two kinds of guns, or the employment of both. If, for instance, the object of attack be on shore, within the range of the rifled gun but beyond that of the smooth bore, it is evident that the latter is useless in this case. But, on the other hand, if the object of attack is within range of the smooth-bore, they must have the preference. Rifled cannon should always be considered as making up the complement to effect a breach easily by their penetrating powers.

Considering, however, the general service for which a plated ship is intended, and in reply to the question as to the kind of armament which she should generally have, I should say, without hesitation, that she should have all her guns abovementioned of smooth-bore, especially when obliged to have but a very limited number. A good rifled gun on Parrot's principle, along with others of smooth-bore, in the case when these are not few, would doubtless be a good combination for ordinary service. But I would insist on distinguishing this rifled gun from all the rest, because I consider it by far the best for use at sea of all those that have been invented in this country or elsewhere. It is not generally known that this gun admits of the common shot being used without any inconvenience, and which is sometimes a great advantage. But this advantage is but one of the numerous qualities which constitute the intrinsic and distinctive merits of the gun.

A difference of opinion is found among seamen, as well here as abroad, as to whether it is better to use the guns of a plated ship in a turret or in broadside with a deck over them. For my part I have no doubt on the subject, particularly if the ship be of moderate dimensions, so that with her swiftness she might manage to find a favourable moment to enable her to act as a ram sufficiently to crush any enemy's sea-going ship. To wish for more is, in my opinion, merely superfluous.

I consider the turret as decidedly preferable for the following reasons:—

The turret ship renders a single cannon equivalent at least to two others of the same class that might be in a battery in ports, and that with a very large diminution of crew.

She allows the use of much heavier guns.

She does not require of necessity so superior a degree of swiftness. †

She affords better protection to her guns and their crews; and, besides this, she allows the use of much longer guns, even at sea.

Yet, to obtain a turret with all the advantages of which it is capable, it should not have any rivets whatever in its whole construction. The idea of a lining or doubling in the interior of it, to prevent the fragments or rivets now used from flying about and doing mischief, would be decidedly an improvement, but still imperfect; for, well as it might answer its object, it would prevent the numerous places damaged by shot from being seen, as well as broken rivets, &c., forced from their places. It is evident that this expedient would not prevent the tower itself from being injured by the effect of concussion on the rivets being broken.

It is not a sufficient answer to these objections to adduce the difficulty of constructing a turret without rivets. I can foresee this difficulty also, but am persuaded that it can be surmounted were our workmen to set about it, and encouraged to do so. When they effect this we shall have a turret of a very superior order.

According to my idea, a cannon of 12,000 pounds' weight is pretty nearly the heaviest gun that could be used in the ports of a broadside battery of any ship. And I would have a cannon of this weight cast after Rodman's method, and of the form determined by Romford, of nine inches' bore, having a normal charge of twenty pounds of powder, prepared immediately and submitted to trial. In fact, whether the plated ships are destined or not to carry a battery of cannon which may deliver the largest spherical shot with the highest velocity that the circumstances admit of, other ships will certainly have them. And as no gun is yet determined on for our navy, I will take the liberty of endeavouring to show how this want may be supplied.

If the *Cumberland* had fired her plain round shot of nine inches with a charge of twenty pounds of powder, keeping the recoil within moderate limits, the *Merrimac*, I think, would have acted differently. It is true that she would have been enabled to board the *Cumberland*, as she did; but while she was near that ship, whether before boarding or in recovering herself to return to the action, her plating would probably have been seriously damaged, and she would have been obliged to renew attempts which would have compromised her safety. The result of that would have saved the *Congress* and many lives, as well as have averted much trouble afterwards. I am not sure that the *Cumberland's* guns were nine inch generally, with a charge of ten pounds of powder, but I am persuaded that she did not use at any time of the action a charge of thirteen pounds, which is the maximum

charge. Even with the charges used by the *Cumberland*, the plating of the *Merrimac* was visibly damaged.

For such results as I have mentioned, an increase of initial velocity of the projectile is only required, such as a charge of twenty pounds, with similar shot, indeed much heavier, would produce. It is said that the nine inch guns are capable of resisting the fire of solid shot with charges of twenty pounds. This may be, but no one of any experience would, I think, venture trying to extol these guns as fit for the use of a solid shot with a heavier charge than the maximum charge allowed for them; not one, I am certain, who has witnessed on board the ships the effects of the recoil of these when fired with solid shot and their maximum charge. In fact, to speak plainly, I do not believe that the gun itself could withstand a much heavier charge with a solid shot.

I only desire that a fair and complete series of experiments should be made with the gun which I propose; experiments which should show its relative qualities under all circumstances as a battery gun, to throw solid round shot with the greatest initial velocity that circumstances admit.

I know very well that the *New Ironsides* has heavier guns and of larger calibre as broadside guns—guns of 16,000 lbs. weight, and with a calibre of eleven inches. But I do not know that these guns or their carriages, which unavoidably take up much room, have been submitted to a continuous fire during an action at sea, as to the effect of using solid shot with charges of powder about a fourth the weight of the projectile. The result will prove to be excessive under several points of view. In all the engagements of this ship before Charleston I am assured it was a rule to use hollow shot, with corresponding charges. And I have never understood that recourse was had to solid shot with a large increase of charge.

As already shown, a decided pause should be made in the progress of artillery before a fixed and definite conclusion is gained in respect to the invulnerability of iron plates of the best quality applied in the most approved way. An absolute invulnerability is out of the question.

The progress of artillery has already had the effect of confining the application of plates in sea-going ships to the vital and most exposed parts. It is very possible that better will hereafter be made, that they will be yet more limited, and that these will be restricted, first to some of these parts only, ending by establishing the conclusion that certain plates will be applied to certain ships, keeping in view their pros and cons without partiality. This is no speculative opinion, although at first view it may appear so, for the facts and conclusions drawn from them clearly point to such a result.

On these facts the tendency of their effects is to enhance the value of rams, and thus to revive a mode of combat at sea—on a scale which is comparatively one of miniature—in use long before the invention of powder.

The value of the ram cannot be mistaken in these days. With a few of these craft in each of our principal commercial ports (with

rather more than half the displacement of the *Dictator*), no enemy's ship, however powerful she may be, could effectually blockade those ports; for, besides having the advantage of choosing their movements, these rams could direct their fire in a manner so as to annihilate their adversaries. No port could be successfully attacked. The ports would no longer depend on their own defences, which are very deficient, or of secondary importance. Their real defence must depend on powerful steam rams, assisted, perhaps, by obstructions in the channels. Do the forts of Charleston, I would ask, prevent that place from being captured? Certainly not! These forts and all others whatever, unless assisted by rams and obstructions, may be passed with impunity by fast and powerful ships, assuming that they do not draw too much water.

Those rams which are intended solely for the defence of ports should not be armed with cannon. They should have their own peculiar class of projectile, and instead of powder steam should be employed. The combined effect of the two would be absolutely irresistible. To use cannon in them, I repeat, would be injurious to the object in view, besides on other accounts. In fact, they would do more harm than good in the long run. And besides the great expense of fitting rams for heavy artillery, they would eat up the resources, and would lessen the number of such vessels. The special iron shielding which guns require would be better otherwise employed; in fact, in protecting the whole of the hull. The main points to secure in these vessels, each in reference to the others and to the vessel itself, are an enormous solidity of hull, extending well below water,—all the invulnerability which a plating can give them, and which they can carry,—a high velocity, with a certain and safe engine,—a means of turning rapidly,—and an adaptation for employment on general service.

In reference to plated ships for sea, nothing, in my opinion, has come up to the plan of Captain Coles, of the English navy. I think his system is about the best of the present day. In my humble opinion he has solved the difficulties of the problem better than any one else hitherto. He has shown a fertility of resources, an amount of talent, good sense, and experience which does him the greatest honour.

But, to return to the object of these remarks, I do not think it is right to build vessels to attain any special object alone, excepting rams without guns for the defence of the ports, and also for operations in the interior of rivers up the country, in case of internal disorders. Plated ships, in my opinion, should answer as much as possible all the objects of a maritime kind; their cost alone, independent of everything else, being sufficient to decide this question. They should therefore possess all the seagoing qualities, saving the abovementioned exceptions. They should be enabled to navigate under sail or steam everywhere, and to keep the sea as long as any ordinary vessel of the same class would be required to do so. Without such qualities their sphere of utility would be purely local.

Setting aside the *Galena* as a sad mistake, and as unworthy of a critical consideration in a maritime point of view, I am compelled to

look on the *Monitors* which we have as yet constructed and employed as open to serious objections, as far as they may be concerned for general maritime service and the adaptation of their hulls to the nautical qualities of swiftness, turning readily, the height of their decks above water, and habitable capacity; yet for simple operations in harbours, where the water is smooth and tranquil, the service for which they are supposed to be intended, they certainly possess formidable qualifications for offensive and defensive operations, considered in a relative point of view.

I have never looked on the absolute merits of these vessels in that extravagant point of view which is claimed for them. Such praise must be founded on conclusions drawn from the actions of the first *Monitor* and the *Weehawken* with the *Merrimac* and *Atlanta*, without a thorough knowledge (intended or not) of the opposite results afforded by the *Ogechee* and the repeated attacks before Charleston. Whether the charm of novelty or the form of routine had anything to do with this matter I will not say, although there may be something of reality in the supposition. Public opinion is not always right in such matters.

The power of offence and defence in the *Monitors*, even in the war service which they are required to perform, is very evidently lessened by the want of power of their hulls, by the defective protection of the hulls, or by their want of velocity, the height of their decks, or their habitability.

If there are those who consider that a hull formed essentially and solely of layers of half inch iron plates, secured by angle iron of four to four and a half inches at the distance apart of eighteen inches from centre to centre, sustaining a superstructure so frightfully heavy and overlying, that such a hull, I should say, would be scarcely sufficient to support the vibrations to which a plated ship is exposed under the fire of guns of great calibre: If these persons consider the vibrations as less important when *Monitors* are employed as rams, or when they support a superstructure under all circumstances of land and sea to which a ship cannot fail to be exposed in going from one port to another, I declare frankly that I am not of that number.

Two of the plated vessels above alluded to, the *Monitor* and the *Weehawken*, have already foundered, and neither of them were fighting at the time or had been previously recently engaged. The loss of the *Monitor* was the effect of a separation (although only to a partial extent) between the upper works and the bottom of the hull; but it is naturally impossible to determine the part where the mischief originated unless the whole were examined, and the concussions be considered of all kinds from which she suffered in her action with the *Merrimac*. Whether this supposition is correct or not, the fact alone of the separation is conclusive as to the want of strength in those parts. I do not consider this fault to have been materially avoided in the construction of other *Monitors*.

In regard to the loss of the *Weehawken*, I prefer suspending my judgment until I am in possession of more particulars respecting it. The *Weehawken* has certainly foundered in a very mysterious manner,

but under circumstances which admit of conjecture. Besides the number of times she was struck by projectiles of the enemy, and the number of shocks she has occasioned to herself by guns of fifteen and eleven inches' bore, she had experienced the effects of a violent gale of wind at sea.

The deck of the *Monitors* has been crossed at a distance of 1,200 yards, and consequently it may be admitted that in an action within that distance, which would render the enemy's fire point blank, they would be easily sunk. To render this fault less conspicuous, it has been decided to give them an additional plating; and with this object a quantity of plates have been sent to Port Royal. But on reflection the plan has been abandoned as impracticable.

On the subject of speed, I know from a good source that after they have been in the water a little time it is not more than about  $4\frac{1}{2}$  knots, rather less than more. It is useless to say anything further on the consequences of this serious defect.

The height of the deck above water not being more than twelve to fifteen inches, and their burthen scarcely exceeding 200 tons, a strong inducement is offered to an active enemy, armed as a ram, to watch his opportunity and run end on to the *Monitor*; and I have not the least doubt that, considering the slowness of her movements, the attempt would be successful, and the result would be her destruction.

Then, in regard to the remaining point for consideration, the deficiency of room for living, or habitability, it is one of a very serious nature in a warm climate or in a hot season. The physical prostration that it would produce must be excessive, and the result would be the necessity of change in officers and men, that is not compatible with the good of the service.

I look on the *New Ironsides* as the type of a plated ship of more efficiency than the *Monitors* abovementioned, because she has evident advantages over them in respect of her fitness for general service, nautical qualities, strength of hull to sustain the concussions to which she will be exposed or will have to endure, security from a vessel running into her, her swiftness, and also her habitableness. If the *New Ironsides* had been projected to carry turrets instead of being a broad-side ship, she would have been, in my estimation, still more formidable. Her superiority in other respects is evident, particularly in the points of swiftness and turning readily. More trials of her at sea are necessary, and still more so in a close action, which has not yet been tried, with the view of determining positively what her qualities are under important points of view.

The *Roanoke*, although armed with a powerful battery and well protected, cannot, if I am well informed, be employed at sea, in consequence of her excessive rolling motion. Her great draft of water is another obstacle to her efficiency, even for the service of the ports. She fails also in speed and turning, and is, moreover, defective in other matters. She is a ship, however, which was constructed under circumstances of a pressing nature. Her iron plating and her turrets, &c., should be transferred to another hull, better adapted for them.

I know too little of the plated ships of our western waters to say anything of them. As to those in course of construction, or not yet armed, on our side of the ocean, I may observe that the way in which the combination of the conditions above mentioned has been attempted will perhaps show how efficacious they are.

In considering the pressing circumstances and all the conditions under which our plated ships have been produced, the novelty of the problem, and its difficulties, it is not surprising that we have not obtained more satisfactory results. Neither the desire to do the best possible, nor the expansion of the idea, nor a full share of energy, have been wanting. The efforts which we have made in these matters are so many useful lessons. Experience is a large source of wisdom, and to correct an error is at least one step in advance towards perfection.

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#### WAYSIDE WAIFS ON THE ROAD TO THE WEST.

Every voyage I make I mentally say at its commencement, I shall not see anything which I have not seen before; but I am invariably disappointed, sometimes agreeably so, at others, where a head wind is concerned, the reverse.

Watching and studying the effects of "revolving storms," is very interesting if you are not too near the centre, or expected to arrive at a certain port some thousands of miles off with the regularity of a mail train, which merchant steamers are supposed to do in winter and summer, through the hurricane season of the West Indies, or the dense fogs on the Banks of Newfoundland.

I am induced to make these remarks while referring to my rough notes for the incidents of this voyage.

*September 26th.*—Sixty miles South of Cork, at three o'clock in the afternoon, during bright sunshine, I saw distinctly a large meteor descend in the West quarter of the horizon from an altitude of  $60^{\circ}$  to  $45^{\circ}$ , where it exploded. The tail was marked by a line of thick white smoke, but I could not detect any flame. Had the phenomenon occurred during the hours of darkness, the explosion would have been a magnificent sight, as the disc was of an unusually large diameter.

*October 3rd.*—While stopped on a calm day to make good a defect of the engine, in lat.  $39^{\circ} 52' N.$ , long.  $34^{\circ} 36' W.$ ; temperature of the air  $64^{\circ}$ , water  $69^{\circ}$ ; the ship was surrounded by a shoal of small blue *Helix*, about the size of a pea: their bodies protruded from their shells, similar to that of a garden snail when in motion. Under the microscope of my sextant they were of a dull ashen colour, with a few black spots, furnished at the end with a sucker. All were moving in the same direction, strictly parallel. Not having a book of shells, I am unable to give their name, but I have preserved a few for identification.



After starting, passed two long lanes of red dust, lying in a N.E. and S.W. direction. I could not stop the ship to secure any. Humboldt says it is brought in an upper current of air from the Llanas of South America, and deposited in this latitude during calms. From the strictly preserved outline of the edges, this must have fallen during the most perfect stillness of the atmosphere.

4th.—In lat.  $37^{\circ} 20' N.$ , long.  $37^{\circ} 40' W.$ , between the hours of two and five in the afternoon, the barometer oscillated twice in the course of a few minutes between 30.00 and 30.11, leaving a broken ragged surface of mercury adhering to the sides of the tube. Temperature of the air,  $69^{\circ}$ ; water,  $74^{\circ}$ . Wind, N.N.W. to N.N.E.; force, 2 to 5 bcp, with occasional brilliant double rainbows.

At sunset the clouds presented a singular appearance, being wrought into innumerable small hollows of dark lake colour, with the edges grey, like a sea of extinct craters. A short time afterwards heavy blue sheet lightning lit up the whole of the horizon, most brilliant in the West quarter. Barometer slowly and continually falling, which it did until one o'clock of the morning of the 5th, when it registered 29.86. From four o'clock in the afternoon of the 4th, the wind commenced to veer steadily from N.W. to N.E., S.E., S.W., and West; force, 5 to 6. There it remained steadily for twenty-four hours, and spoiled two days' runs. I am desirous of ascertaining whether this barometric fluctuation was observed elsewhere.

8th.—At 8h. a.m., wind S.E., force 5, bar. 30.00, a swell setting in from the S.W., while the sun became during the afternoon of a pale white, giving the same appearance to objects as that observed during a partial eclipse. Noon, lat.  $30^{\circ} 30' N.$ , long.  $48^{\circ} 25' W.$ , bar. 29.90, temperature of the air  $76^{\circ}$ , wind S.S.E., force 5 to 6. Swell increasing from the southward. 8h. p.m. bar. 29.87, wind S.S.E. Swell so heavy from the S.W. that I was compelled to take in the head sails and ease the engines. Heavy lightning, sheet and forked, all around, but no thunder. Clouds settled close to the horizon of a dark, gloomy grey, gradually shaded off as their edges increased in altitude,

11h. p.m., wind S.b.E., force 7. Swell running like hills East, and drawing to the W.S.W. Eased engines to quite slow, and furled the foresail. Midnight, wind S.b.W., force 6 to 7, bar. 29.81, cogl. A greasy halo round the moon, and when the sky cleared, a ring of about  $10^{\circ}$  in diameter.

9th.—Wind slowly veering to the S.W. and increasing in force. Furled the close reefed topsails and hove to under close reefed trysails on the *port tack*. I am aware that this was wrong according to theory, but there are times when one's judgment must supersede theory. and this was one. By heaving to on this tack I brought a most dangerous sea a little on the bow, even then she had enough to pass through, for at intervals one of the larger would roll obliquely right over the jib-boom and throw a mass of water on deck with tremendous force. Again, from the direction and slow veering of the wind, I felt assured that the centre had passed the spot which I must cross, on its route to

the westward. If I had hove to on the starboard tack the sea would have been nearly abeam, and the decks must have been swept.

3h. a.m., wind S.W.b.S., blowing in furious squalls. Clouds torn into shreds and whirling around in all directions. Bar. 29.70. Sea flying over the ship like rain.

4h. a.m. On returning to look at the barometer, found it useless, as in consequence of the heavy pitching of the ship it had struck the bulkhead at every send and become deranged.

6h. a.m., wind S.W. Obligated to brail up the reefed topsails and lie to under bare poles. The rain blowing along horizontally.

8h. a.m. The rain ceased, and the atmosphere became most oppressive, although the thermometer was only 79°. The wind now began to fall rapidly, and at noon was W.S.W., force 6; lat. 29° 15' N., long. 50° 46' W. Temperature of the air 83°, but all oppressive feeling gone.

Sunset presented a striking contrast to that of last night. The wind had veered to West; the sun went down behind a low bank of purple clouds, his disc was clear and well defined without the slightest glare. Over the western portion of the sky numerous tufts of red cirrus clouds were scattered, darkening in shade as they approached the northern horizon. The moon's disc was clearly cut out from the firmament. The stars were shining like points of light; the atmosphere was cool and pleasant, and nothing but the heavy swell, which still remained, showed any signs of yesterday's storm.

What I particularly remarked in this gale was the slow veering of the wind and the dangerously high sea, which came on long before the full force of the wind reached us. It is probable that a few hours previous the spot where we encountered it had been torn up by the utmost fury of the hurricane as it wheeled along in its track. Had the ship been a hundred miles W.N.W. of her position, I am of opinion she would have met it in full force. At the same time I do not think it possible that any amount of wind could have increased the sea; had it not been regular nothing could have withstood its force. Fortunately the very low iron bulwark allowed the dangerous portion to pass overboard and the ports cleared the remainder.

The Trade wind (not the N.E., for as I have mentioned in a former communication it has not existed in my time in this locality,) was so disturbed that it did not return to its original direction during my run to St. Thomas, but set in steadily from the S.W., so that every day's run was 100 to 120 miles short of those made over the same ground in four preceding voyages. This was excessively tiresome, but nature never works without an object, and I am of opinion that the large space over the Atlantic whose equilibrium has been destroyed is filled up by the flow northward from the West Indies of air which has become so laden with miasma that it is injurious to the inhabitants who breathe it. Fever has been very prevalent this year.

When in England in September after my return from Jamaica, I informed Admiral Fitzroy that I thought a hurricane would surely

come in the autumn, and I feel assured that places far distant from its path will be benefited thereby.

I arrived at St. Thomas on October 15th, and found that from the day after the hurricane the wind did set in steadily from the S.W., and that the fever, which had been more fatal than it had been for years, was gradually disappearing.

W. W. KIDDLE, R.N., F.R.G.S.  
*Commander of W. I. and Pacific (s.s.) Mexican.*

### LONGITUDES OF PENANG, SINGAPORE, AND HONG KONG.

Having ascertained that the longitude of Singapore is yet considered as an unsettled question, we have had recourse to our volumes for 1851 and 1854, in which the excellent remarks of Captain Shadwell appeared, made in the course of his voyages in command of H.M.S. *Sphinx* and *Highflyer*. In those volumes will be found series of meridional distances, which include Singapore in connection with other places adjacent East and West of it,—but especially with the Madras observatory. These we have selected and strung together, East and West, according as the runs were made, and have found a result which, considering the means employed,—(about four or five good chronometers,—) sets the question at rest. The results are remarkably close in all cases, and are highly creditable to the author of a treatise on the management of chronometers very well known in her Majesty's ships.

We have extended the series to Hong Kong, and wish we may find similar excellent results in the crude unsatisfactory list of meridian distances published in the third edition of the *China Pilot*, thrown together in the unconnected manner as they are.

#### *For Longitude of Penang.*

Madras to Trincomalee.

Mean of three runs between them 0h. 4m. 1.6s. E.

Trincomalee to Penang . . . 1 16 21.49 E.

1 20 23.09

Madras to Trincomalee 0h. 4m. 1.6s. E.

Trincomalee to Singpre 1 30 25.45 E.

Madras to Singapore . . . 1 34 27.05

Singapore to Penang 0 14 5.63

Penang to Singapore 0 14 2.90

Mean. . 0 14 4.26

1 20 22.78

Take Penang East of Madras as	1	20	23
Madras Observatory . . . . .	5	20	57·8

Longitude of Penang 6 41 20·3

Fort Cornwallis Long. 100° 20' 4·5" E.

*For Longitude of Singapore.*

Singapore to Calcutta	1	2	0·99 W.
Calcutta to Madras . . . . .	0	32	23·8 W.
This gives Singapore Point . . . . .	1	34	24·29
Madras to Trincomalee	0	4	2·51 E.
Trincomalee to Madras	0	4	0·41 W.
Madras to Trincomalee	0	4	1·93 E.
Madras to Trincomalee, mean of above.	0	4	1·6
Trincomalee to Penang . . . . .	1	16	21·49
Singapore to Penang	0	14	5·63
Penang to Singapore	0	14	2·90

Mean . . . . . 0 14 4·26

Madras to Singapore	1	34	27·35
Trincomalee to Singapore . . . . .	1	30	25·45
Madras to Trincomalee . . . . .	0	4	1·62
Madras to Singapore	1	34	27·07
Madras to Penang, above . . . . .	1	20	23
Penang to Singapore . . . . .	0	14	4·26

Madras to Singapore 1 34 27·26

For mean take Singapore East of Madras . . . . .	1	34	26·49
Madras Observatory . . . . .	5	20	57·3

Longitude of Singapore. 6 55 23·79

Singapore Battery Point Longitude 103° 50' 57" E.

*For Longitude of Hong Kong.*

Madras to Singapore, as above . . . . .	1	34	26·49
Singapore to Hong Kong.			
1 H. Kong to Singpre	0	41	11·31
10 Singpre to H. Kong	0	41	13·66
11 H. Kong to Singpre	0	41	12·02
15 Singpre to H. Kong	0	41	6·99

Mean . . . . . 0 41 10·99

Madras to Penang, as above. . . . .	1	20	23	2 15 37·48
Penang to Hong Kong . . . . .	0	55	9·92	
Madras to Penang, as above . . . . .	1	20	23	2 15 32·92
Penang to Singapore . . . . .	0	14	2·9	
Singapore to Hong Kong . . . . .	0	41	10·99	
				<u>2 15 36·89</u>

or Madras to Singapore, as above . . . . .	1	34	26·40			
Singapore to Hong Kong . . . . .	0	41	10·99			
					<u>2</u>	<u>15 37·48</u>
Mean of the three first results for Hong Kong	2	15	35·76			
Madras Longitude . . . . .	5	20	57·3			
					<u>7</u>	<u>36 33·06</u>
Time . . . . .	7	36	33·06			
Cathedral Longitude . . . . .	114°	8'	15" E.			

### THE CALCUTTA HURRICANE of 5th of October, 1864.

Calcutta has been visited by a hurricane, the fury of which seems to have been unequalled by any former one in the memory of its natives. The following are extracts from letters of Lloyd's Agents for Calcutta concerning it:—

Previous to the evening of October 4th, there was nothing threatening in the aspect of the weather. The sky became overcast indeed that afternoon, and between 7h. and 8h. p.m., slight, drizzling showers commenced, with lightning occasionally, and light and variable winds, continued till midnight. So far as we can learn, the barometer indicated no warning up till that time; but we are told that it began to fall about 1h. a.m. of the 5th, the wind then being light from the N.E., gradually freshening, with passing showers, till about 10h. a.m. when it became evident that a cyclone was approaching, the wind having by that time veered to about East. From that point it took a southerly direction, gradually increasing in violence, and the greatest fury of the hurricane was experienced from about S.E. at about 3h. 15m. and 3h. 30m. p.m., when the sympisometer stood at 28·30, and the barometer at 28·40.

At 4h. 30m., the wind having got round into the South, the barometer gradually began to rise, and by 7h. or 8h. p.m. the weather was comparatively moderate, with the wind at S.W., and by midnight it was fine, and has so continued, the wind veering from S.W. to N.W. In Calcutta the fixed moorings are, with one or two exceptions, on the left or eastern bank of the river, and the cyclone, from the point from which it came, caught the vessels full broadside on, and its violence was such as no moorings or tackle could resist.

Tier after tier of vessels broke adrift, in most cases taking moorings, buoys, and tackle with them, and drove about in clusters of four, six, and eight, entangled together, and carrying with them ships at anchor in the stream, and everything else with which they came in contact. Several went down, and nearly all the others drifted on to the opposite bank of the river, generally taking a course up the river under the

influence of the wind at S.E. to South, and a strong flood tide, many of them having travelled as far as six to seven miles from their moorings. To add to the disasters occasioned directly by the hurricane, the flood tide that afternoon was unprecedentedly high, and all the vessels which were driven furthest to leeward on the opposite bank, as well as several on this side, are up as far as high water mark of an ordinary tide, and high and dry at low water. Of these—and they may number from forty to fifty sail—we fear that very few can be got off; and, altogether, the lowest estimate we can form at present is, that there are no fewer than 100 ships with their cargoes in jeopardy.

The only circumstance of the whole series connected with the calamity from which any gleam of satisfaction can be derived is that which enables us to report that, so far at any rate as our present information goes, the loss of European life has not been great. We hear of the loss of the captain of the *Azemia*, and of the greater part of the crews of one or two other ships, but may consider the escape of the greater mass of people on board ship at the time the storm burst as miraculous, and affording much cause for satisfaction. It is to be feared, however, that an immense number of natives have shared the fate of their craft and perished. Much might be done to avert ultimate loss were appliances to an adequate extent in existence; but, unfortunately, tug steamers, anchor boats, cargo boats, and river craft generally, have fully shared in the general destruction, and the greater part of those means which are still extant have either been dispersed or rendered for a time unserviceable. As regards the shipping further down the river, we can afford no information whatever. The telegraph wires have been destroyed, and there has been no communication with any of the river stations.

We gather from the foregoing account of the veering of the wind that it approached Calcutta, as these meteors usually do, from the southward. The wind being at East, shows that the focus of the hurricane was due South of that place, and by 3h. 30m. having veered to S.E. it was then S.W. of it. In fact, it seems to have completely curved round and taken its course to the N.E., for the hurricane wind went off at S.W. veering to N.W. So that the whole duration of it was from about 10h. a.m. to 7h. or 8h. p.m. Short, it is true, but long enough to produce fearful disasters. It is said that in one district alone (Diamond Harbour) and the country between it and Calcutta, it has been computed that not less than 5,000 souls have perished, drowned by the land flood of the storm wave. Great exertions were being made by the Calcutta community to organize a system of relief for the survivors of this dreadful visitation. A steamer had been chartered to convey medicines, blankets, rice, and water to the Diamond Harbour districts, and left Calcutta on the 14th of October for this purpose. The following statement of the destruction of life and landed property in the town and suburbs of Calcutta is gleaned from reports submitted by the superintendents of the different divisions to the Deputy Commissioner of Police, Captain Reveley:—Casualties—

Natives killed, 41; ditto wounded, 12; puckah houses occupied by natives damaged, 1,383; ditto destroyed, 18; katcha ditto destroyed, 89,412; Europeans killed, 2; ditto wounded, 5; ditto houses damaged, 2,296; ditto destroyed, 92.

It would not be easy to say where its ravages have been most felt—on shore or afloat. The following account received by the Peninsula and Oriental Company will serve to introduce an alphabetical list of the ships that have suffered more or less in this disastrous gale.

*Calcutta, October 6th.*

Gentlemen,—You will no doubt have received by telegraph a few lines, which will have prepared you to hear of the terrible disaster which has overtaken us.

A hurricane burst upon us yesterday about 10h. a.m., beginning with rain and squalls from East to E.S.E., and finishing a little to West of South. From noon until 4h. 30m. p.m. it raged with appalling violence. The whole shipping of the port, from Kidderpore Bridge upwards, with the exception of some few sunk and stranded on this side, have been driven from their moorings over to the Howrah side of the river, where they are huddled together, with masts, yards, and hulls locked and crossed in the most indescribable confusion, and in all this fleet not one single topgallant or royal mast or yard had been struck.

When it came on to blow no time was lost in securing our ships by carrying extra fastenings to the shore; but the violence of the wind rendered this and any other precautionary measures unavailing.

I cannot pretend to do more now than give you an outline of what occurred; the reports from the ships' commanders and where necessary from heads of departments, will in due time furnish a full narrative of all that took place.

Yesterday evening at sunset the *Bengal* was on shore opposite Mr. Woolley's house; I am enabled to state that she is nicely bedded in soft mud and perfectly upright, shows no symptoms whatever of having strained, has lost topgallant masts only, and I have great hopes of getting her off next spring tides, which will be very high ones.

Both the *Nubia* and *Nemesis* at sunset were safe. The former had her main and mizen masts blown clean out of her, and had lost boats, but was otherwise uninjured in hull or engines. The *Nemesis* had been in collision with a large coal ship, but had escaped with loss of topgallant masts and bowsprit and some of her boats. This morning, however, the *Hindustan*, whose stern moorings had given way, got foul of her own landing stage, and hung across a very strong ebb tide, laying over a great deal and taking in water through her old top sides. About an hour after I had ordered everything that could be got out of her to be landed, she settled down very deep in the water, as if sinking, and, in this state, parted from her bow chain, and rolled down on to the *Nemesis*, whom she tore away from her anchors, and drove on to the *Nubia*, carrying her also down the river. A very little way be-

yond the sheers, the *Hindustan* rolled over and went down, and the *Nubia* speedily got clear, but the *Nemesis* fouled a sailing ship, and hung on shore by the stern and to the bows of the sailing ship off the King of Oude's Palace for about two hours, but has been extricated, and is now coming up under her own steam, with the *Nubia* in company. I shall add an account of the damage to both ships if received in time for to-day's post. Two things, however, are certain—the *Nubia* cannot be sent to Bombay for some time to come, and the *Nemesis* can only with the greatest difficulty be got ready to take the mails of the 9th of October, starting three or four days later than the usual time.

On shore the damage inflicted has been incredible. In the Officers' Club, No. 5 Compound, scarcely a tree is standing; even the noble avenue of mahogany trees is all uprooted. The boat-building shed has stood, but the roof of the coal-shed next to that has been torn off and rolled up, the iron posts broken in pieces and uprooted. The three large coal-sheds, nearly full, have stood very well, except at the south end, where repairs will be required; but of the small experimental shed near the flagstaff, not a vestige remains. The workshops and adjacent buildings are comparatively uninjured. The adjoining compounds, Nos. 1, 3, and 4, are fearful scenes of desolation and ruin; not a tree is left standing, and the houses have very much suffered; none of their occupants will have an idea of comfort for some time to come. In No. 3 Compound, the road to the stores and sheers wharf will be for some days impassable from large fallen timber. All the river moorings will have to be laid down afresh, and the road along the river bank will have to be re-made. Not a boat of the Harbour-Master or Master-Attendant's departments has escaped, and so many native boats have been destroyed that there is great difficulty in communicating with ships. The roads all round us are blocked with trees and ruins of every description. No natives can be got to work; they are all absent, digging among the ruins of their houses. The river is now, and will be for some few tides, dangerous from sunken and floating wrecks; but I think we shall be able to begin work to-morrow. The staff and supernumeraries who lived on board the *Hindustan* have been made as comfortable as circumstances will permit.

We have had nothing like this hurricane since 1832; but in fearful results—viz., destruction of houses, stores, and shipping, nothing has equalled it. Nearly 300 ships are reported wrecked, on shore, or irreparably damaged.

Through God's mercy no lives have been lost, and only one serious accident has occurred among us, namely—a steward blown down the hatchway of the *Hindustan*.

I am, &c.,

J. H. DE SALIS.

*The Directors of the Peninsular and Oriental  
Steam Navigation Company, London.*



*List of Vessels sunk, destroyed, or injured in the Calcutta Hurricane of the 5th of October, 1864.*

- Admiral Casey*, stranded.  
*Agra*, stranded and damaged by vessels.  
*Aladdin*, stranded at Armenian Ghat.  
*Alaric Thickstone*, aground unharmed.  
*Alligator*, severely injured.  
*Ally*, lost with coolies for Mauritius.  
*Alphonse*, stranded.  
*Alumbagh*, has not lost a spar.  
*Ann*, in dock, dismantled.  
*Ann Boyden*, stranded at Cossipore.  
*Anne de Bretagne*, stranded.  
*Annette*, will have to lighten.  
*Aphrodite*, almost uninjured.  
*Asteroid*, stranded at Cossipore.  
*Astronomer*, dismantled, hull all right.  
*Baron Renfrew*, fate unknown.  
*Beaumaris Castle*, slightly damaged.  
*Benfollyen*, stranded, great damages.  
*Bengal. P. and O.*, stranded on College strand.  
*Bolton Abbey*, damaged.  
*Broughton Hall*, stranded near Engine House.  
*Calumet*, injured, but safe afloat.  
*Camperdown*, lost anchors, much damaged.  
*Caribbean*, stranded at Leelpole dismantled, hull not damaged.  
*Celinie*, stranded.  
*Ceylon*, dismantled and other damage.  
*Cheshire*, stranded South of Howrah terminus.  
*City of Paris*, dismantled, hull damaged.  
*City of Lahore*, stranded near Baboo Ghat.  
*Clytemnestra*, damaged.  
*Collingwood*, stranded, spars gone, hull not damaged.  
*Columbus*, slightly damaged.  
*Dhollora*, all right.}   
*Esmeralda*, stranded at Cossipore.  
*Forbes*, sunk off Seebpore.  
*French Empire*, driven to Howrah, lost spars.  
*Genii*, dismantled and shafed.  
*Glenroy*, on shore at Cossipore, damage unknown.  
*Goldfinder*, almost uninjured.  
*Governor General*, not much injured.  
*Govindpore*, lost.  
*Great Tasmania*, badly damaged.  
*Gustav and Louis*, stranded at Prinseps Ghat, little damage.  
*Hamptden*, stranded above Mint, dismantled, making no water.  
*Hannibal*, stranded at Sappore, dismantled, hull little injured.  
*Hanover*, on Goosery Sands, bad state.  
*Harry Warren*, stranded, little damage.  
*Hindustan*, dismantled at Cossipore, sunk.  
*Hippolyta*, little damaged.  
*Howrahside*, dismantled and injured.  
*Inhermann*, safe in dock.  
*Interloper*, severely injured.  
*Iron Duke*, on shore, may get off.  
*Jane Louis*, capsized in dock.  
*John Liddgett*, afloat all right.  
*King Arthur*, stranded at Cossipore.  
*Knight Commander*, slight damage.  
*Lady Franklin*, lost, nearly all on board drowned.  
*Lady Palmerston*, stranded, damaged.  
*Lady Rawlinson*, lost, nearly all on board drowned.  
*Latona*, stranded, stern knocked away.  
*Leonide*, stranded.  
*Lincolnshire*, damaged in stern.  
*Loochoo Azemia*, lost, master drowned.  
*Lord Lyndhurst*, all right.  
*Macduff*, driven up river, not damaged.  
*Madras*, lost masts and boats.  
*Mahratta*, feared lost.  
*Manila*, stranded off Burning Ghat, dismantled, afloat again.  
*Mauritius*, stranded, in danger.  
*Medusa*, on shore at Mint, little damaged.  
*Merrie England*, aground, back broken.  
*Metis*, stranded off Baboo Ghat.  
*Midas*, badly damaged.  
*Mirzapore*, stranded, damaged, cargo also.  
*Monmouthshire*, badly damaged.  
*Moorefoot*, stranded at Goosery, dismantled.  
*Moulmain*, dismantled and injured.  
*Nadir*, all right.

- Nemesis*, P. and O., stranded on College Strand.  
*Newcastle*, stranded at Seebpore, little damage.  
*Nimrod*, aground off Cossipore, injured.  
*Nollia*, stranded.  
*Nomade*, stranded.  
*Nubia*, P. and O., stranded on College Strand.  
*Orissa*, damaged.  
*Pirate*, severely injured.  
*Pride of Canada*, on Goosery Sand, making water.  
*Panjab*, injured in hull and masts.  
*Queen of the Age*, stranded, much damaged.  
*Red Rover*, badly damaged.  
*Reiver*, all right.  
*Robert Lee*, not seriously damaged.  
*Romania*, stranded at Prinseps Ghat, little damage.  
*Romany*, stranded.  
*Royal Alexander*, on shore in Garden Reach.  
*St. Philbert*, stranded.  
*Sabett*, stranded, damaged.  
*Sarah and Emma*, at Garden Reach, no tidings.  
*Satellite*, said foundered.  
*Seahorse*, on Seebpore Sands, bad state.  
*Sesostris*, stranded at Cossipore, back broken.  
*Simla*, stranded at Cossipore.  
*Singapore*, lost, with coolies for Mauritius.  
*Sir Jamsetjee Family*, dangerous position.
- Sir John Lawrence*, stranded above Cossipore, dismasted, makes water.  
*Sohoay*, badly damaged.  
*Sooloo*, stranded, little damage.  
*Southampton*, wrecked.  
*Southern Belle*, on shore, position bad.  
*Southern Cross*, stranded.  
*Speedy*, stranded, much damaged.  
*Sydney*, damaged.  
*Talza*, badly damaged.  
*Talavera*, off Bangbazaar, leaky.  
*Tarragon*, stranded.  
*Tartar*, ashore and leaky.  
*Thehatta*, stranded at Cossipore, safety doubted.  
*Thunder*, stranded, little damage.  
*Tinto*, in dock, blown over.  
*Tornado*, slightly damaged.  
*Udine*, all right.  
*Vanita*, in dangerous position.  
*Vespasian*, lost.  
*Victoria*, slightly damaged.  
*Victoria Bridge*, on shore at Cossipore, hull damaged, spars and rigging.  
*Ville de St. Denis*, lost.  
*Ville de St. Pierre*, on bank, in danger.  
*Ville St. David*, lost, with coolies for Mauritius.  
*War Eagle*, little damaged.  
*Waterloo*, badly damaged.  
*West*, little injured.  
*Western Empire*, dismasted.  
*Western Star*, on bank, in danger.  
*White Jacket*, in dock, all right.  
*Wide Awake*, stranded, badly damaged.  
*Winchester*, stranded at Cossipore.

The foregoing is a fearful list of disasters to contemplate, and if we turn to the accounts from the shore—but few of which we have yet received—the scene is no less appalling. A letter, dated at Tittaghur on the 9th of October, supplies a no less fearful account of the ravages of this storm:—

The mail *via* Bombay that closed on the 5th inst., if it got away from Calcutta in time to catch the steamer, will have taken home the news of an awful cyclone that raged the whole of that day around Calcutta, Barrackpore, and our neighbourhood, extending some sixty or seventy miles to the north of us, and it is believed some two hundred to the south, if not further.

The night of Tuesday, the 4th, was very wet and stormy; the wind awoke us, and we had to shut up close. In the morning it increased and began to blow in very heavy gusts, taking our house at

the north-east corner, the building pointing north and south, as most houses do in this country, for the benefit of the southerly sea breezes. I did not think seriously of it until about eleven o'clock, when some branches of trees were blown down. At twelve the gusts were fearful, and shortly afterwards up came the bore in the river, a grand sight. The water rose some twenty feet above the banks, and in the middle a long curling line, high as a wall, rushed madly on, foaming and tossing like a furious steed. Over went the native boats like ninepins, some thrown high and dry on the land, others sunk to rise only in fragments; five or six were dashed to pieces against the wall of our garden, which, later in the day, as the tide rose, was washed away. Our peaceful river resembled a boiling cauldron; huge waves, reminding one of Brighton in stormy weather, dashed over the banks inundating gardens and smashing everything opposed to them. Part of our bank of grass sloping to the river was cut away to the foundation of our stone verandah, which gave way, and down came a massive pillar, parapet and all. On the other side of the house all one side of an outer room was blown down, two large brick pillars supporting it falling with it. Trees were blown up by the roots all around us. In our garden one huge monster, quite fifteen feet in circumference at the base and fifty to sixty feet high, came down with a mighty crash, the roots on end being quite twenty feet high; but this was only one out of hundreds.

At two o'clock, up to three o'clock, I confess I was alarmed for the safety of the house. News came—I don't know how—that Mr. K's house was unroofed, and it proved to be true. But I was not so much surprised at this, as it was made of thatch. Our house is a solid work of masonry, though very old, and in some parts decidedly shaky and weak—large cracks appearing here and there. I was afraid the windows would go; but by dint of great care and barricading with every bit of furniture we could get against the windows and doors, thank God, we saved the house. It was a very near thing indeed with the drawing-room; a large wooden partition, with a door in it, separates this room from the inner verandah, which runs all along the back of the house, excepting that end of the drawing-room, and when the wind shifted to east the whole force of it blew against this partition; it began to give at once, and down came large lumps of plaster. I sung out to the servants to help me, seized a round table, off with the top, jammed this against the wooden partition on top of a huge old fashioned sofa, weighing I don't know what, but it was not half enough. Other heavy tables and chairs, piled one on top of the other, and then six men pressing with their whole weight for fully two hours, alone saved the drawing-room from utter destruction. In fact, I thought it must go, and so got down all the lamps, pictures, ornaments, &c., and packed them in another room.

The noise of the wind was awful, the gusts appalling in the extreme; but in the midst of our anxiety I did not forget the shipping, and I said to my wife, "The poor fellows on board the ships in the harbour are far worse off than any of us on land." Too true, indeed, it proved,

but for particulars of what occurred on the river I refer you to the papers. Heartrending indeed is the account.

The 5th was the first day of our Doorja Pooja holidays, which last till the 16th October, so I was at home, and thankful enough I felt, I can tell you, for these cowardly natives would not have assisted a bit in my absence; my wife would have had no command over them, and not one of them would have moved hand or foot to bar windows, hold doors, or anything else. I had to stir them up, drag them along, and stand over them, as it was, and it was only the fear of a broken head from my awkward-looking stick that induced them to obey me, save in one instance—my Madras boy.

It is impossible to give you an idea of the scene of desolation that met our view the following morning. Tittaghur is famous for its beautiful trees, and our garden contained some of the finest of all. I do not exaggerate when I say that within the space of five hundred yards from our door, including about thirty in our own garden, there are not less than two hundred magnificent trees, averaging ten to twenty feet in circumference, lying uprooted and torn to shreds, not a branch or leaf left on them. Truly the beauty of Tittaghur hath departed. Half a century will not replace the trees. Imagine our garden a mass of branches and leaves, with enormous trees stretched across the flower beds. Our outhouses, which include all domestic offices, are partly in ruins. Two trees of immense size fell right over the cooking-house, smashed in the roof, and there remain, half the building down.

The morning after the gale (it lulled about eight p.m., and we had a quiet night, for which we were all most thankful) I was anxious to get to Calcutta to know what had occurred there. I started; the distance is a mile and a half from my house to the station. About every three yards along the main road, which is an avenue of trees, were large trunks of trees either to be surmounted or the reverse. From Barrackpore to Cossipore, within four miles of Calcutta, it is a straight road, a perfect avenue of magnificent trees, the distance over ten miles. Imagine about every third tree down across the road, a good broad road too, but the trees reaching right across, some of them ten to fifteen feet high. Such one could not climb over; one succumbed and glided under. This was the way I reached the station: sometimes one, sometimes the other.

The roof of the station at Barrackpore was partially blown down. I met some of it about five hundred yards before I got to the station; but though prepared for what I saw there on arrival, I must confess I was startled when informed that two large trains, with passengers, had been blown clean off the line, right over, wheels uppermost. I think this will give you a notion of the force of the wind.

Arrived in Calcutta. You know how fond I am of ships. It has been my custom to drive up and down the river side, close to which the shipping is moored, at least twice a week. Only the day before the cyclone, the 4th, a leisure day with me, as with almost everyone else, I inspected the splendid ships lying close to the roadside for about

three-quarters of a mile, three and four abreast. I knew the names and moorings of most of the vessels; several I had selected as splendid specimens of wooden shipbuilding, and it has been my custom to watch the passages to and fro of my pet ships. Fancy what I felt when I approached the river side. Not one at her post; the roadside was cleared from end to end, except where here and there a steamer or ship was wrecked on the very roadside itself. But on the opposite shore, and far up and down the river as the eye could reach, what a sight met the eye! Clusters of ships in all positions, masts gone, yards gone, sides stove in, sterns stove in, some lying right over on their sides, and some, alas, sunk, their topmasts alone appearing above the water. But you will read all about this in the papers, described far better than I can do it, so here let the poor shipping rest, but I assure you I could have shed tears at the sight.

Within two hundred yards from our house lies, or rather until the morning of the 5th of October stood, the village—that is, the houses therein—of Tittaghur, now, alas, levelled with the ground. The huts are made with mud and bamboo, and capped by thatch, well and strongly made. Every dwelling is now a wreck. The poor natives fled into the open, I fancy, at the first alarm, and there hung on to their eyelids, I suppose, for I don't know what they found to trust in on *terra firmâ*.

We, of course, were hemmed in on every side but the water side by fallen trees, as well as our few neighbours; so two or three of us since the gale, assisted by a few score of natives, have been sawing and chopping our way out; and I am happy to say that at last, after four days' very hard work, we are able to get a horse along the road into Barrackpore Park, our usual ride or drive, having no other place for this sort of recreation except the Barrackpore road, which, as an avenue, hitherto was too close for the purpose. Our beautiful park, like an English one, and very lovely, is a waste—every second, if not two out of three trees down, torn up by the roots.

Such is the state of things with us at the present moment. But I am happy to say we are all in the best possible health, making the best of our misfortune, and only too thankful to God that we have had no loss of life in our pretty little village. I fear my long scribble will not give you half an idea of the frightful cyclone that has visited us in this year of 1864.

Nor has Calcutta itself been less fortunate. Here it is said that—

For six hours the destructive forces of nature appear to have asserted their omnipotence in the city, which on their abatement presented the aspect of a devastation by a maddened army after a desperate siege and a merciless bombardment. The roads were barricaded with rows of mighty trees, some fifteen feet in diameter, which had been torn up by the irresistible fury of the wind. Churches and temples were blown down, and, worse than all, hundreds of native dwellings fell upon their terror-stricken inmates, burying them in the ruins. It has been computed by experienced merchants that the

damage done to the city and to the shipping in the river cannot be repaired for two millions sterling. The loss of life has not been, and perhaps never will be, ascertained. There is reason to fear that it does not fall far short of one thousand souls.

A correspondent, who remembers the cyclones of 1842 and 1852, writes of this that the roaring of the wind itself, bearing along the sharp crash of rending timbers, and the heavy thuds of falling masonry, was intensified in its horror by a peculiarity which he had never before experienced in heavy gales at sea or on shore. "For a long while there was no lull whatever, even for a second, but as I sat in a house as strong as a castle, and of great size, it seemed as if, when a lull might have been looked for, at intervals, and in an ordinary gale, there came, as it were, an instantaneous shock of a solid blow delivered on the whole surface of the building, and as that passed it seemed as if the whole structure must succumb, and then the hurricane swept on again with increased fury, until another such shock hurled fresh fragments along every street."

The scene presented by the shipping in the river was prodigious in its desolation. The Hooghly, at the time of the hurricane in October last, contained perhaps the finest merchant fleet to be seen anywhere out of Great Britain. About two hundred and twenty sail of magnificent ships were lying along the eastern bank of the river between Garden Reach and Chitpore—the greater number of them being of a tonnage exceeding 1,200 tons. Of all these not one was left at her moorings, and not a dozen have escaped unscathed. At least a hundred ships were ashore, all huddled together in indescribable confusion. A gentleman who was looking on the river while the gale lasted writes:—"The sight was awfully grand. Ship after ship broke from moorings or anchor, and swept past, carrying with them those which had previously escaped, till they collected and formed on the Howrah side of the river—a forest of masts and disabled vessels. Hundreds of boats went down, and numbers of helpless beings were drowned; many on pieces of wood, which they had caught hold of, drifting towards vessels, under whose bottoms they were at once sucked down, to rise no more."

The effects of the wind were aggravated by the terrific *bore* of the Hooghly. The great tide wave which is gathered in the ocean round the South Pole strikes with violence upon the shores of Hindostan, and finally breaks in the mouths of the Ganges, where, compressed in a narrow channel, it rises with extreme rapidity and a terrible noise. The water rose some twenty feet above the banks, and advanced in a long curling line high as a wall, and rushed madly along, foaming and raging, scattering everything that presumed to float, hurling some vessels over the river's banks, and dashing others to the bottom.

It is cheering, in reading these records of destruction, to come upon instances of heroic exposure in the endeavour to save human life, and to learn that they were successful. Little opportunity for such efforts was afforded, for scores of vessels, with their crews on board, were overtaken in situations where to render assistance was quite impossible.

There is, however, recorded the case of the *Govindpore*, which went down, but not until a British seaman, with unsurpassed gallantry, had saved the lives of all on board. The ship was off the Bankshall, and in the middle of the stream. A crowd stood on the shore, painfully expecting the inevitable catastrophe. A hundred rupees were offered to any one who would carry a rope out to the ship, but the gale raged so fearfully that no one dared make the attempt. Presently a seaman, named Edward Cleary, came up, and, without knowing that a reward had been offered, volunteered to swim over to the ship with a cable. He tied the rope round his waist, dashed into the water, reached the ship, fastened one of the ends to her bow, and returned amidst tremendous cheering on shore. The nine men safely came to land by means of the rope, the captain being the last man to leave the ship. Why have we no civil "Order of Valour" for such services as this of Edward Cleary?

We have gleaned the foregoing appalling account from the *Daily News*, and we cordially concur in the concluding remarks, "When shall we ever see a civil order for valour?"

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#### ROYAL SCHOOL OF NAVAL ARCHITECTURE AND MARINE ENGINEERING.

This institution has been formally opened at the South Kensington Museum, since our last number.

Dr. Woolley, director of the Educational Department of the Royal Navy, introduced Mr. Charles Merrifield, F.R.S., the principal of the school, stated that the opening of the institution was an important event in the history both of the navy and the mercantile marine. He had known Mr. Merrifield for many years as a distinguished mathematician, and that gentleman had two or three years ago, and before this school was contemplated, turned his attention to the subject of naval architecture, and was in every respect well qualified to perform the duties of its principal.

Mr. Merrifield then proceeded to deliver an inaugural address, and observed that it would be expected that he should give a brief account of what naval architecture was and had been, and some idea of what had been done to assist the study of it both as an art and a science, here and in other countries.

There were no authentic records of bold seamanship or building ships until the time when our own ancestors, the boatmen of the Channel and the North Sea, ventured across the Atlantic, centuries before Columbus induced a Mediterranean crew to accompany him over its middle region; there were, however, good seamen before that, as the men who came from Syria to Cornwall to buy tin must have had good boats and good sailors, while the Greeks and Carthagenians

could not have sailed the Mediterranean without efficient crews and ships. The seamanship which preceded the Christian era was of a somewhat timid character, and this might be said without accusing the older nations of want of personal courage or vigour, and they did sail the sea, and did command its shores, with vessels that could not sail on a wind, and without the mariners' compass. The naval power being made so subservient to the army tended to keep down the seamanship of Rome, but the Greeks, as they were represented in Homer and Æschylus, seemed to have something like the English feeling for the sea. The representations of Greek and Roman ships which had come down to us on coins and sculpture were mere fancy sketches, and gave no accurate notion of the types of their vessels; but as in a general way naval architecture was very conservative, probably every vessel which was used in the Mediterranean in former times would be found there now.

In considering what might be called the natural history of ships, there was an analogy to be found with Mr. Darwin's theory of natural development and selection. All spring from one, or at most, two prototypes, the floating log, or the raw hide, fastened on wicker, and have developed into the barge, the yacht, the junk, the pirate galley, the row-boat, and the steamer. Passing to our own seas and well-known types of ships, it was said that the vessels of Harold and William the Conqueror on the Bayeux tapestry were simply big canoes with one square sail, or a kind of lugger with three square sails and a high fore-castle, which by the addition of topmasts led to the square-rigged ship. There was little difference between the ships-of-war and the merchantmen, the fighting ship having a high poop and fore-castle, from whence to shoot into the waist of another vessel. The *Royal Sovereign*, built in 1635-37 by Phineas and Peter Pelt, had a poop 76 feet from the keel, and a beak 35 feet long. She differed under water very little from vessels of the present day, was very strong, was employed in the wars of the Commonwealth and the Restoration, and was accidentally burnt in 1696.

The great improvement of naval architecture dated from the beginning of the present century, for although the theory of shipbuilding had been investigated by Newton, Bongeur, Euler, and De Chapman, nothing practical and positive was done except as regarded the lateral stability of vessels, that is the qualities on which their capsizing depended. The first symptom of marked change was at the period of the French Revolution, and naval architecture as a science may be said to date from that epoch. The fresh and vigorous application of original thought to everything directly or indirectly connected with the art of war produced an effect on the construction of French ships of war; and the English Admiralty, awaking to the new demands of that critical time, recalled General Sir Samuel Bentham to the service of the crown; the talents of Sir Marc Isambard Brunel and other eminent French exiles received recognition and reward, and under their auspices were trained men who, like Sir Robert Jeffreys and Sir William Symonds, added a European reputation for science to the



high practical character of English shipwrights, and founded a school which produced magnificent specimens of naval architecture which held until the steam-driven screw changed the whole character of the fleet.

Since then a greater change had occurred; iron and coal had dissociated us from the past, and sailing ships of war with wooden hulls had passed into the region of history. Having glanced at the difficulty in obtaining the co-operation of the engineer and the shipwright in the construction of iron vessels, and pointed out that the use of plate-iron was quite recent, and shown that the building of iron ships was at first a more difficult task than it would have been if we had started with our present knowledge of plate-iron—it was shown that complete harmony had been established between the shipwrights' department and the makers of engines, and that our dockyards were now iron works, and our shipwrights smiths.

In reference to the history of steam navigation, it was shown that the earlier steam-vessels were wooden hulls, with paddlewheels outside and a steam engine and boiler within. The design was for, and the original use of the paddlewheel steamer was on, smooth water, and this was still the condition of its most favourable performance; but it soon found its way to sea notwithstanding, forming another proof that perfectly seaworthy vessels were not a condition of navigation, and were not absolutely necessary to successful seamanship. The circumstance that steam power was at first principally applied to river boats had exercised an immense influence on naval construction, it having caused the "bluff" form of vessel, which was first used at sea at a low rate of speed, to be superseded by that sharp form which now enables steamers to cross the Irish Channel in a storm at the rate of twenty-one miles an hour. Passing by the technicalities of form in vessels, the subject of the "midship section," the chief quality of a ship, which governs the question of her capsizing easily or standing stiffly against a breeze, of rolling or being easy and steady, was dealt with; and it was shown how by degrees it came about that ships of the present day are broader and shallower as regards their midship sections; and it was pointed out that a ship of any kind is a compromise amongst a great number of qualities, all of them necessary to a greater or less extent, most of them incompatible with one another, or carried to an extreme, and that to give a ship every good quality was beyond the reach of human skill. The requirements of vessels of war and merchantmen were different, the former requiring weights placed high and kept high, while the latter needed a different and lower kind of stowage. This portion of the address was happily illustrated by several examples, and the result was a suggestion of the advantage to intelligent seamen of an understanding of the principles of the construction of the hulls of their vessels, as they already understood their masting, canvas, and rudder. Dealing with the subject of the way in which the materials of a ship's hull were put together, so as to give the greatest strength and durability to the structure, the method of ribbing and planking was described, which resulted in an elastic structure, to which efforts had been made to give as much rigidity as possible.

It was next observed that the increasing size of ships had brought about a difficulty in finding timber large and strong enough for the frames, and the exhaustion of the forests of large trees had been threatened. The use of iron had alleviated this danger, but the subject was still an anxious one, and plans had been tried by which diagonal planking had been substituted for ribs. No vessel had yet been constructed exclusively of iron, and wood still entered into every vessel as an important structural element. The great improvement which had taken place in iron ships appeared to be the using of iron as metal and not as wood. It unfortunately happened that for iron steamships it was not possible to obtain the necessary uniform strength and uniform weakness in every part, and the mode of meeting this difficulty was a problem yet unsolved. Another great difficulty with iron vessels was their fouling, which not only impeded their progress, but ate through their plates. No remedy had yet been found effectual, but red lead paint had been found to be as good as any. Alluding to what was called the "mixed" method of construction of vessels, it was stated that this consisted in wooden planking with iron frames, the chief difficulties of which were in securing sufficient ventilation to prevent the woodwork rotting, and in keeping it out of the reach of bilge water, which was most destructive to it. The mixed system could not be regarded as likely to lead to any ulterior development of the science of naval architecture.

With reference to propellers only two had been applied to any great extent in steam navigation, the paddlewheel and the screw. It was difficult to give variety to the forms of propellers, especially for ocean navigation, and it was chiefly because it was altogether submerged that the screw was mechanically preferable to the paddlewheel, as it escaped much of the alternate labouring and racing which happened to the engines of a paddlewheel steamer on a seaway. The defects of the screw were that it was not adapted to vessels of shallow draft or of very great speed, because, in order to secure the same speed, the screw-shaft must revolve much more rapidly than a paddle. The only other propeller worthy of notice was the water jet, which, however, was neither so efficient nor so economical as to be likely to come into general use.

Turning from the history of naval architecture to the question of the education of naval architects of the future, Mr. Merrifield proceeded to say—"The school which we are now inaugurating is the third of its kind in this country. Within the present century two previous schools have had a brief period of existence. If any stronger proof were wanted of their usefulness than that we are at this moment met to do over again the work, which was undone when they were closed, it is this: the pupils of the first school have been recognised as among the best servants whom the navy could obtain; the students of the second school were said to combine sufficient skill in modern science with knowledge of past tradition, to be trusted with the reconstruction of the navy. I regard it as a very fortunate circumstance that our new school will be enabled to take up the tradition; not

indeed as an inheritance, but as the free gift of its present possessors. The inspector-general of our new school, and the director of its studies, was the first and only principal of the second school. He has had the inestimable advantage of free and familiar intercourse with the ablest representatives of the first, and I trust that his friendship which an acquaintance (both private and official) of many years standing has enabled me to win and to value, will place me in the position rather of a successor to him than of the principal of a new and experimental institution.

An additional link in the tradition is supplied by the constructor of the navy and the three assistant constructors (all of them his pupils) having consented to embody their knowledge and experience in a series of lectures for our benefit. I cannot enter into a history of the two previous schools, because my doing so would involve an eulogy of my superior officers, a thing contrary to all official etiquette. The task which lies immediately before us is somewhat different from that which presents itself in the schools of naval architecture established on the continent of Europe. The difference mainly consists in the fact that they possess a system of secondary state schools which does not enter into the plan of English education. The most striking contrast, perhaps, which I can offer you, is the French system. They possess an excellent school of naval architecture, of very old standing; but it is simply a school of application. Not only do its professors impart no elementary instruction to their pupils, but they do not even give any of a general character. All their teaching has a direct technical purpose. Their scholars come to them with a thorough mathematical preparation—the greater number of them being among the most advanced of the Polytechnic school, already practised draughtsmen, and good engineers—the remainder private students of scarcely inferior attainments. The province of the school is to give a special finish to an education generally complete. Such an institution would find no place in this country.

Without asserting that our education is lower than that of Frenchmen, we cannot but admit that we have no such uniform standard, as would serve for a basis, on which purely technical science might be superposed. I do not propose to discuss the advantages of the two plans; it is sufficient for my purpose to contrast them, in order to bring out into clear view the necessity of our beginning on a less ambitious scale, as a school, rather than as a college. It is true, that it is no part of our plan to teach the rudiments of mathematics: but we must be content to take our pupils at a moderately advanced point, and to give them not only special education for the profession which they are to follow, but also that thorough knowledge of mathematics, which alone is the key to all instruction of an exact character. I have not thought it necessary to dwell much on the division of our pupils into two classes, one for naval architecture, and the other for marine engineering. The second subject is included in the first. A naval architect must know both, and the education of a marine engineer is scarcely complete without some knowledge of the vessel in which his

engines are to work. Accordingly, we do not intend to draw a broad line of demarcation between the two classes, but rather to let the distinction establish itself, by giving simply a higher finish to that branch which corresponds with the student's destination. It does not need a prophet's eye to perceive the glorious future that lies before the School of Naval Architects, of which we are now founding the English branch. We have a new material for building; we have a motive power, which can scarcely be said to have a history; we have the energy of our English race, and the old experience of a seafaring nation stimulated by the goad of foreign competition; we have the rare coincidence of an intelligent government desirous to educate its people, and of a people clamorous for scientific instruction; a fortunate coincidence of time, too, when the great establishments of the crown, and the energetic leaders of trade, all feel so keenly the want of aid to their progress in knowledge, as to lay aside their mutual and common jealousies, and to welcome the amateur theorist, as if he were one of them, not caring to carp at the conclusions of his inexperience, so that he give them new thoughts to study, new ideas to vary the routine of their workshops. There is good work to be done in our school; there is the material wherewith to do it; and I do not doubt of success. The credit of this success, however, will be due to others than myself; to those who have placed the charge of the instruction in my hands under such conditions as oblige me to accept the whole responsibility, and at the same time relieve me from all fear in doing so, except such as all rational men must feel, when they are charged with an important duty, not perhaps beyond what they may expect to perform, but still tasking them to their utmost strength. You cannot take this burthen off my shoulders; but there are many ways in which your assistance, as well as that of the other ship-builders and engineers of England, will serve the object which I have most at heart. I feel sure that I may unhesitatingly rely upon you for support on all needful occasion."

Dr. Woolley moved a vote of thanks to Mr. Merrifield for the address which he had delivered, and took occasion to state that not only the theory but the practice of naval architecture would be illustrated in the school.

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### SKETCHES IN BRAZIL.

(Concluded from page 540.)

It is in slavery that I have always considered the principal cause of the licentious habits of the American. What, for instance, cannot an opulent nabob do, who is precluded by caste from all occupation, in his seraglio of some two or three hundred negresses or women of colour. Depravity of morals has arrived at the very last stage in the plantations of the interior, where the slave is reckoned as no more than a

common animal, and has only to supply the desires of human dignity. Such examples bear their own fruit. The black, ready enough to imitate the vices of the white, excels him, and thus adds his to the children of his master, of which he is the only preceptor. The horror of work and the bad faith which attaches to him who subjects himself to be culpable from such conduct, here is the first article of faith, one may even say the only one, which the Brazilian learns from his cradle. The consequences are easy to foresee. The slave only works under the lash of the factor. As to liberation—he who would use the privilege of the freeman allows himself to fall into the most deplorable state of idleness. A traveller relates that a negro which he had being slightly unwell, he released him from all work and ordered him some refreshing drink. In the evening, on inquiring about its effects, the sick slave gravely replied, that he had been unable to follow the prescription because the Indian Firnesiano, who served as domestic to the caravan, not having returned from the *rancho*, he had not been able to obtain water. Now a rivulet was actually running before the door! I consider this anecdote one of the best possible illustrations of the effects of idleness, but I had it too late to be a witness of one no less remarkable. A negress, who had come to receive her certificate of freedom, happened to be with us in the verandah of her old master, waiting squatted on her heels for the hour of the arrival of some French beaus. Her dog by her side was barking and making a noise, on which the master desired she would drive him away. Yes, sir, she replied, getting up and turning aside and to my surprise went to the room where his negroes were. Thinking she had mistaken his meaning, I soon sent the dog off with my foot. But the master, who was accustomed to the negro peculiarities, was in no way surprised on seeing her immediately come back with two slaves. Not seeing the dog, she supposed that he had taken himself off on his own account, and they all three returned to their places, quite conscious of having done their duty!

Notwithstanding the constitution given by Don Pedro, and in spite of the efforts of clear headed individuals, some feudal custom comes in the way, left by the original conquerors. Like ancient Rome every citizen of an inferior class gathers round a rich person, who may succour him in misfortune and protect him in the midst of those jarring events which come somehow between honest men and justice. Parents, aware of the importance of this, select a patron as a future protector for their children in the shape of a godfather. The title is sufficient, and there is no instance of a Brazilian refusing the honour of it, considering the responsibility which it incurs. Such, however, are the deviations of human nature, that this custom, so good in its moral principle, having no other object but to place the weak under the protection of the strong, often degenerates into a scandalous abuse. If the patron is a person of importance his will rides over all law and his word secures the evildoer from all harm. Justice, in fact, may close her eyes and let things take their course.

Some years ago an inhabitant of Rio did something very wrong, I

forget what it was now: but the charge was an important one, and conviction inevitable. The criminal, in fact, had no chance but to seek some powerful protection where he best might. He recollected that the grandfather of the judge was his godfather, and he despatched his wife to him to communicate his situation. Recommend my godson to be more wise in future, and tell him that he shall be at liberty to-morrow morning, replied the old gentleman without hesitation, and taking his parasol he set out for the residence of his grandson. The words of an elderly gentleman are not considered mere requests, but actual orders. As he had said, her request, however exorbitant it might have appeared, was to be complied with. Great then was his surprise when the wife in a couple of days came to tell him that her husband had again disappeared. Without giving time for explanation, he went out also. Two days afterwards the judge suddenly found his house visited by the principal people of the town, all dressed out in mourning, for they had come on the faith of letters to assist at his funeral. The good man of the house was profoundly astonished, of course, at his lugubrious visitors. However, after some words of explanation, and establishing the fact that he was really not dead, the judge got rid of his visitors without much trouble, admitting it to be a mystery of which he was the victim. He promised himself to discover the authors and to be revenged, but his efforts were fruitless. After exhausting all his speculations, he remembered the request of his grandfather, and set out on the road towards his house. He found him seated under his verandah waiting dinner, quietly smoking a cigar.

Good morning, grandfather.

The old man looked at him without answering.

I am come, he said, to ask of you, with all the respect that I owe you, if it was not by your orders that letters have been sent in the last few days to tell all my acquaintance to come and attend my funeral?

Ah, filho, replied suddenly the irascible old man, you remember me now, do you. Don't you know that a child who forgets his duty is dead to his parents? I am going to teach you how to live. And snatching up his cane he laid it on the poor devil, who, not foreseeing what would happen, had not left the door. The same day the person who was in the scrape was set at liberty.

In the interior, however, justice is dealt out still more expeditiously. In fact, every one helps himself to it. Should a man have a personal revenge to take against a neighbour, he conceals himself on the road under any cover where his enemy has to pass, despatches him with a bullet as soon as he appears, and goes home as coolly as if nothing had happened. The urubus very soon clear away all traces of the crime in devouring the victim, and even carrying off his bones far away. May be he had parents and friends who would revenge his death, and they are as certain as if from instinct of the direction from which the shot was fired, and in their turn give the urubus a new feast! It is the law of the desert generally an eye for an eye, tooth for tooth, and

blood for blood. Instead of one murder there are mostly two, but nothing is thought of it in this land of slavery. The murderers have on either hand charming excuses to justify their conduct. They will tell you it is necessary to satisfy the irritated soul of their unfortunate parent, that society demands justice, and that all that they have done is having sent the murderer before the tribunal of the sovereign judge.

The black man who is freed is not more advanced in mind than the slave before this blind divinity which they call justice. But the law no less accords to him the right of voting at elections. Since we are on this subject, it may be interesting to learn how elections go forward in Brazil. One instance will suffice to give the European reader an idea of the political education of this vast South American empire.

According to the Brazilian constitution, any free man who is not too ragged has the right at certain periods to throw into an urn a little square piece of paper carefully folded. Here, as everywhere besides, there are two parties classed under distinct names:—Conservatives and Oppositionists:—the one defends the past through thick and thin; and the others just as obstinately talk of progress and liberty and on getting power continue to defend the wholesome precepts of their predecessors. Like every other place there is the constituency, the electors, divided into two parties, called constitutionalists and oppositionists. In any election a ministerial candidate gets one of his friends, perhaps a rich planter of the province, to give him the votes of all the free men of his estates. This kind of service is never refused among the higher classes in Brazil, where ancient traditions abound originating from the continent, and where revolutions are continually going forward. It is then agreed that all the electors of the master of the estates shall be invited to a grand affair a few days before the election, and there they promise for the day on which the scrutiny is to take place to record their title as free men, to approach the important urn with the name of their candidate.

On the day indicated at sunset the strangest collection of human nature that can possibly be conceived or even the most frantic imagination could suppose is assembled: old negroes, who have obtained their liberty by the death of their masters, anxious to return to their African idleness, pates with ribbons in the hair, and copper coloured, styled civilized because they wear trousers and drink *cachaca* (rum), in fact, the whole produce of the hybrid races who from the times of Pizarro and Cabral have run over the new world to ravage it with their ill deeds or to water it with the sweat of work, are here drawn together. Those beastlike figures, those filthy hands, those feet the skin of which is sufficiently hardened to resist the bites of serpents, those beards as uncultivated as the forests whence they came, those strange accoutrements, the scenery of the place, the object of the meeting, all contribute to form a spectacle beyond conception. Everybody was there. It was a rare collection: it was a banquet for the wild beasts of the mountains, but above all it was the master's banquet. Long tables had been prepared in the enormous space of this *café*.

There were small pigs served up entire, as in the banquets in the time of Suetonius, harricots in huge earthen pans, and enormous calabashes of manioc, forming in its natural state a splendid dish; then jugs of rum were circulated about, from time to time, with which the pigs, the harricots, and the manioc, went off merrily. The master, with an attentive eye, watched the proceedings of his friends, and when he considered that he had a favourable opportunity, placed himself in their midst, having a few words to say on the object of their meeting.

My sons, he said, I am going to ask of you a small favour. In eight day's time you are going to give your votes. As you do not enter into political matters, no doubt the name of the candidate is of no consequence to you: therefore, if you will do me a favour, you will vote for Senhor Z., who is my intimate friend, and to whom I have given my word in your names."

There was nothing further required. The guests called out, with one accord, that they were ready at that moment to vote; that the Senhor was their father, and nothing could be refused to a master like him. It was about nine in the evening, and the walk to the city was a distance of several leagues. It was no easy matter to make these fine fellows understand that their votes were not required for a week, and that by anticipating it now it went for nothing. They could not comprehend that every channel was not open to their master, whose power, in their eyes, was equalled by that only of the emperor himself. The greater number, however, consoled themselves by emptying the bottles, but the stronger heads surrounded the planter and profited by the advantage which the *soirée* gave them of asking him to explain to them the nature of the elections, candidates, votes, the constitution, &c.? The master had enough to do in replying to all these questions. One of these voters, who was remarkable from his patriarchal beard, distinguished himself by the warmth of his manner and originality of his ideas. Placed immediately facing the Senhor, he took hold of one of the buttons of his coat, at every question tormented it between his fingers while he was getting his answer, which, when concluded, off came the button. Several buttons had disappeared thus, when a mulatto, who was called, I think, Mascarenhas, tired of this man's questions, and annoyed at the mischief he was doing to his master's coat, resolutely stepped up to him, and elbowing him aside, took his place. All were silent to let him speak. Senhor, he said, my opinions are well known to you; you know that I am a liberal, and that my political sympathies are for the candidate of the opposition, (this *liberal* candidate did not possess less than five or six hundred slaves), but you are my master, and I refuse you nothing; so whatever violence I may do to my sentiments I shall keep my promise, for Mascarenhas, above all things, is a man of honour; and if your honour would permit, I will undertake to refresh the memory of my companions who have, most of them, never before come out of their forests, and who may not only know nothing of the day of election, and not even the name of your friend.



And how will you undertake to remind them of that, asked the master, charmed by the offer?

In a very simple way, replied the mulatto; that you should only give me a pig, a bag of farina round the manioc, a little barrel of cachaca, and a little salt. I will collect all these men at my house on the evening of election. On their refreshing the stomach, I will also remind them of the promise they have made to-day: I will take care that they do not leave me in the night, and in the morning we will all travel towards the town, where they shall vote as a single man.

The master, delighted with such a proposal, calls the chief of the plantation, and ordered him to deliver to Mascarenhas the best pig he could find on his estate, and to place at his disposal everything wanted—manioc, harricots, salt, and cachaca. Now our friend waited till all his companions were gone, and at daylight selected himself the most desirable animal he could find, loaded two mules with provisions, and quietly set out for his own house. On the day of election he presents himself at the house of the ministerial candidate. Senhor, said he, my master should have announced my arrival to you as well as that of all my comrades, which I promised him to conduct to you.

In fact, replied the ministerial candidate, I see with pleasure that you are a man of your word: but your companions, where are they?

You see they are waiting for me at the door of the voting-house, he replied: I have left them there because I want to tell you something. The opposition candidate, who has got wind of my promise, and who knows my liberal sentiments, has secretly proposed to give me 100 milreis (£10) if I would vote for him; but Mascarenhas is a man of honour, and if your lordship would consent to do this, how can a poor devil, the father of a family, refuse his vote? I will go and look out that my men are all right!

Here are your one hundred men? said the ministerial candidate: and make haste, in case these liberal intriguers should endeavour to seduce your companions in your absence!

Don't be afraid, replied the muleteer, carefully counting his milreis, my companions only know me and the Senhor! Then, pocketing his game, off he starts to the house of the opposition candidate.

Senhor, said he, addressing him, you are quite aware of my desire to serve you, and you know the influence which I have over my friends. I have given them your name. One thing only I have to tell you which is, that my master promised me 100 milreis if I made them vote in favour of your opponent. But Mascarenhas is a man of honour. I have scorned his bribe, however I might desire it, persuaded that you would not refuse it to me. You know my position; such a sum would be a fortune to a poor devil like me, with a family to bring up.

Ah! I don't think the less of you for that. Much has been said to me about this affair, and I was somewhat concerned on your account. I have known for a long time that you are a real patriot, thoroughly devoted to the triumph of liberal ideas. Here are your milreis, and go

back quickly to your companions; those gentry of the ministry are not scrupulous, and may work on them while you are here.

Mascarenhas pocketed this second bunch of papers, counted them carefully, and placing them by the side of the former, went off to his house.

On the following day the factor, in great anger, spoke of beating Mascarenhas, a mere slave. He despatched two vigorous slaves to bring the man before him, alive or dead, and got everything ready for the whipping. The muleteer came with the utmost serenity, quite calm, and a well-filled stomach.

So you miserable rascal! cried the master, directly he saw him, you have been cheating everybody, and have broken your word with all; the scourge shall teach you how to play with me and my friends.

The master cannot, surely, find fault with me, said Mascarenhas, with the most perfect *sangfroid*. I have done my duty. Your friend gave me 100 milreis in the hope that I should vote in his favour. The opposition candidate, who was mine, has given me the same sum on the condition that I should give him my votes. If I had voted for one I should have deceived the other, and you know that Mascarenhas is a man of honour; it only remains for me to vote for neither. The master himself could do nothing else if he were in my place.

The master of the estate in question was a particularly just man, and could not help heartily laughing at the strange profession of honesty on the part of Mascarenhas, and thus the whole affair ended. But he made up his mind to accompany his men, in future, to the voting-place. As to the illustrious guests at his banquet, who offered to go and vote for him, even in the middle of the night, their electoral enthusiasm seemed to have become dissipated with the last fumes of the chacaca, for not one of them appeared to vote for him. Mascarenhas, who knew his men, had considered that he had much more right to the pigs and other provisions than they had, and had taken good care of all.

But if we cast a parting glance at the whole country, and look at the results of the occupation of Brazil by the Portuguese people, what traces shall we discover? It is no gracious task to be severe on a gallant race of men, who have shown themselves to have been, in former times, the pioneers of the Latin nations, but to whom it is not possible to offer any eulogium on the state of the South American continent especially, when it is compared with that of the North. What a contrast between the railways, which ornament the United States, and the track roads of the original forest? What a contrast between New York and Rio Janeiro! On the one hand human industry is carried to its very limits, on the other, the most stupendous apathy contents itself with producing a few hogsheads of sugar, and some arobas of coffee.

Let not the influence of climate be advanced in excuse for this: Louisiana is as enervating as Para; the mouths of the Mississippi are as unhealthy as those of the Amazons. The real cause lies deeper than these. The seat of it is really in the Portuguese constitution,

mingled with Arabic fatalism and Iberian roughness, proper for heroism but opposed to science and labour. As soon as the fever of occupation was over, the conquerors desired nothing further than to enjoy the land of promise. Their descendants went further. Throwing aside the helmet of their sturdy ancestors for the sombrero of the planter, and the well used sword for the flagellator of the slaveholder, they adopted the mantle of the hidalgos, and left to the conquered tribes the task of enriching them.

Disdaining the slow produce of the soil, so prolific within the tropics, what they wanted was gold. In order to secure some few ingots of this they have burnt whole forests, overturned the soil, exterminated whole tribes of Indians, and enslaved millions of black men. And yet they have neither opened roads nor constructed canals. The two great rivers of the world, the Maranhao and the Parana, the sources of which are not far from each other, and which form to the immense tract of country between them the great arteries of South American commerce, are in these days much the same as what they were on the arrival of Cabral. Up to the last few years some Indian canoes alone have navigated their waters. If we go into a town of the interior we shall find convents and churches in dozens, but not one scholastic establishment. The people are compelled to go to London or New York for the smallest machine—for the least piece of railway iron, and yet this material is found in several parts of South America in its native condition. In fact, it is hard to believe that the woods of Norway supply the building yards of this country, while it possesses an abundance of wood of every description.

This repugnance to work—this philosophic idleness, which the ancient Portuguese always considered to be the best part of comfort, cannot be attributed to a want of energy, for no people in the history of the world have shown a greater share of boldness and questionable activity than this Celtic-Iberian tribe, shut up between mountains and the ocean. After having overcome Islamism, and finding themselves cooped up in a narrow strip of land, they first encountered the dangers of an unknown sea and explored the African coasts, doubled the Cape of Storms, opened the great road to India, and established their factories in Asia; while, on the other hand, Cabral, pushing to the South, discovered the continent which Columbus had in vain looked for. Again, a Portuguese, Magellan (Magalhaens), braving the rigours of the Antarctic Sea, entered the Pacific by a route unknown and discovered the great ocean, obtaining for his countrymen the honour of first circumnavigating the globe by those seas, until then closed to science and to the investigation of man. From such men it is difficult to believe in a new view of things.

Their rich and sonorous language, is well adapted for singing the exploits of their heroes or the canticles of the saints; but, alas, it is silent when you ask for a scientific tract or a work on practical industry. It is a language of paladins and not of artisans. But such as is the language such is the nation. Inheritors of the Roman world and the last personification of the middle ages, these men of

the sword cannot see the work which belongs to the serf. All innovation resting on such a base becomes a crime. To reform they reply by the inquisition. While the Anglo-Saxon race listens to the voice of Luther, they keep under the patronage of Dominic and Loyola. The two characters have displayed their fruits.

We must, however, not be too hasty in our conclusions as to the future of Brazil; and however slow may be the effect of ages on human revolutions, we may foresee even now the changes which time will effect in that country. Two things only are wanted—the fostering light of science and a new infusion of the ardent blood which ran in the veins of the earlier colonists. Steam and electricity are every day contributing their aid. The Yankees of the North, who have long looked with an eye of desire on the riches of the South, and European immigration, which is daily extending, form a double current, which will soon reach the peninsula and force its people, under pain of banishment, to forsake their idleness and frankly to accept the two grand conditions of modern times—industry and free labour.

Let us add that this reproach of immobility is addressed only to the routine followers and to the benighted people of the interior. The men who are at the head of the state, or who by their position have acquired a just influence on the destinies of their country, call for progress everywhere and cite example. Industrial companies should be formed at all central places; the provinces of the interior call for railways and steamboats. It is therefore fair to hope that the same progress which the city has made in receiving Atlantic steamers will soon bring railways to cross the country to the estates or villages lost in the mountains, and that the hut of the muleteer will disappear more and more, to give place to the elegant European colony.

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#### PROCEEDINGS IN JAPAN.

The *China Mail* (Hong Kong) of September 27th contains the following account of the operations of the allied fleets in Japan:—

We have already alluded to the probability of active measures being taken to open up the inland sea of Japan, which is one of the highways of commerce in eastern waters. Some few years ago this sea was made use of by vessels of different countries, on account of the facility it afforded for communication between Nagasaki and Yokohama. The western entrance to the Sea of Japan is guarded by the Straits of Shimonosaki, which are so narrow that any vessel passing through them is liable to be successfully fired on from either side. It is now more than a year since the experiment was actually tried; and it will be remembered that, in retaliation, various vessels of war went to the place and temporarily silenced the batteries. Since that time

the dispute has remained in abeyance; but the interval has been employed in considering the best means of settling it.

The Tycoon of Japan, who seems to be alternately powerful and powerless, could in this case afford no relief; and it was therefore determined, wisely enough, by Sir Rutherford Alcock, to take immediate measures for opening up the straits to the free navigation of every country. This was by no means easy of accomplishment under ordinary circumstances; but the very strong naval force at present in this part of the East offered an opportunity of forcing the necessary concession, and Sir R. Alcock went to work at once. In conjunction with the French, American, and Dutch authorities, he despatched an expedition to the Straits of Shimonosaki, in order to accomplish the common object of opening the inland sea to foreign nations. The vessels of war detailed for this undertaking were as follows:—English: the *Barossa*, *Perseus*, *Argus*, *Coquette*, and *Bouncer*. French: the *Semiramis*, *Dupleix*, and *Tuncrede*. Dutch: the *Metallen-Cruz*, *Djambi*, *Medusa*, and *Amsterdam*. The American minister, having no vessel of war at command, chartered the *Ta-kiang*, on board of which the United States flag was displayed, in order to show that America was acting in unison with the other powers.

On the 5th of September, the fleet having previously anchored off Shimonosaki, an attack upon Prince Nagato's forts was commenced, which ended in the destruction of two batteries on the eastern extremity. The Japanese fired some shot and shell during the attack, but without any serious effect. Not more than seven vessels of the allied fleet were engaged in the attack.

On the following day (September 6th), shortly after daybreak, the *Tartar* and *Barossa* were in action, having been challenged by the fire of some Japanese forts further on, and in half an hour they succeeded in silencing the guns. Shortly afterwards, however, the firing was renewed, and arrangements were made for landing the marines. The men were put on shore at 9h. 30m. a.m., along with contingents from the French and Dutch vessels, and in about twenty minutes the forts were taken. The *Perseus* went on shore while protecting the landing parties, but continued to do service notwithstanding; she was got off thirty-six hours afterwards, the *Barossa* having stood guard over her all the while.

The storming party were assailed with various weapons, including arrows; and it was remarked that the latter made nasty wounds. The struggle at this time was tough; Captain Alexander, of the *Euryalus*, was among those who received severe injury.

On the 7th, at daybreak, four vessels of the allied squadron moved on to the forts at Hakusima; but the successes of the previous day, and the play of the Armstrong guns, induced the occupants of these forts to retire. The *Barossa* and *Leopard* took charge of the captured guns, spiking some and taking others on board. Soon after this (at 8h. a.m.) a flag of truce was sent off in a boat, under charge of one of the Japanese who had lately been in England. In the

course of the day the signal of truce was hoisted all over the fleet, and it is reported that Nagato is quite willing to open the straits and treat foreigners civilly. It is even affirmed that he has offered to open ports for trade upon his territories, and we can only hope he is sincere.

When the forts were destroyed, the Prince of Nagato's officials sued for peace, saying that they would agree to whatever terms might be proposed. A guarantee, it is reported, was taken from the prince, by which he binds himself to pay any indemnity that may be demanded. This is rather vague, and seems to imply that Nagato is ready to promise anything in order to get rid of the allied fleet. The latest advices state that "a move is about to be made towards Yeddo." We can only hope that the recent successful operations have not led to expectations on the part of the British minister which are too high to be realised. The progress of negotiations with a country like Japan must be slow, and any wanton employment of force will be a blunder under almost any circumstances. So far as can be learnt by native rumours a civil war is at present going on in the interior of the country, and it is supposed to have arisen out of the foreign question. The fighting is said to be between noble and noble; but native rumour is unreliable.

H.M.S. *Severn* is in Hong Kong Harbour at present, bound for Japan, and, on her arrival there, it is likely that Admiral Kuper, who is well pleased at the success of the late operations, will return home to England.

The *Shanghai Recorder* thus concludes its account of the fight at the Straits of Shimonosaki:—

This has been a most successfully planned and well arranged attack. The admiral is highly pleased at the result, and it is more than probable several steps will be given to those engaged. Upwards of eighty brass guns of the most valuable kind have been captured and are now on board various ships in the squadron. Two on board the *Barossa* weigh upwards of eight tons each. The Prince of Nagato has had sufficient, and is inclined this time to cry "Hold, enough." The total loss throughout the entire fleet is upwards of one hundred killed and wounded. The loss to the English is some fifteen killed and forty wounded. The Dutch have lost two killed and six wounded. No officers on our side killed. Wounded—Captain Alexander (*Euryalus*), dangerously, in the foot; Lieutenant Edwards (*Euryalus*), slightly, in the foot; Mr. Atkinson (*Euryalus*), badly, small finger; Lieutenant Brownlow (*Tartar*), dangerously, in the leg; Mr. Wingfield, midshipman (*Tartar*), dangerously; Lieutenant De Courcy, in the wrist; and Lieutenant Inglis, H.M. royal marines, in the leg.

The *North China Herald* of September 17th thus comments on the event:—

The important intelligence relative to the destruction of the forts at Shimonosaki has doubtless proved most welcome to all our readers. A decided blow has doubt struck at the foundations of the exclusive  
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policy in Japan, an important means of communication with the richest portions of the Japanese group has been thrown open, new opportunities of learning somewhat of the inner political life of the Japanese have been secured, and foreign prowess has been again vindicated in the furthest corner of the East. The moral and physical victory thus gained cannot be looked on as one whose effects are by any means doubtful. The retribution which has fallen on the daimio whom we have humbled has been sufficiently severe without having passed the bounds of just vengeance, and the absence of any design of territorial aggrandisement places the foreign belligerents in a higher moral position than otherwise they could hold. The vengeance which has been courted as in jest has been inflicted in earnest, and the sword rashly unsheathed against unoffending foreign traders has been turned towards the breast of him who wielded it unwisely. The contrast between the temperate use made of success by the foreign powers, and the unprovoked aggressions which induced so forcible a protest against Japanese arrogance, must exercise a moral influence over the keen and intelligent natives. It will teach them, amongst other things, that while the country has everything to gain by friendly relations with Europeans, it can hope for no long continued triumphs over European arms.

The grand enigma what and where is the government of Japan is now near its solution, and a few months ought to decide whether it consists of a hierarchy, an oligarchy, an absolute monarchy, or whether, as is most probable, acts of legislation in which the entire country shares, proceed from a congress of princes whose power within their own territories, when exercised solely over their own people, is independent. We do not now require to be assured that the treaty of 1858 is utterly worthless except as a basis for decided action, that the tycoon is not the sovereign of Japan, and that the six high commissioners who signed the treaty may have represented the tycoon, but certainly did not represent the great body of potentates.

The *Moniteur* contains an official account of the operations in Japan, sent by Vice-Admiral Juarès to the Minister of Marine and the Colonies. After giving an account of the engagement, which resulted in the destruction of the Japanese batteries, and the opening of the Strait of Shimonosaki, it says:—

On the 10th September, the allied divisions anchored before the town of Shimonosaki, and one of Nagato's ministers, furnished with full powers, waited upon the admirals to request a cessation of hostilities, and to arrange with them the bases of a convention, the principal dispositions of which are as follow:—The opening of the Straits of Shimonosaki to the ships of all nations. The batteries to be neither armed nor repaired. The allied powers to receive an indemnity, the amount of which is to be hereafter fixed by their representatives at Yeddo. On the 16th (September), at the moment of the departure of the mail, the admirals were awaiting the ratifications and preparing to return to Yokohama.

## SECESSION TACTICS ON CANADA BORDERS.

The raid in Vermont is likely to lead to serious consequences, in case any repetition of it is attempted, and this is said to be only one of a series which are contemplated by the Southern refugees all along the border. I hear that General Dix has given orders that the perpetrators of all such outrages are hereafter to be pursued, and killed or captured on Canadian soil, and I know that the inhabitants on the American side of the line are in such a state of exasperation that it would be very easy to plunge them into attempts at retaliation, which would at once light up the fires of a border war. The attack on St. Albans, and the murder of the two shopkeepers who attempted to defend their property, was, whatever it may be decided to be legally, in the eyes of the Americans simply a piece of cowardly brigandage; and it is believed that its conception was due to the same motives as the piratical attacks on Lake Erie, and the persistent efforts to fit out expeditions against American commerce on British soil—a desire to drag England by hook or by crook into hostilities with the United States, or, in other words, an alliance with the Confederacy. And there is little doubt that the recognition in the Canadian courts of the validity of the plea put in by the captors of the Chesapeake, that they were commissioned by the Confederate government, has led the Confederate partisans to believe that they can secure impunity for raids on land by the same means.

The Canadian towns along the border are swarming with Confederate refugees, who have left the Confederacy to avoid military service, and the other burdens of the war, but they try to make some amends for their desertion of their friends by loudly abusing the Yankees, in the hotels and on the streets, with the sympathy and applaud of the Canadians. Mixed up with them is a large number of sham Confederates—deserters from the Federal army, and runaway debtors and criminals, who pass themselves off as “Southern gentlemen,” and endeavour to secure a share of the sympathy for that species of animal with which the heart of every true Briton has been overflowing for the last four years. Most of these people, I need hardly say, live by their wits, and of late their wits have stood them in such poor stead that thousands of them are ready for any enterprize, however desperate, that promises to fill their pockets, and there is hardly a doubt that the Southern leaders are only too ready to use them as tools either for haranguing the Northern population, or getting up difficulties between the British and Federal governments.

There is strong reason for believing that the St. Alban's raid at least had the sanctions of the plenipotentiaries now residing at Clifton, whose sage sayings and doings are so fully and faithfully reported in the columns of your contemporary the *Times*. The raiders have been nearly all caught, and the question of their extradition is now before the Canadian courts. I believe there is no



proof of arming, drilling, or "fitting out" on Canadian soil. The facts that come before the court are the robbery, murder, and escape of the perpetrators. They plead, however, that they are in the Confederate service, and that their attack on the town was an act of war, and consequently that they are simply in Canada political refugees, not fugitives from justice, and that the British authorities can take no cognisance of their doings in the United States.

Now here comes the serious part of the matter. Should this view of the case be taken by the court, and the delivery of the men be refused, the whole horde of Confederates now in Canada would at once have full warrant for forays across the border in greater or smaller parties, for the plunder of the American villages and farm-houses, and they would, and do, all justify it as legitimate retaliation for the devastation caused in the Southern States by the operations of the contending armies. But would the Americans take this view of the matter? Of course they would not. There would be, and there is now, a general arming and mustering in Maine and Vermont and Northern New York; troops and militia also have been disposed at leading points along the frontier, and I verily believe that if the St. Albans' raiders are discharged, it will be considered by the border population on the American side all but a declaration of war; and if there is the smallest attempt at a repetition of the outrage, we shall witness counter raids on the Canadian villages, and forcible attempts to arrest criminals in British territory.

I believe, moreover, that this is just the state of things which the Confederates seek and rejoice in, and when once a spark is all that is needed to bring on the explosion there are plenty of men amongst them who will be only too glad to strike the light. The consequences that would then follow are too serious for conjecture or speculation. You can draw your own inferences about them without any help from me; and I can only hope that the danger will be avoided by the delivery of the fugitives to the American authorities.—*Daily News*.

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#### ROYAL NATIONAL LIFEBOAT INSTITUTION.

A meeting of this institution was held at its house, John Street, Adelphi, on the 3rd November, Thomas Chapman, Esq., F.R.S.V.P., in the chair. We also observed present Admiral Sir William Bowles, K.C.B., George Lyall, Esq., M.P., Sir Edward Perrott, Bart., Admiral W. H. Hall, C.B., F.R.S., and many other gentlemen.

Mr. Lewis, the secretary, having read the minutes of the previous meeting—

A reward of £6 10s. was voted to the crew of the institution's lifeboat at Fleetwood, for putting off in tow of a steam-tug, and saving the crew of five men from the brigantine *Highland Mary* of

that port, which was driven on the Barnard-wharf sandbank on the 20th October. The institution also paid £3 12s. 6d. for the valuable services of the steam-tug.

A reward of £6 10s. was also granted to the crew of the lifeboat of the institution at Southport, for going off and rescuing the crew of three men from the smack *Liver*, of Carnarvon, which had become totally wrecked off Southport during a hurricane, on the 20th October. When the lifeboat arrived alongside the vessel the sea was sweeping over her, with the crew clinging to the bulwarks.

A reward of £25 was likewise voted to the crew of the Caistor lifeboat of the society, for putting off on the night of the 26th October and rescuing the crew of six men from the brig *Richmond Packet*, of Middlesborough, which was totally wrecked on the Barber Sands off Caistor. The night was very dark, and the poor fellows were taken off the rigging. The crew of the same lifeboat also received £60 for their laudable services in going off several times to the help of the people on board the wrecked steamship *Ontario*, and subsequently taking off fifty-five men from that vessel and putting them on board the steam-tug.

A reward of £13 was also granted to the crew of the Teignmouth lifeboat belonging to the institution, for going off and saving one man from the yawl *Hero* of that port, which had struck on the bar, in a high sea early on the morning of the 11th October. The cost of this lifeboat was collected in China, after which country the boat was named.

A reward of £8 10s. was likewise voted to the crew of the lifeboat of the society at Lossiemouth, for putting off twice during a heavy gale of wind and rescuing the crew of three men from the schooner *Agnes*, of Scrabster, which was wrecked in a very heavy sea on some rocks near Lossiemouth, early on the morning of the 28th October.

A reward of £4 10s. was likewise granted to the crew of the society's lifeboat stationed at Howth, for putting off in reply to signals of distress from the lugger *Castletown*, of Belfast, which had been stranded on some rocks during a strong westerly wind while working out of Howth harbour on the 15th October. The lifeboat was soon on the spot, and assisted to rescue the lugger and her crew of seven men from their perilous position. The cost of this lifeboat was presented to the institution by General Sir George Bowles, K.C.B.

A reward of £7 10s. was also granted to the crew of the Arklow lifeboat of the institution, for going off in reply to signals of distress, and rendering assistance to the schooner *Kate*, of Liverpool, which was observed in distress off Arklow during a strong gale of wind on the 19th October. The captain gave the crew of the lifeboat his note for £10 10s., in return for services rendered.

Rewards amounting to £35 were also granted to the crews of the lifeboats of the society at Newbiggin, Hauxley, Tynemouth, Landudno, North Berwick, and Witherness, for either assembling or for

putting off during the recent stormy weather, in reply to signals of distress from various vessels, which, however, did not ultimately need their services.

The silver medal of the institution, a copy of its vote on parchment, and £2 were voted to Mr. Angus Campbell, carpenter on board the cutter *Princess Royal*, belonging to the Edinburgh Board of Fisheries, for his brave conduct in wading into the surf, and, after three gallant attempts, effecting a communication, by which means the crew of eight men were saved from inevitable death, with the brig *Elizabeth*, of Whitby, which was totally wrecked during a very heavy gale of wind on the rocks outside the breakwater of Granton Harbour, on the night of the 22nd October.

A reward of £6 was also voted to a boat's crew of six men, for putting off in a fishing coble, at considerable risk of life, and rescuing the crew of six men from the schooner *Forest*, of Montrose, which had struck on the Bog Hall Rock, off Creswell, on the Northumberland coast, during a gale of wind.

Various other rewards were likewise granted to the crews of several shore boats, for their gallant exertions in saving life from various wrecks on different parts of the coast of the United Kingdom, making altogether a total of one hundred and four lives saved by the lifeboats of the institution and other boats during the fearful gales of last month.

The committee expressed their great surprise and regret that the Yarmouth beachmen had positively refused to put off in the large lifeboat to the rescue of the crew of the steamer *Ontario*, which was wrecked on Hasborough Sand on the 20th October. The excuse of the men was, that as the steam-tugs had been engaged to save the property, they might also be employed to finish the work, forgetting entirely that the special duty of the lifeboat was to save life.

Payments amounting to upwards of £2,000 were ordered to be made on various lifeboat establishments.

During the past month the institution had sent new lifeboats to Donna Nook, Skegness, and Theddlethorpe, on the Lincolnshire coast. The boats were all the gifts of benevolent persons to the institution. The three boats were liberally conveyed to their destinations, free of charge, by the Great Northern Railway Company. New lifeboats were also ready to be sent to Valentia, on the west coast of Ireland, Bridlington, Yorkshire, and other places.

Communications were read from the Governors of the Cape of Good Hope and of Malta, expressing their thanks to the institution for copies of its "New Instructions for the Restoration of the Apparently Drowned." The latter governor asked for an additional supply of the instructions. It may be here mentioned that the Right Hon. Edward Cardwell, M.P., her Majesty's Principal Secretary of State for the Colonies, has rendered every assistance to the Royal National Lifeboat Institution in making these valuable instructions known throughout the colonies. It was also reported that the

Boulogne Shipwreck and Humane Society had made an excellent translation into French of these important instructions, and they were now being extensively circulated on that part of the coast of France.

The French Government, through the Minister of Marine, had expressed its thanks to the institution for the valuable information the society had furnished to two officers of the Imperial Navy on the occasion of their recent visit to this country to inspect some of the lifeboat stations of the National Institution.

It was stated that the town of Birmingham was raising the cost of two lifeboats; and that that active class of gentlemen, the commercial travellers, were likewise endeavouring to collect the cost of two new lifeboats.

It was also reported that the late John Kitching, of Stamford Hill, had left the institution a legacy of £100, free of duty.

The proceedings then terminated.

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#### THE CAPTURE OF THE "FLORIDA."

The following particulars of the capture of the *Florida* by the Federal steamer *Wachusett*, in the harbour of Bahia, have been furnished by an officer of the first-named vessel:—

The Confederate steamer *Florida*, Captain Morris, arrived at Bahia at 9 p.m., Oct. 4. Just after anchoring a boat passed under her stern and asked her name, and upon being answered stated that she was from H. B. M. steamer *Curlew*. The next morning, when it was found that there was no English man-of-war in port, the officers of the *Florida* at once concluded that the boat was from the United States steamer *Wachusett*. At 9 a.m., the *Florida* was visited by a Brazilian naval officer, who was informed by the commander that he wished for provisions and coals, and also, if possible to have a piece of machinery repaired. The officer then went to inform the President of the wishes of the commander, but before leaving said there must be no communication with the shore or vessels until he heard from the authorities. At meridian a letter was received from the President, informing Captain Morris, of the *Florida*, that he was ready to receive him. Captain Morris at this interview was informed that he would be allowed forty-eight hours to remain in port, but that should the Brazilian chief engineer, who had already been sent on board the *Florida* to examine her machinery, judge the time too short, an extension would be granted. The President requested Captain Morris to give him his word of honour not to break either the laws of neutrality or of Brazil while in port, stating that he had already received the same assurances from the United States Consul on the part of the United States ship *Wachusett*. This promise Captain Morris immediately gave. The Brazilian admiral, who was present during the interview, suggested to Captain Morris that he had

better move his vessel nearer in shore, and between the Brazilian men-of-war, so as to prevent any chance of collision between the two belligerent vessels.

Captain Morris at once repaired on board his vessel, and moved her to the designated anchorage. The Brazilian engineer, after his examination, reported that it would take four days to complete the necessary repairs. Having been many days at sea, and the usual stay in port being too short to give the crew liberty, Captain Morris determined to take advantage of the four days allowed him, and permit the crew to go ashore by watches for twelve hours, and accordingly sent one-half ashore that afternoon (the 5th) to return the next day at meridian.

At 7h. 30m. a boat came alongside, and upon being hailed answered that she was from the United States steamer *Wachusett*, with the United States Consul, who had a communication for Captain Morris. The letter and a card of the consul were received by First Lieutenant Porter, who, after noticing that the former was simply directed to Captain Morris, sloop *Florida*, returned it to the boat, stating at the same time that the vessel was the C. S. steamer *Florida*, and when the letter was so addressed it would be received; the boat then shoved off.

About 1h. p.m. on the 6th, a Mr. de Vidiky came on board the *Florida* with a communication for the captain. He stated that he had received a letter from his friend the United States Consul, enclosing one for Captain Morris. He then asked permission to read his letter to the captain before handing him the one intended for him. The consul requested Mr. de Vidiky to carry the challenge to the *Florida*, and to inform the captain that if he would accept it he (the consul) would use his influence to have the *Florida's* repairs finished very rapidly. Captain Morris here stopped the gentleman, and said he had heard sufficient; that any letter from him, if properly addressed, would be received, and at the same time requested him to say to the United States Consul that the *Florida* had come into Bahia for a special purpose, which being accomplished she would leave, that he would neither seek nor avoid the *Wachusett*, but should he encounter her at sea would do his utmost to destroy her. Mr. de Vidiky then left, carrying back both letters. At 5h. p.m., all except one or two of the port watch having returned on board, the stated watch was sent on liberty; several officers also went on shore.

At 3h. 15m. on the morning of the 7th, the moon having set, leaving the morning very dark, the *Wachusett* left her anchorage, and passing the Brazilian men-of-war, steamed for the *Florida*, striking her starboard quarter, cutting the rail down to the deck, and carrying away the mizen mast, at the same time pouring upon the deck of the *Florida* a volley of musketry and a charge of canister from her fore-castle pivot gun. All that can be gathered of the occurrence on board the *Florida* is from the six men who escaped after her capture, and is as follows:—

That the *Wachusett* approached from the direction of the entrance of the harbour, and as soon as perceived by the officer of the ship was

hailed; the officer receiving no answer called all hands to quarters, but before they were on deck the *Wachusets* struck the *Florida* as above stated; the *Wachusets* then backed off, continuing to fire upon the *Florida*, but upon getting well clear of her demanded her surrender, to which Lieutenant Porter (who was in charge, the captain being ashore), answered no. The *Wachusets* then continued the firing, and some of the men say used the after pivot gun, an eleven inch Dahlgren. The officers and crew of the *Florida* made a short but gallant defence, and only surrendered when a large proportion of the small number on board had been killed or wounded. Of the officers the only one known to be wounded was Mr. T. T. Hunter, jun., who was in charge of the deck. After the surrender fifteen of the crew endeavoured to escape imprisonment by jumping overboard and swimming ashore. Only six of them succeeded, the remaining nine having been shot while in the water by men on the forecastle and in the boats of the *Wachusets*. She then took the *Florida* in tow, and went to sea without any effective resistance having been made by either the Brazilian forts or men-of-war. About two hours after the departure of the Federal steamer the Brazilian ships started in pursuit, but being unable to overtake the *Wachusets* returned the same afternoon.

The following is a list of those on board at the time of capture:—  
First Lieutenant T. K. Porter, Second Lieutenant S. G. Stone, Fourth Lieutenant R. S. Floyd, Assistant Surgeon T. J. Carlton, Acting Masters D. G. Bryan and T. T. Hunter, jun., Chief Engineer W. S. Thompson, Assistant Surgeon Thomas Emory; midshipman, G. T. Sinclair, jun.; first assistant engineer, W. Ahern; second assistant engineer, J. B. Brown; captain's clerk, W. D. Hough. The officers who were ashore at the time of the capture are Captain Morris, Third Lieutenant S. Barron, jun., Paymaster R. Taylor, Midshipman J. H. Dyke, and Master's Mate J. B. King.

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#### GALLANT DESTRUCTION OF THE CONFEDERATE RAM "ALBEMARLE."

The Hampton Roads correspondent of the *New York Herald* gives the following account of the destruction of the ram *Albemarle*:—  
"Along the dock to which the *Albemarle* was tied were a large number of soldiers, evidently stationed there to guard against a landing of our force after a surprise. In front of their lines blazed cheerily up a number of camp fires, which threw a strong light on the Confederate vessel and the bosom of the river. By the aid of the glare Lieutenant Cushing discovered the floating pieces of timber which surrounded the ram on all accessible sides, to guard against the approach of rams and torpedoes, and by the aid of the same light he plainly saw the large bodies of soldiers thronging to the wharf and blazing away at his boat. To quiet these fellows he brought the bow

of his boat round a little, and discharged a heavy stand of canister into them from his 12-pounder howitzer, mounted at the bow, and sent them flying. Making a complete circle under a scorching musketry fire, at less than eighty yards, he came round the buoy at full steam, and struck the floating guard of timbers, pressing them in towards the hull of the ram. His boat soon lost headway, and came to a standstill, refusing to back off or move ahead. The enemy fired muskets and pistols almost in his face, and from the ports of the ram, and from the hundreds of small arms on shore. Several of his men were wounded, and Paymaster Swan had fallen severely wounded. The officers and crew of the *Albemarle* cried out "Now we've got him; surrender, or we'll blow you to pieces."

The case looked desperate, but Lieutenant Cushing was as cool and determined at that moment as he could be under the most agreeable circumstances. He knew that the decisive moment had come, and did not allow it to glide from his hands. He seized the lanyard to the torpedo and the line to the spar, and crowding the spar until he brought the torpedo under the overhanging of the *Albemarle*, he detached it by an effort, and the next moment pulled the lanyard of the torpedo, and exploded it fairly under the vessel, on her port side, just below the port-hole of the 200-pounder breech rifle, which at that moment was discharged at the boat.

The immense volume of water thrown up by the explosion of the torpedo almost drowned all in the boat, and to add to the peril of the moment the heavy shell from the enemy's gun had gone crushing through the bottom of the boat. She at once began to sink in the most rapid manner, and Lieutenant Cushing ordered all hands to save themselves as best they could. He divested himself of his coat and shoes and plunged into the river, followed by those of his men who were able to do so. All struck for the middle of the river under a hot fire of musketry, the balls perforating their clothing and striking all about them, and in two or three instances so badly wounding the swimmers that they sunk before boats from the shore could reach them. Lieutenant Cushing heard the Confederates take to the boats and push after the survivors, demanding their surrender. Many gave up, but how many fell into Confederate hands has not yet been ascertained.

Lieutenant Cushing swam down the river half a mile, until, exhausted and chilled by the cold water, he was compelled to struggle to the shore, which he reached about daylight. He crawled through a swamp until he reached a post within speaking distance of the enemy's fort. While lying there the Confederate officers walked by, and from their conversation he learned that the ram was destroyed. After a while, deeming his situation unsafe, he managed to push himself along on his back with his heels about sixty yards, and got a better position before midnight. He secured the services of a negro to go back and look after the *Albemarle*. The negro reported her clean gone—sunk. The lieutenant then struck through the swamp until he reached a point six miles below the town, when he took a boat and put off for the squadron, twelve miles distant, reaching it in safety.

## CAPSIZING OF THE "ORLANDO'S" CUTTER.

The following account of the catastrophe has been addressed to the Commander-in-Chief by the captain of the *Orlando* :—

*H.M.S. Orlando, Tunis Bay, November 4th.*

Sir,—It is my most distressing duty to report the following deplorable accident, which occurred on the evening of the 3rd inst. :—

A party of officers, names and addresses annexed, and those of the men accompanying them, left her Majesty's ship under my command in a cutter on a picnic excursion, with a good working breeze from S.S.E., for the S.E. coast of the bay, where they landed. The wind freshened in the afternoon, but did not blow hard, and being fair for the boat's return gave me no anxiety about them, until their absence extended to some time after dark. During the night it blew very hard, and at daylight I borrowed the steam launch of the French frigate *Invincible*, which was most kindly placed at my disposal by M. le Commandant Chévalier, and sent her with cutter in search of the missing boat.

The cutter returned after dark with the painful intelligence of the loss of the whole party except one man, Edward Faye, coxswain of the cutter, who was found naked and exhausted in an Arab hut. This man reported that the party left the shore to return to the ship about 3h. 30m. p.m., with a fresh fair wind and under a single reefed foresail, and when from 800 to 1,000 yards off shore was capsized by a violent gust of wind. All of them clung to the boat for a considerable time, when Faye, finding the boat drifting far from shore, and no chance whatever of assistance from any quarter, struck out for the shore.

The steam launch continued all day to search to leeward for the swamped boat, but without success. The following night it continued blowing very hard, and at daylight I got the ship under way and proceeded to the locality of the accident, and sent boats and parties to search the shore, in the faint hope that some, swimming, might have reached the shore exhausted, and remained undiscovered the previous day; and then round the track I considered the boat would drift to the island of Paina, where I had sent the *Syrian* gunboat in the early morning, to search from there along shore to Cape Carthage. Near the above island the broken mast of the boat and a pea jacket belonging to Mr. Fielding, midshipman (one of the unfortunates, and a survivor from the wreck of the *Orpheus*), were found floating. This proved the direction of the drift; but no further traces of the boat or people could be discovered.

I cannot conclude this afflicting story without gratefully mentioning the kindness evinced by Monsieur le Commandant Chévalier, and the able and useful service rendered by the launch of the *Invincible*.

I have, &c.,

GEORGE RANDOLPH, *Captain.*



The following is a list of the officers and men capsized in H.M.S. *Orlando's* cutter, November 3rd, 1864:—Albert P. Still, lieutenant; Charles B. Wood, surgeon; Edward F. Pritchard, captain R.M.L.I.; Byron Stratford, assistant-paymaster; Don Baco J. da Gama, (midshipman Portuguese Navy); Bernal W. Fielding, midshipman; Samuel B. Kemble, midshipman; William C. Hadnill, master's-assistant; George Arthur, quartermaster; John Fitzsimmons, A.B.; George G. Webber, ordinary seaman; Charles Eastbrook, private R.M.L.I., Plymouth division; Edward Faye, coxswain (saved).

The sudden calamity created universal sympathy in Tunis. All the foreign representatives displayed their flags half mast, and waited upon the English consul-general to express their condolence. Mr. Fielding, one of the unfortunate young officers who perished, was one of the few survivors of the lamentable wreck of H.M.S. *Orpheus* on the coast of New Zealand.

### Nautical Notices.

#### PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 609.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
57. Puerto Cabello	West Indies	10° 30' N., 68° 2' 4" W.	R.	79	14	Est. 1st Sept., 1864. Red and white alternately every 40 seconds.
58. Texel Island	Holland	53° 11' N., 4° 51' 4" E.	R.	164	18	Est. 1st Nov., 1864. Interval once a minute.
Vlieland	.....	.....	..	..	..	Made invisible between certain bearings. (a.)
Terschelling	.....	.....	F.	..	24	Est. 1st Nov., 1864. Altered from Revolving.
59. Robben Island	Table Bay	33° 48' 9" S., 18° 22' 5" E	F.	154	20	Est. 1st Jan., 1865.
Green Point	Ditto	.....	Ff.	65	13	Est. 1st Jan., 1865. Flash every 10 seconds.
Mouille Point	Ditto	.....	F.	44	10	Est. 1st Jan., 1865. (b.)
60. Dartmouth Harbour	England	South coast	F.	85	11	Est. 14th Dec., 1864. Varied. (c.)
61. Aran Island	Ireland	55° 0' 9" N., 8° 33' 8" W.	Ff.	233	19	Est. 1st Feb., 1865. Flash every 20 seconds.
62. Lunenburg Harbour	Nova Scotia	Battery Point	F.	not said		Est. about 1st Nov., 1864.
Fish Island	Ditto	Tusket River	F.	not said		Est. 15th Nov., 1864. Two lights horizontally.
Petite Passage	Boar's Head	On South side of North entrance	Ff.	not said		Est. 1st Dec., 1864. Alternate red and white flashes at one minute intervals.

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

(a.) 58.—Also, that on and after the 1st day of November, 1864, the light on the island of Vlieland will be *eclipsed* between the bearings of S.W.  $\frac{1}{2}$  S. and S.  $\frac{1}{4}$  E., or in the direction of the shoals at the entrances of Thomas Smit and N.O. Gats; it will show *red* when bearing from S.  $\frac{1}{4}$  E. round by East to N.E.  $\frac{1}{2}$  E; and *white* from N.E.  $\frac{1}{2}$  E. round by North to S.W.  $\frac{1}{2}$  S. The

*red* light will indicate the direction to the entrances of the channels of Stortemelk and Noordoostgat; but a portion of it will show over Vlieland.

(b.) 59.—The former lights from these two points will be discontinued.

*Directions*.—For Table Bay from the southward keep Cape Point Light open of the land at Slangkop Point until Robben Island Light (which will be seen before the *flashing* light on Green Point) bears N.E.  $\frac{1}{2}$  E., then steer for it; and when Green Point Light bears East, steer E.N.E. until the *red* light on Mouillé Point opens North of Green Point Light, bearing S.E.b.S.; thus clearing the Vulcan Rock and its reefs. Now alter course to S.E.b.E.  $\frac{1}{2}$  E., which will lead one mile northward of Mouillé Point Light, within which distance no stranger should round the point at night. When Mouillé *red* light bears S.S.W., steer about S.b.E.  $\frac{1}{2}$  E. for the anchorage, but do not approach the *green* light on the end of the breakwater *too close*. When the *flashing* light on Green Point is shut in with the hillocks near Mouillé Point, or Mouillé Point *red* light bears N.W., about one mile, a vessel may anchor in 6 to 8 fathoms, with Mouillé Point light about N.W.b.N.

Entering Table Bay from the northward give Robben Island a good wide berth, for the island is low, and the Whale Rock is less than a mile and a half S.b.W.  $\frac{1}{2}$  W., from the lighthouse, and not a mile from the nearest point of the island. Having sighted Robben Island Light, haul to the S.W., if the light bear anything West of South, until the *flashing* light on Green Point bears S.b.E. or S.S.E., then steer for it until Robben Island Light bears N.E., then steer S.E.; and when Mouillé *red* light bears S.S.W. steer about S.b.E. for the anchorage.

With Robben Island Light and Green Point or Mouillé Point Light, a vessel may determine her position by cross bearings; but in working for the anchorage the safest and easiest plan to adopt is, whilst Green and Mouillé lights are open of each other, to tack when Robben Island Light bears N.b.W.  $\frac{1}{2}$  W., and when those lights approach each other or become in line, tack when Robben Island Light bears N.b.W. This will prevent accidents from the low Blaawubergh beach, on the eastern shore of the bay, and its deceptive appearance at night. Little can be lost in thus beating in by giving up the smooth water near the shore, as a constant northerly current sets out between Robben Island and the main land; and the wind is more violent from the S.E. on the East side of the bay than it is to the westward.

(c.) 60.—The lighthouse stands on the northern or Kingswear side of the harbour, about 50 yards South of Beacon Hill House.

The light will show white in all the fairway entrance of the harbour through an arc of  $9\frac{1}{2}^{\circ}$ , between the bearings of N.  $\frac{3}{4}$  W. and N.b.W.  $\frac{1}{2}$  W.; *red* between N.b.W.  $\frac{1}{2}$  W. and the land on the north-east side over the shoals of Kettle Point and Castle ledge; and *green* between N.  $\frac{3}{4}$  W. and the land to the southwest, over the shoals of the Checkstone and Pih Rock.

A *fixed white leading light*, 70 feet above the level of high water, will also be shown from a flag-staff 110 feet seaward of the principal white light, which lights in line bearing N.  $\frac{1}{2}$  W. will lead in the middle of the fairway channel.

After passing between and Kettle Points, another white light near the coast guard station, at the southern part of the town of Dartmouth, will show the fairway to the anchorage; while a *red* light will show over the shoals on the North side of the harbour; and a *green* light over the shoal of the One Gun Point on the South side of it.

A seamark or beacon of masonry, 500 feet above the sea, of grey granite in the form of a pyramid, 80 feet high, will be erected on the high land, at nearly half a mile N.E.b.N. from the outer Froward Point, at the eastern side of entrance to the harbour.

The former fixed red light at St. Petrox Point, on the south-east side of the entrance to the harbour, will be discontinued.

## SCIENCE AND SCRIPTURE.

Where wast *thou* when I laid the foundations of the earth? Declare it  
thou hast understanding.—*Job xxxviii. 4.*

Be not afraid—only believe.—*Mark v. 36.*

Anchored on Thee—in hope and humble trust—  
Saviour of men—my firm belief would be!

I know and feel that mortals are but dust—

Their “wisdom, foolishness”—apart from Thee!

They change—Thou changest not!—their creed to-day

To-morrow melts in air and dies away.

Yearly new systems rising into view,

The last year's *facts*—the next, are re-arranged,

One thing they prove—they prove the last *untrue*,—

Themselves by fresh discoveries to be changed.

With every wind of doctrine veering round,

No footing for th' unstable soul is found.

'Tis well to change, till certainty is gained,—

Investigate, compare, and rectify;

Science can *wait* till surety is attained,—

*Faith* must be *now*—to-morrow we may die!

Then let not science seek to shake our faith—

Itself still shaken by each passing breath.\*

Science may track the stars—the waves control—

Pierce the deep earth, and weigh the buoyant air,—

Man is not *mind* alone—but *heart* and *soul*—

Far-stretching Science fails to reach him there!

*That* empire is his Maker's—who has given

Laws not of earth—derived direct from heaven.

\* In an entertaining reminiscence of a *Trip to the English Lakes*, in the brilliant spring of the present year, occurs a scientific anecdote, so curious in itself and so *apropos* to the geological discussion, that I cannot forbear transcribing it, as illustrative of my present theme. The author is speaking of the comparative altitudes of the Cumberland mountains, which, he states, differ but slightly from each other, and gives a list of several whose heights are nearly on a par. “Does this (he inquires) affect the argument of subsidence, against eruption, as the cause of the irregularity of the earth's crust?” and then proceeds as follows:—“In 1851, I was present at a private gathering of *savans*, at the house of an Italian friend, when Professor B——, of Bologna, showed us the result of an interesting experiment, illustrative of the latter theory. He was the most speechless and reserved person I ever met with, but there was a deal in him! As to his ingredients, he preserved a profound secrecy; they were mixed in another room by himself alone. He then showed us his liquid in a pan, and boiled it before our eyes. When cooked, he allowed us to see it cool, and in that process, sure enough, instead of subsiding, up gradually arose undulations on the surface, representing, as he said, mountain ranges, water sheds, valleys, dales, and so forth. When cold, the substance was as hard as metal—basaltic looking *stone*; and when fractured displayed various *stratifications*, and line upon line in places, like the flints in the chalk formations. We asked no end of questions, but the oracle was dumb.” It is worthy of remark, in the above curious and interesting experiment, with what rapidity the different processes of melting, cooling, subsidence, elevation, and

The CHRISTIAN hath a compass and a chart—  
 A pilot who o'er troubled waves can steer ;  
 A pole-star that doth confidence impart—  
 And if his light is narrow it is clear.  
*Their* light is yet but darkness,† and how great  
 The darkness *felt* of that unsettled state !

When Egypt under such a darkness lay,  
 The land of Goshen basked in heaven's blest light,—  
 Israel rejoiced beneath the sunny ray—  
 All *was*—all *is*—to the BELIEVER, bright !  
 Lord ! I remember that I am but dust—  
 I trust in Thee—and know in whom I trust !

October, 1864.

ETA.

### New Books.

LIGHTHOUSES. *By David Stevenson, F.R.S.E., &c.* Black, Edinburgh, 1864.

This might be considered a sketch (and a most interesting one, too,) of the origin of lighthouses and their early and modern construction,—being a reproduction in one neat little volume of papers reprinted from the well known periodical entitled "GOOD WORDS." What would our country be without our lighthouses? well asks Mr. Stevenson. If we returned to the olden time, when ships were not expected to navigate at night, they might still not be safe from the proximity of danger!—in fact, our country, it might be answered, would be the seat of wreck and ruin to navigation, and very properly avoided by every ship that floats. But our author provides various other reasons, and has illustrated his little book in a manner along with its generous type that at once makes it an acceptable addition to the drawing-room table. Those who would have at hand an interesting illustrated sketch of the construction, illumination, and management of our lighthouses, will find it in this compact little volume.

PHYSICAL GEOGRAPHY for Schools and General Readers. *By M. F. Maury, LL.D., &c.* Longman, London, 1864.

"Of the sea and the atmosphere;" or, "of the sea above and the sea below," might have been properly added to the foregoing title:—words which the author himself somewhere applies with much truth when treating on them. In fact, the addition we have proposed is absolutely required, since the unqualified title he has assumed leads to the supposition that the Flora, the Fauna, and the various geological forms belonging to physical geography would be

perfect *induration* were performed under *human* auspices in an *imitative world*; though, according to our geologists, it requires some thousands of millions of years to produce similar effects on our *real* one—and cool it down sufficiently for a habitable globe; utterly ignoring, of course, the intervention of a Higher Power, of whom we are told that "He spake and it was done. He commanded, and it stood fast."

† That it *is* felt, and painfully, is apparent in "The Declaration" which so many great men have signed, and which others, greater still, have declined giving their signature to, though protesting against being accused of atheism or infidelity.

found in these few (160) pages. No such thing. Let not the reader look for them, important as they all are in physical geography; but in respect of all concerning it that Captain Maury has pressed into his large volume, that much is compressed here into his smaller one, rendering it a fit and edifying branch of instruction (as far as it goes) concerning the properties and habits, if we may use the expression, of the ocean and the atmosphere of our habitable globe. It was a good idea to prepare such a work; for there are many who will read it who would never otherwise have seen the large work to which we have alluded, and the numerous important facts which it contains will now find their way to juvenile minds, preparing them with some knowledge of the operations of nature on such matters before they witness them in their future experience in life.

---

**LETTERS OF NEARCHUS** to the Officers of the Commercial Sea Service.

**ADDRESS** to the Officers of the Commercial Sea Service. By Nearchus.

"NEARCHUS" appears by the foregoing to be an officer of the Mercantile Marine who has been disappointed of a seat at the Trinity Board, and very laudably takes up the subject of the ills to which his profession is subject. We ourselves are of that class which delights in remedying evils even in his service, and hope never to cease pointing them out as we have hitherto done even down to the first page of our present number. But we must first be satisfied that the evils are not imaginary.

The Address above mentioned takes for its subject of complaint the inquiry by the Board of Trade into the occasion of wrecks or circumstances that might lead thereto. On the propriety of this measure we have long differed from Nearchus, as he will find on referring to our volume for 1842, p. 50. In that volume we advocated, as we always had done, just the kind of inquiry that does take place under the Merchant Seamen's Act, and every inquiry convinces us of the salutary nature of the measure. There are abundances of reasons why such inquiries should take place even in this "land of freedom." In an inquiry of this nature the officer who commands has the opportunity of showing that he has done his duty: it is only where this is not the case that we can imagine the opposition to all inquiry to originate. We commend the paper to which we have alluded to his perusal, and he may turn to a letter in p. 731, vol. 1840, if he pleases, and others too numerous to mention in our former volumes as reasons for our advocating the excellent system of inquiry into mercantile wrecks, &c., instituted by the government.

---

**CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,  
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*Hydrographic Office, Admiralty, November 22nd, 1864.*

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# WRECK CHART OF THE BRITISH ISLES FOR 1863.

Compiled from the Board of Trade Register.

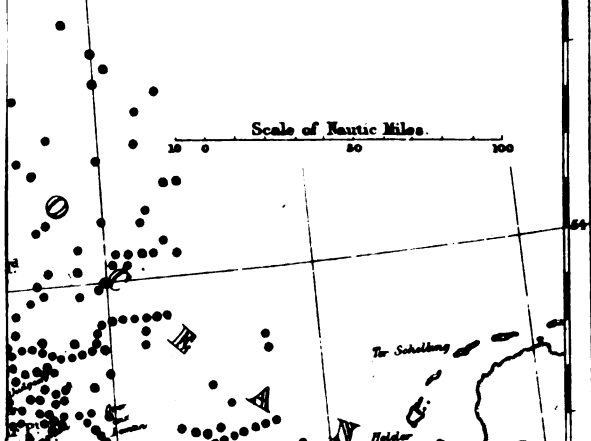
SHOWING ALSO THE PRESENT  
LIFE BOAT STATIONS

● Signifies a Casualty.

⚓ Represents a Life Boat.

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# Royal National Life-Boat Institution,

(Incorporated by Royal Charter.)

Patroness—HER MOST GRACIOUS MAJESTY THE QUEEN.

President—VICE-ADMIRAL HIS GRACE THE DUKE OF NORTHUMBERLAND, KG., F.R.S.

Chairman—THOMAS BARING, Esq., M.P., F.R.S., V.P., Chairman of Lloyd's.

Deputy-Chairman—THOMAS CHAPMAN, Esq., F.R.S., V.P.

## APPEAL.

THE COMMITTEE OF MANAGEMENT have to state that, during the year 1863, the ROYAL NATIONAL LIFE-BOAT INSTITUTION has expended 14,440l. 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:—

### 1863.

Ship <i>Louis</i> , of Bristol .....	20	Schooner <i>Sir Colin Campbell</i> , of		Schooner <i>Economy</i> , of Portmadoc—	
Barque <i>Rubin</i> , of Liverpool .....	12	Whitby—Saved vessel and crew ..	6	Saved vessel and crew .....	5
Schooner <i>Emily</i> , of London—Saved		<i>Ketch Snip</i> , of Amsterdam—Assisted		Lugger <i>Vigilant</i> , of Pecl—Saved	
vessel and crew .....	3	to save vessel and crew .....	5	vessel and crew .....	7
Smack <i>St. Patrick</i> , of Bangor .....	3	Brigantine <i>Arion</i> , of Workington ..	4	Schooner <i>Marika</i> , of Amlwch .....	4
Barque <i>Bonnie Dundee</i> , of Dundee ..	13	Schooner <i>Gulida</i> , of Palermo—Saved		Schooner <i>L'Esperance</i> , of Nantes ..	2
Smack <i>Elizabeth</i> , of North Berwick ..	4	vessel and crew .....	10	Schooner <i>Harry Russell</i> , of Glasgow	
Schooner <i>Kesia</i> , of Sunderland .....	5	Schooner <i>Northern Lights</i> , of Preston		—Saved vessel and crew .....	8
Schooner <i>Mary Anne</i> , of New Quay ..	5	Smack <i>Gipsy</i> , of Drogheda .....	4	Schooner <i>Elizabeth</i> , of Whitehaven ..	4
Schooner <i>Pandema</i> , of Plymouth ..	8	Italian Brig <i>Camogline</i> —Assisted to		Barque <i>Elizabeth Morrow</i> , of Glasgow	19
Schooner <i>Betsy</i> , of Lirixham .....	5	save vessel and crew .....	8	Barque <i>Confiance</i> , of Liverpool .....	23
Brig <i>Regalia</i> , of Whitby .....	7	Brig <i>Tamworth</i> , of Skien, Norway ..	17	Brig <i>Mary Ann</i> , of Scilly—Saved	
Brig <i>Levant</i> , of Bristol .....	10	Brig <i>Providence</i> , of Dantzic .....	7	vessel and crew .....	7
Smack <i>Britannica</i> , of Ramsgate .....	4	Smack <i>Saucy Jack</i> , of Inverness .....	1	Brig <i>Mary Ann</i> , of Scilly—Saved	
<i>Ketch Neuka</i> , of Berwick .....	3	Pilot Boat, of St. Ives .....	7	vessel and crew .....	7
Brig <i>Florence Nightingale</i> , of London	6	Brig <i>Theophilus</i> , of Aberdeen .....	5	Smack <i>Lewia</i> , of Campbelltown .....	3
Schooner <i>Azores Packet</i> , of Falmouth	4	Brig <i>Ina</i> , of North Shields .....	14	Schooner <i>Caledonia</i> , of Preston—	
Schooner <i>Vulcan</i> , of Lyme Regis—		Ship <i>David White Clinton</i> , of New		Saved vessel .....	
Saved vessel .....	1	York .....	8	Schooner <i>Fame</i> , of Maryport—Saved	
Schooner <i>Vigilant</i> , of Kirkcaldy .....	6	Fishing-boat of Tenby .....	3	vessel and crew .....	5
Barque <i>Diadem</i> , of St. John's .....	4	Schooner <i>Margaret and Jane</i> , of		Brig <i>Graze</i> , of Shields .....	15
Ship <i>Conflict</i> , of Plymouth .....	1	Dublin .....	5	Brigantine <i>Ellen</i> , of Jersey .....	8
Barque <i>Wm. Bromham</i> , of Gloucester	6	Brig <i>Duke of Northumberland</i> ..	18	Ship <i>British India</i> , of Liverpool—	
Schooner <i>Cestrian</i> , of Chester .....	5	Fishing-boat, of Fife .....	2	Assisted to save vessel and crew ..	27
Barque <i>St. Lawrence</i> , of Liverpool—		Ship <i>Jupiter</i> , of London—Assisted		Fishing-boat of Aldborough .....	3
Saved vessel and .....	14	vessel and crew of eight men, after			
Brig <i>Marietta</i> , of Lisbon .....	1	collision .....			417

During the year the Society has granted rewards to the Crews of Shore-boats, &c., for saving the following Shipwrecked Persons:—

Brigantine <i>John and Edwin</i> , of		Sloop <i>Francis</i> , of Cardigan .....	3	Shore-boat of Carlingford Lough,	
Whitstable .....	4	Fishing-boat of Faha, Co. Cork ..	6	Killoven .....	3
Barque <i>Pudyma</i> , of Glasson Dock ..	17	Brig <i>Phœnix</i> , of Teignmouth .....	5	Ship's-boat capsized off Deal .....	2
Fishing-boat of Castletown, Ireland		Sloop <i>Swiss</i> , of Tralee .....	2	Fishing-boat of Thurso, N.B. ....	1
Schooner <i>Immanuel</i> , of Hanover ..	7	Fishing-boat of Great Yarmouth ..	1	Shore-boat of Hurst Castle, Hants ..	6
Barque <i>Sea Swallow</i> , of Sunderland		Brig <i>Genoa</i> , of Colchester .....	10	Brig <i>Antigua Packet</i> , of Liverpool ..	10
Schooner <i>Shelah</i> , of Wexford .....	5	Ship <i>Genoa</i> , of Liverpool .....	11	Customs' boat of Shields harbour ..	5
Shore-boat of Arranmore, Co. Do-		Ship <i>Alli</i> , of Helsingfors .....	14	Brigantine <i>Arthur Leary</i> , of London	7
negal .....	3	<i>Ketch Helena</i> , of Newport .....	4	Schooner <i>Heinrich</i> , of Stranland ..	7
Brig <i>Maid of Kent</i> , of Rochester ..	5	Fishing-boat of Skibbercen, Co. Cork		Fishing-boat of Killard, County	
Barque <i>Henri Sorensen</i> , of Bordeaux	12	Brig <i>Alabama</i> , of Gloucester .....	6	Clare .....	3
Ship <i>Bois Rouge</i> , of Nantes .....	6	Brig <i>Pelican</i> , of Drogheda .....	5	Brig <i>Lennox</i> .....	11
Ship <i>John H. Elliot</i> , of New York ..	55	Fishing-boat of Kenmare, Co. Kerry	2	Brig <i>Marietta</i> , of Lisbon .....	9
Ship <i>J. S. Parsons</i> , of New York ..	21	Fishing-boat of Yarmouth, Isle of			
Fishing-boat of Greencastle, Co. Do-		Wight .....	4		
negal .....	3	Schooner <i>Wanderer</i> , of Londonderry			
Brigantine <i>Ganymede</i> , of Ipswich ..	6	Fishing-boat, Queenstown, Ireland ..	1		

Total number of lives saved in 1863..... 714

For these joint numerous services in saving 714 lives from shipwreck, the Institution has granted rewards amounting to £1,308, in addition to 15 Silver Medals.

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 13,570; for which services 82 Gold Medals, 736 Silver Medals, and £17,830 in cash, have been paid in rewards. The Institution has also expended £82,550 on Life-boats, Life-boat Transporting-carriages, and Boat-houses.

The Committee desire to express their grateful sense of the generous support which they have received from the British Public during the past few years, a support which has enabled them to establish their present magnificent fleet of 125 life-boats on the shores of the United Kingdom. Deeply sensible, however, of the great responsibility that rests on them to maintain their fleet in a thoroughly efficient state, and its crews practised in the management of their boats, which can only be effected by a large and permanent annual income, they earnestly appeal to all classes of their countrymen to aid them in upholding and perpetuating so great and truly national a work.

Donations and Annual Subscriptions will be thankfully received by the Bankers of the Institution, Messrs. WILLIS, PERCIVAL, and Co., 76 Lombard Street; Messrs. COLTUS 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.

January, 1864.

[Over



# LIST OF THE LIFE-BOAT STATIONS

## OF THE

### ROYAL NATIONAL LIFE-BOAT INSTITUTION.

<p><b>ENGLAND.</b></p> <p><b>NORTHUMBERLAND.</b>          1 Berwick-on-Tweed.          North Sunderland.          Boulmer.          Alnmouth.          5 Hauxley.          Newbiggin.          Cullercoats.          Tynemouth.</p> <p><b>DURHAM . . .</b>          Whithurn.</p> <p><b>YORKSHIRE . . .</b>          10 Seaton Carew.          Middlesborough.          Redcar.          Saltburn.          Whitby, No. 1.          " No. 2.          Scarborough.          Filey.          Bridlington.          Hornsea.</p> <p><b>NORFOLK . . .</b>          20 Withernsea.          Blakeney.          Cromer.          Mundesley.          Bacton.          25 Palling.          Winterton.          Calster.          Yarmouth, No. 1.          " No. 2.</p> <p><b>SUFFOLK . . .</b>          30 Lowestoft.          Fakenfield.          Southwold.          Thorpeness, No. 1.          " No. 2.</p> <p><b>KENT . . .</b>          35 Aldborough.          Margate.          Kingsgate.          Walmer.          Dover.</p> <p><b>SUSSEX . . .</b>          40 Dungeness.          Rye.          Winchelsea.          Hastings.          Eastbourne.          45 Newhaven.          Brighton.          Selsey.</p>	<p><b>ISLE OF WIGHT .</b> Brighstone Grange.          Brooke.</p> <p><b>GUERNSEY . . .</b> 50 St. Samson's.</p> <p><b>DORSET . . . .</b> Lyme Regis.</p> <p><b>SOUTH DEVON . .</b> Exmouth.          Teignmouth.          Plymouth.</p> <p><b>CORNWALL . . .</b> 55 Fowey.          Lizard.          Porthleven.          Penzance.          Sennen Cove.          60 St. Ives.          New Quay.          Padstow.          Bude Haven.</p> <p><b>NORTH DEVON . .</b> Appledore.          65 Braunton.</p>	<p><b>CUMBERLAND . .</b> 90 Silloth.</p> <p><b>ISLE OF MAN . . .</b> Castletown.</p>
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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 were shipped at the close of the year just ended.

Competing trials in voyages to the West Indies and Egypt have been made from time to time during the last two years on the bottoms of several Iron Mail Steamers out of Southampton with various new preparations *said to be* anti-fouling and anti-galvanic, as well as thin enamelled iron plates—against Peacock and Buchan's Composition, and the results have invariably proved favourable to their **Number 2** Composition: the reports from India and Australia on its utility and conservative qualities still continue very satisfactory, and ten tons have just been shipped to Bombay by order of the Board for the use of the Peninsular and Oriental Company's magnificent Iron Fleet in the Eastern seas.

The following letter has also just been received from the Marine Superintendent of the Royal West India Mail Company.

*Royal Mail Steam Packet Company, Southampton, 24th Dec. 1865.*

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(Signed)

WILLIAM VINCENT, Superintendent.

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

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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 were shipped at the close of the year just ended.

Competing trials in voyages to the West Indies and Egypt have been made from time to time during the last two years on the bottoms of several Iron Mail Steamers out of Southampton with various new preparations *said to be* anti-fouling and anti-galvanic, as well as thin enamelled iron plates—against Peacock and Buchan's Composition, and the results have invariably proved favourable to their **Number 2** Composition: the reports from India and Australia on its utility and conservative qualities still continue very satisfactory, and ten tons have just been shipped to Bombay by order of the Board for the use of the Peninsular and Oriental Company's magnificent Iron Fleet in the Eastern seas.

The following letter has also just 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.

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

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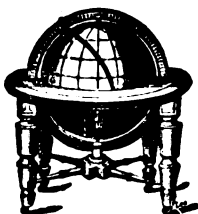
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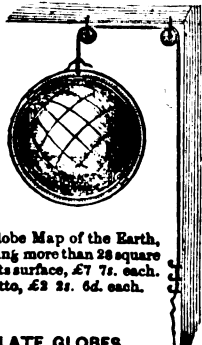


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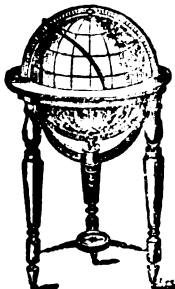
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# THE WRECK REGISTER AND CHART OF THE BRITISH ISLES FOR 1862.

[From the London Daily Times, 7th October, 1863.]

Just at the season when the equinoctial gales remind us of the power of the elements, an Annual Report enables the public to judge of the extent to which this power has been deprived of its terrors by the science and energy of man. The tempests which sweep over these isles are seldom felt severely on shore; but to a large portion of our countrymen, whose business is on the deep, they are visitations of awful import. It is seldom that a fresh gale is not followed by a paragraph or two in our columns announcing a wreck more or less fatal at some point of our coasts; and the loss of life by these disasters is very serious indeed. When we remind the reader that the shores of the British islands represent a coast line of some 5,000 miles in extent, and that there were afloat in our waters last year as many as a quarter of a million of ships and a million and a half of men, it will be at once seen over how vast an area desolation may range. Perhaps, indeed, the actual casualties of a year, when measured against the variety and multiplication of risks, may not seem very numerous, but the losses are really heavy, and become all the more afflicting when it is remembered that they are in a great degree preventible. In the year 1862 five disasters, upon an average, occurred in British waters every day, the total number of such wrecks or accidents being 1,827. In these disasters nearly 5,000 lives were jeopardized, and 630 were actually lost. Nor is this tale of deaths an unusually heavy one. It is rather light than otherwise, for the average of the last eleven years gives an annual loss of nearly 800 lives. Yet the deaths from shipwreck, it appears, taking the year round, were upwards of 12 a week, and little short of two a day. As to property, the calculations vary, but the annual sacrifice would probably not be overrated at a million sterling. Perhaps the distribution of these disasters makes us think less of them. If a fine ship with 700 souls and 1,000,000*l.* in specie on board went down every year, we should regard the calamity as intolerable, and strain every nerve to prevent its recurrence. Some such effort is exactly what our present remarks are designed to recommend.

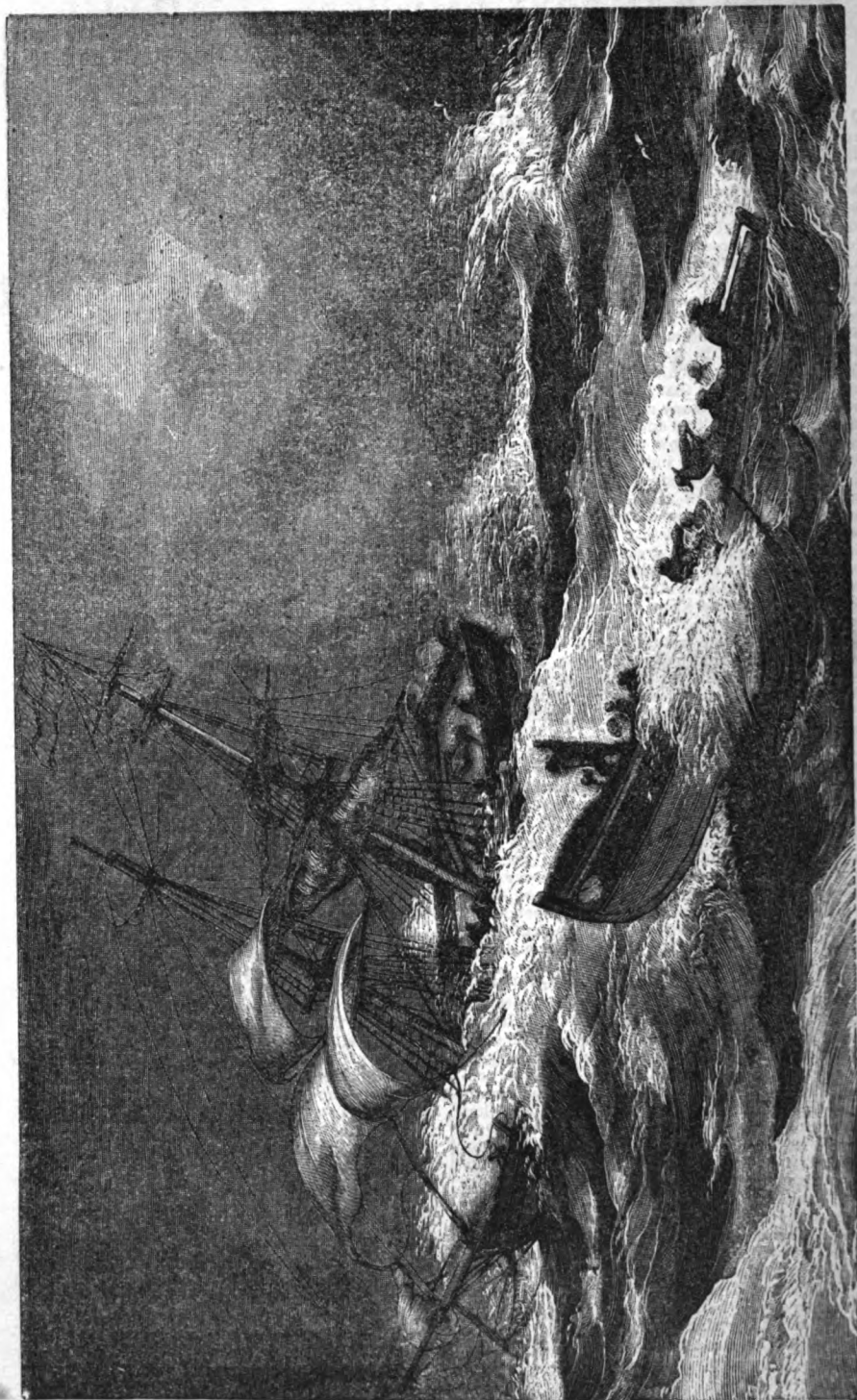
We shall be asked how we are to prevent such a loss of life and property; and we answer, in the first place, that we must send our vessels to sea better manned and better found. There lies the real remedy. In this, as in all other cases, prevention can do far more than cure. We shall presently indicate the measures by which the severity of these calamities, when they do occur, may be mitigated; but it would be far better to prevent them to the utmost of our power from occurring at all. There is no disguising the fact, that ships are systematically sent to sea, especially in the colliery trade, so defectively equipped and manned, that the safety of the voyage is little more than a question of luck. It is not in the most dangerous seas that wrecks are most frequent, but in the seas most frequented by colliers. The "Wreck Chart" is a map of the British coasts, on which the site of every casualty is marked by a black dot. Between Newcastle and the Thames, and especially opposite Yarmouth, these dots are so thick that the sheet seems black with them. They almost reach from the coast of Norfolk to the coast of Holland. Out of the

1,827 wrecks of 1862, upwards of 700 were wrecks of colliers, and one of these vessels, we are told, was 99 years old! A reform of this trade would do more for the "preservation of life from shipwreck" than all that the science and charity of man could ever help to accomplish.

Nevertheless, though we put the case thus plainly, and though we believe that recklessness lies at the bottom of more than half of these deplorable disasters, we cannot overlook the terrible power which the elements occasionally assert. Storms and tempests will sometimes try human skill and courage to the utmost; and it is at these critical periods that aid can be given to the endangered mariner. Life-boats are literally boats that save lives, and save them, too, under the most desperate circumstances. 327 lives saved by them were exactly those which, except for the life-boats, must inevitably have been lost. Every one of these persons was snatched from the jaws of death. In a great number of cases the rescue of a shipwrecked crew is a comparatively easy matter. The sea may be perfectly smooth, it may be broad daylight, the ship's own boats may be available, and many vessels may be near at hand to lend assistance. This accounts for the fact that most of the lives saved are saved by such agencies; but whenever a life-boat puts out, the emergency is desperate: the wrecked crew have no other chance. Except for these boats their doom would be death; and to the services of these vessels during the past year we owe it that fewer than 700 lives were lost, instead of more than 1,000.

We fear that it would be unsafe to build very confidently on the apparent evidence that these disasters are diminishing in fatality or that the loss of life grows less. In so far as shipwrecks are the result of tempests, their frequency would depend on causes not easily measured—the storms, like epidemics, may suddenly produce terrible casualties after long intervals of rest. During the last year or two gales have occurred in rapid succession and with unusual force, so that we are not surprised to find that though the lives lost in 1862 are below the average, the number of wrecks is above it. But may we congratulate ourselves on the efficiency of our machinery for saving life, and assume that the losses, in this respect at any rate, are declining? We hope so; and, indeed, we are obviously justified in concluding that in proportion to the number and completeness of our life-boat establishments lives must be saved from shipwreck. Still, these calculations, like those of railway accidents, are liable to derangement from disasters fortuitously heavy. A wreck, for instance, like that of the *Royal Charter*, though counting for only a single accident in the "Register," might double the tale of deaths for the year. In any case, however, our course is clear before us. We can see our duty without any difficulty. We must look to improvements in the practice of navigation for more than one half of the results which we desire to secure, while for the rest—for the succour and rescue of those helpless crews who do not owe their peril to any default of man—we cannot do better than support and encourage those life-boat establishments which our coasts have been so benevolently provided.

[Over



LIFE-BOAT OF THE NATIONAL LIFE-BOAT INSTITUTION SAVING A SHIPWRECKED CREW.

# Royal National Life-Boat Institution,

(Incorporated by Royal Charter.)

Patroness—HER MOST GRACIOUS MAJESTY THE QUEEN.

President—ADMIRAL HIS GRACE THE DUKE OF NORTHUMBERLAND, K.G. F.R.S.

Chairman—THOMAS BADING, Esq., M.P., F.R.S., V.P. Deputy Chairman—THOMAS CHAPMAN, Esq., F.R.S., V.P.

## APPEAL.

THE COMMITTEE OF MANAGEMENT have to state that, since the beginning of the year 1861, the ROYAL NATIONAL LIFE-BOAT INSTITUTION has expended 29,000*l.* on various Life-boat Establishments on the Coasts of England, Scotland, and Ireland. During the same period the Life-boats of the Institution have been instrumental in rescuing the Crews of the following Wrecked Vessels:—

### 1861.

Flat <i>Cymaraez</i> , of Beaumaris..... 2	Brig <i>San Spiridione</i> , of Galaxide .. 2	Lugger <i>Saucy Lass</i> , of Lowestoft..... 11
Schooner <i>Williams</i> , of Morcombe..... 5	Schooner <i>Vador du Vouga</i> , of Viana .. 5	Smack <i>Adventure</i> , of Harwich..... 10
Smack <i>Gipsy</i> , of Newry..... 4	French Brig <i>La Jeune Marie Therese</i> .. 6	Pilot cutter <i>Whim</i> , of Lowestoft... 7
Schooner <i>Margaret Anne</i> , of Preston .. 4	Barque <i>Perseverance</i> , of Scarborough 6	Barque <i>Undaunted</i> , of Aberdeen... 11
Brig <i>New Draper</i> , of Whitehaven..... 5	Schooner <i>Klizabeth</i> , of Bridgewater 4	Wrecked boat on Blackwater Bank, on the Irish Coast..... 1
Schooner <i>Williams</i> , of Liverpool..... 8	Ship <i>Danus</i> , of Belfast..... 17	Schooner <i>Skylark</i> , of Folkestone..... 6
Lugger <i>Nimrod</i> , of Castletown..... 3	Schooner <i>Hortensia</i> , of Hanover..... 4	Brig <i>Lively</i> , of Clay, Norfolk..... 5
Brig <i>Providence</i> , of Shields..... 5	Schooner <i>Oragon</i> , of Stonehaven..... 4	Barque <i>Robert Watson</i> , of Sunderland 5
Brig <i>Mayflower</i> , of Newcastle..... 8	Brig <i>St Michael</i> , of Marans..... 8	Sch. <i>Auchincruive</i> , of Grangemouth 6
Schooner <i>Village Maid</i> , of Fleetwood .. 4	Spanish Barque <i>Primera de Torro-</i> <i>viega</i> —Saved vessel and crew... 1	Schooner <i>Friends</i> , of Lynn..... 4
Brig <i>Lovely Nelly</i> , of Seaham..... 6	Schooner <i>Hurrell</i> , of Penzance..... 5	Brig <i>Content</i> , of Sunderland..... 5
Brigantine <i>Nugget</i> , of Bideford..... 5	Saved vessel and crew..... 4	Smack <i>Ellen Owens</i> , of Cardigan... 3
Schooner <i>Prospect</i> , of Berwick..... 6	Brig <i>Frederick</i> , of London..... 1	Schooner <i>Eliza Anne</i> , of Dublin..... 5
Sloop <i>Thomas and Jane</i> , of St. Ives .. 5	Brig <i>Anne</i> , of Plymouth—Saved .. 1	Brig <i>Content</i> , of Sunderland..... 5
Fishing-boat of Whitburn..... 4	Brig <i>Anne</i> , of Plymouth—Saved .. 8	Smack <i>Ellen Owens</i> , of Cardigan... 3
Brig <i>Arctiada</i> , of Blyth..... 8	vessel and crew..... 8	Schooner <i>Fly</i> , of Whitby—Saved .. 4
Schooner <i>Desvi Wym</i> , of Portmadoc .. 8	Schooner <i>Betsy</i> , of Peterhead— .. 6	Schooner <i>Epimachus</i> , of Amsterdam 5
Barque <i>Guyana</i> , of Glasgow..... 19	Saved vessel and crew..... 6	
Brig <i>Roman Empress</i> , of Shields .. 10	Barge <i>Peace</i> , of London..... 2	

Number of lives saved by shore-boats and other means, for which the Institution has granted rewards in 1861 .. 136

Total..... 424

### 1862 and 1863—to 8th Oct.

Brig <i>Sisters</i> , of Whitby..... 9	Ship <i>Annie E. Hooper</i> , of Baltimore 18	Schooner <i>Betsy</i> , of Brixham..... 5
Brigantine <i>Maidie</i> , of Stockholm..... 4	Schooner <i>Ceres</i> , of Arbroath..... 5	Brig <i>Regalia</i> , of Whitby..... 7
Brig <i>Jane</i> , of North Shields..... 10	Sloop <i>Lafus</i> , of Padstow..... 4	Brig <i>Levant</i> , of Bristol..... 10
Schooner <i>Liberty</i> , of Dublin..... 3	Schooner <i>Ellen</i> , of Liverpool—Saved .. 3	Smack <i>Britannia</i> , of Ramsgate..... 4
Schooner <i>Sylphidea</i> , of Naksoy— .. 7	vessel and crew..... 3	Ketch <i>Neuba</i> , of Berwick..... 3
Saved vessel and crew..... 7	Smack <i>Mary Elizabeth</i> , of Padstow 3	Barque <i>Bonnie Dundee</i> , of Dundee. 13
Schooner <i>Bellona</i> , of Red Bay..... 1	Smack <i>John</i> , of Teignmouth..... 2	Smack <i>Elizabeth</i> , of North Berwick 4
Brig <i>Pioneer</i> , of Camarvon..... 1	Schooner <i>Ogrye</i> , of Fraserburgh... 6	Schooner <i>Kesia</i> , of Sunderland..... 5
Schooner <i>Princess Alice</i> , of Ipswich .. 4	Schooner <i>James Davell</i> , of New-	Schooner <i>Mary Anne</i> , of New Quay 5
Brig <i>Aliswera</i> , of Worthington..... 4	castle—Saved vessel and crew... 2	Schooner <i>Pandema</i> , of Plymouth... 8
Schooner <i>Elizabeth and Hannah</i> , of .. 10	Schooner <i>Champion</i> , of Liverpool... 10	Brig <i>Florence Nightingale</i> , of London 6
Newburg..... 6	Galliot <i>Aremans</i> , of Jaffa—Assisted .. 6	Schooner <i>Azores Packet</i> , of Falmouth 4
Brig <i>Trial</i> , of Poole..... 7	to save vessel and crew..... 6	Schooner <i>Vulcan</i> , of Lyme Regis .. 5
Barque <i>Cedarine</i> , of Bermuda..... 134	Ship <i>James Browne</i> , of Philadelphia .. 18	—Saved vessel.....
Smack <i>Swadsham</i> , of Liverpool..... 2	—Assisted to save vessel and crew 18	Schooner <i>Vigilant</i> , of Kirkcaldy... 6
Sloop <i>William</i> , of Liverpool..... 2	Smack <i>Countess of Lisburne</i> , of .. 3	Barque <i>Diadem</i> , of St. John's..... 4
Sloop <i>Elizabeth</i> , of Teignmouth..... 3	Aberystwyth..... 3	Sch. <i>Conict</i> , of Plymouth..... 1
Barque <i>Cruz T.</i> , of Oporto..... 14	Barque <i>Royal Rose</i> , of Whitby..... 12	Barque <i>Wm. Bromham</i> , of Glo'ster. 6
Barque <i>Druid</i> , of Sunderland..... 9	Barque <i>Brassil</i> , of Liverpool..... 13	Schooner <i>Cestrian</i> , of Chester..... 5
Smack <i>Merrion Lass</i> , of Aberyst-	Schooner <i>Little Apple</i> , of Berwick... 4	Barque <i>St. Lawrence</i> , of Liverpool .. 14
wyth—Saved vessel and crew..... 3	Schooner <i>Sisters</i> , of Wick..... 3	—Saved vessel and.....
Schooner <i>Rock</i> , of Liverpool..... 3	Ship <i>Louisa</i> , of Bristol..... 20	Schooner <i>Sir Colin Campbell</i> , of .. 6
Fishing-boat of Whitburn..... 12	Barque <i>Rubin</i> , of Liverpool..... 12	Whitby—Saved vessel and crew .. 6
Harge <i>Henry Ernest</i> , of Rochester. 4	Schooner <i>Emily</i> , of London—Saved .. 3	Schooner <i>Arion</i> , of Worthington .. 6
Smack <i>St. Patrick</i> , of Bangor..... 3	vessel and crew..... 3	

Number of lives saved by shore-boats and other means, for which the Institution has granted rewards during

1862 and first nine months of 1863..... 449

Total..... 967

### SUMMARY OF LIVES SAVED:—

1861..... 424 | 1862 and 1863, to 8th Oct. .... 967 | Total..... 1,391

For these joint numerous services in saving 1,391 lives from shipwreck, the Institution has granted rewards amounting to 3,060*l.* in addition to 86 Silver Medals.

The number of lives saved by the Life-boats of the Society, and other means, since its formation, is 13,240; for which services, 82 Gold Medals, 733 Silver Medals, and 17,250*l.* in cash, have been paid in rewards. The Institution has also expended 76,560*l.* on Life-boats, Life-boat Transporting-carriages, and Boat-houses.

The Committee desire to express their grateful sense of the generous support which they have received from the British public during the past few years, a support which has enabled them to establish their present magnificent fleet of 125 life-boats on the shores of the United Kingdom. Deeply sensible, however, of the great responsibility that rests on them to maintain their fleet in a thoroughly efficient state, and its crews practised in the management of their boats, which can only be effected by a large and permanent annual income, they earnestly appeal to all classes of their countrymen to aid them in upholding and perpetuating so great and truly national a work.

Donations and Annual Subscriptions will be thankfully received by the Bankers of the Institution, Messrs. WILLIS, PERCIVAL, and Co., 76 Lombard Street; Messrs. COVATTA and Co., 59 Strand; Messrs. HERRIES, FARQUHAR, and Co., 14 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.

October, 1863.

# LIST OF THE LIFE-BOAT STATIONS

OF THE

## ROYAL NATIONAL LIFE-BOAT INSTITUTION.

### ENGLAND.

<b>NORTHUMBRELAND—</b>	
1	Berwick-on-Tweed. North Sunderland. Boulmer. Alnmouth.
5	Haaxley. Newbiggin. Cullercoats. Tynemouth.
<b>DURHAM</b>	Whitburn.
10	Seaton Carew. Middlesborough.
<b>YORKSHIRE</b>	
	Redcar. Saltburn. Whitby, No. 1.
15	.. No. 2. Scarborough. Filey. Bridlington. Hornsea.
20	Withemsea. Blakeney. Cromer. Mundesley. Bacton.
<b>NORFOLK</b>	
25	Falling. Winterton. Caistor. Yarmouth, No. 1. .. No. 2.
<b>SUFFOLK</b>	
30	Lowestoft. Fakfield. Southwold. Thorpeness, No. 1. .. No. 2.
35	Aldborough. Margate. Kingsgate. Walmer. Dover.
<b>KENT</b>	
40	Dungeness. Rye. Winchelsea. Hastings. Eastbourne.
<b>SUSSEX</b>	
45	Newhaven. Brighton. Selsey.

<b>ISLE OF WIGHT</b>	Brighstone Grange. Brooke.
<b>GUERNSEY</b>	50 St. Samson's.
<b>DOUSET</b>	Lyme Regis.
<b>SOUTH DEVON</b>	Exmouth. Teignmouth. Plymouth.
<b>CORNWALL</b>	55 Fowey. Lizard. Porthleven. Penzance. Sennen Cove. 60 St. Ives. New Quay. Padstow. Bude Haven.
<b>NORTH DEVON</b>	Appledore. 65 Brauntou.

### WALES.

<b>GLAMORGANSHIRE—</b>	
	Penarth. Porthcawl. Swansea.
<b>CARMARTHENSHIRE</b>	Llanelly.
	70 Carmarthen Bay.
<b>PENBROKESHIRE</b>	Tenby. Fishguard.
<b>CARDIGANSHIRE</b>	Cardigan.
<b>MERIONETHSHIRE</b>	75 Aberystwyth Aberdovey. Barmouth.
<b>CARNAVONSHIRE—</b>	
<b>ANGLESEY</b>	Portmadoc. Llanddwynn. Rhoscolyn. 80 Holyhead. Cenlyn. Moelfre Penmon.
<b>CARNAVONSHIRE—</b>	
	Orme's Head.
<b>FLINTSHIRE</b>	85 Rhyi (Tubular).
<b>CHESHIRE</b>	New Brighton (Tub.)
<b>LANCASHIRE</b>	Southport. Lytham. Fleetwood.

<b>CUMBERLAND</b>	90 Silloth.
<b>ISLE OF MAN</b>	Castletown.

### SCOTLAND.

<b>KIRKCUDBRIGHT</b>	Kirkcudbright.
<b>AYRESHIRE</b>	Ayr. Irvine.
<b>ARGYLLSHIRE</b>	95 Campbeltown.
<b>CAITHNESS-SHIRE</b>	Thurso.
<b>ELGINSHIRE—</b>	
	Lossiemouth. Buckie.
<b>BANFFSHIRE</b>	Banff.
<b>ABERDEENSHIRE</b>	100 Fraseburgh.
<b>FORFAR</b>	Buddon Ness. Broughty Ferry
<b>FIFESHIRE</b>	St. Andrew s.
<b>HADDINGTONSHIRE</b>	North Berwick.

### IRELAND.

<b>CO. ANTRIM</b>	106 Portrush.
<b>DOWN</b>	Groomsport. Tyrella Newcastle. Dundalk.
<b>LOUTH</b>	110 Drogheda.
<b>DUBLIN</b>	Skerries. Howth. Poolbeg. Kingstown.
<b>WICKLOW</b>	116 Wicklow.
<b>WEXFORD</b>	Arklow. Cahore. Wexford.
	Rosslare Fort 120 Carnsore.
<b>WATERFORD—</b>	
	Tramore. Dungarvan. Anmore.
<b>CORK</b>	Youghal. 125 Ulycotton.

### The following are Extracts from the General Rules of Management:—

"Each Life-boat to have a Coxswain Superintendent, with a fixed Annual Salary of £8.

"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 are to be paid 5s. each in stormy weather, and 3s. each in fine weather; and on every occasion of going off to a Wreck to save Life, each of the Crew to receive 10s. by day and £1 by night, and equal shares of any Local Subscriptions which may be raised to reward any special act of gallantry or exertion.

"The Crew are provided with Life-belts. The Coxswain is required to keep a list of all the Life-boat Stores, which are to be examined once a quarter by the Local Committee, in order to their being repaired, or replaced, if in the least degree in a doubtful condition.

"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-boats' Crews 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."

# Royal National Life-Boat Institution,

(Incorporated by Royal Charter.)

**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., Chairman of Lloyd's.  
**Deputy-Chairman**—THOMAS CHAPMAN, Esq., F.R.S., V.P.

## APPEAL.

THE COMMITTEE OF MANAGEMENT have to state that, during the past year, the ROYAL NATIONAL LIFE-BOAT INSTITUTION has expended 13,819*l.* 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:—

Ship <i>Louisa</i> , of Bristol.....	20	Schooner <i>Sir Colin Campbell</i> , of Whitby—Saved vessel and crew ..	6	Schooner <i>Economy</i> , of Portmadoc— Saved vessel and crew .....	5
Barque <i>Rubin</i> , of Liverpool.....	12	Ketch <i>Snip</i> , of Amsterdam—Assisted to save vessel and crew .....	5	Lugger <i>Vigilant</i> , of Peel—Saved vessel and crew .....	7
Schooner <i>Emily</i> , of London—Saved vessel and crew .....	3	Brigantine <i>Arion</i> , of Workington ..	4	Schooner <i>Maria</i> , of Amlwch .....	4
Smack <i>St. Patrick</i> , of Bangor .....	3	Schooner <i>Guilia</i> , of Palermo—Saved vessel and crew .....	10	Schooner <i>L'Esperance</i> , of Nantes ..	2
Barque <i>Bonnie Dundee</i> , of Dundee ..	13	Schooner <i>Northern Lights</i> , of Preston	5	Schooner <i>Harry Russell</i> , of Glasgow —Saved vessel and crew .....	8
Smack <i>Elizabeth</i> , of North Berwick ..	4	Smack <i>Gipsy</i> , of Drogheda .....	4	Schooner <i>Elizabeth</i> , of Whitehaven ..	4
Schooner <i>Keria</i> , of Sunderland .....	5	Italian Brig <i>Camogliano</i> —Assisted to save vessel and crew .....	8	Barque <i>Elizabeth Morrow</i> , of Glasgow	19
Schooner <i>Mary Anne</i> , of New Quay ..	5	Barque <i>Providence</i> , of Dantzic .....	17	Barque <i>Confiance</i> , of Liverpool .....	23
Schooner <i>Pandema</i> , of Plymouth .....	8	Barque <i>Saucy Jack</i> , of Inverness ..	1	Brig <i>Mary Ann</i> , of Scilly—Saved vessel and crew .....	7
Schooner <i>Betsy</i> , of Brixham .....	5	Pilot Boat, of St. Ives—Saved boat and crew .....	7	Smack <i>Lewis</i> , of Campbeltown .....	3
Brig <i>Regalia</i> , of Whitby .....	7	Brig <i>Theophilus</i> , of Aberdeen .....	5	Schooner <i>Caledonia</i> , of Preston— Saved vessel .....	4
Brig <i>Levant</i> , of Bristol .....	10	Barque <i>Inda</i> , of North Shields .....	14	Schooner <i>Fame</i> , of Maryport—Saved vessel and crew .....	5
Smack <i>Britannia</i> , of Ramsgate .....	4	Ship <i>David White Clinton</i> , of New York .....	8	Barque <i>Graces</i> , of Shields .....	15
Ketch <i>Neuha</i> , of Berwick .....	3	Fishing-boat of Tenby .....	3	Brigantine <i>Ellen</i> , of Jersey .....	8
Brig <i>Florence Nightingale</i> , of London	6	Schooner <i>Maryaret and Jane</i> , of Dublin .....	5	Ship <i>British India</i> , of Liverpool— Assisted to save vessel and crew ..	27
Schooner <i>Azores Packet</i> , of Falmouth	4	Barque <i>Duke of Northumberland</i> ..	18	Fishing-boat of Aldborough—Saved boat and crew .....	3
Schooner <i>Vulcan</i> , of Lyme Regis— Saved vessel .....	1	Fishing-boat, of Filey .....	2		
Schooner <i>Vigilant</i> , of Kirkcaldy .....	6	Ship <i>Jupiter</i> , of London—Assisted vessel and crew of eight men, after a collision .....	1		
Barque <i>Diadem</i> , of St. John's .....	4				417
Ship <i>Confict</i> , of Plymouth .....	1				
Barque <i>Wm. Bromham</i> , of Gloucester	6				
Schooner <i>Cestrian</i> , of Chester .....	5				
Barque <i>St. Lawrence</i> , of Liverpool— Saved vessel and .....	14				
Brig <i>Marietta</i> , of Lisbon .....	1				

During the year the Society has granted rewards to the Crews of Shore-boats, &c., for saving the following Shipwrecked Persons:—

Brigantine <i>John and Edwin</i> , of Whitstable .....	4	Sloop <i>Francis</i> , of Cardigan .....	3	Shore-boat of Carlingford Lough, Killoven .....	3
Barque <i>Pudyma</i> , of Glasson Dock ..	17	Fishing-boat of Faha, Co. Cork .....	6	Ship's-boat capsized off Deal .....	2
Fishing-boat of Castletown, Ireland	1	Brig <i>Phoenix</i> , of Teignmouth .....	2	Fishing-boat of Thurso, N.B. ....	1
Schooner <i>Immanuel</i> , of Hanover .....	7	Sloop <i>Swiss</i> , of Tralee .....	5	Shore-boat of Hurst Castle, Hants ..	6
Barque <i>Sea Swanion</i> , of Sunderland	7	Fishing-boat of Great Yarmouth ..	1	Brig <i>Antigua Packet</i> , of Liverpool ..	10
Schooner <i>Shelah</i> , of Wexford .....	5	Brig <i>Faith</i> , of Colchester .....	10	Customs' boat of Shields harbour ..	5
Shore-boat of Arranmore, Co. Donegal	3	Ship <i>Genoa</i> , of Liverpool .....	11	Brigantine <i>Arthur Leary</i> , of London	7
Brig <i>Maid of Kent</i> , of Rochester .....	3	Brig <i>Alli</i> , of Helsingfors .....	14	Schooner <i>Heinrich</i> , of Stralsund .....	7
Barque <i>Henri Sorensen</i> , of Bordeaux	12	Ketch <i>Helena</i> , of Newport .....	4	Fishing-boat of Killarney, County Clare .....	3
Ship <i>Bois Rouge</i> , of Nantes .....	6	Fishing-boat of Skibbereen, Co. Cork	2	Brig <i>Lemnos</i> .....	11
Ship <i>John H. Elliot</i> , of New York ..	55	Brig <i>Alabama</i> , of Gloucester .....	6	Brig <i>Marietta</i> , of Lisbon .....	9
Ship <i>J. N. Parsons</i> , of New York ..	21	Brig <i>Pelican</i> , of Drogheda .....	6		
Fishing-boat of Greencastle, Co. Donegal	3	Fishing-boat of Kenmare, Co. Kerry	2		
Brigantine <i>Ganymede</i> , of Ipswich .....	6	Fishing-boat of Yarmouth, Isle of Wight .....	4		
		Schooner <i>Wanderer</i> , of Londonderry	5		
		Fishing-boat, Queenstown, Ireland ..	1		
					297
					714

Total number of lives saved in the year.....714

For these joint numerous services in saving 714 lives from shipwreck, the Institution has granted rewards amounting to £1,297, in addition to 15 Silver Medals.

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 13,920; for which services 82 Gold Medals, 739 Silver Medals, and £18,510 in cash, have been paid in rewards. The Institution has also expended £120,000 on its Life-boat Establishments.

The Committee desire to express their grateful sense of the generous support which they have received from the British Public during the past few years, a support which has enabled them to establish their present magnificent fleet of 137 life-boats on the shores of the United Kingdom. Deeply sensible, however, of the great responsibility that rests on them to maintain their fleet in a thoroughly efficient state, and its crews practised in the management of their boats, which can only be effected by a large and permanent annual income, they earnestly appeal to all classes of their countrymen to aid them in upholding and perpetuating so great and truly national a work.

Donations and Annual Subscriptions will be thankfully received by the Bankers of the Institution, Messrs. WILLIS, FERGUSON, 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.

October, 1864.

# SHIPWRECKS IN 1863.

[From the *London Daily Times*, 1st Oct., 1864.]

THE application of statistics to shipwrecks forms an exceedingly interesting problem. For some time past the pains expended upon the subject have been very considerable, and we may begin to look for our returns. Accurate records are taken of the weather, and of the direction, force, and current of the winds. We can refer to reports giving the readings of the barometer and thermometer, the state of the atmosphere, and even the disturbance of the sea, for any day in the whole year. There is one department of the subject. Then we know exactly how many vessels entered and left our ports during a given period; and, finally, we learn from a special register the number, nature, and results of the casualties which these vessels experienced in British waters. From these facts we may certainly draw many instructive conclusions, but there are still points on which some uncertainty would remain.

Two broad facts meet us at the opening of the inquiry. First, the number of shipwrecks is largely on the increase; next, the loss of life is on the decrease. From this it would seem to follow that we are making way, for the multiplication of casualties might be obviously explained by an unusual frequency of storms acting on a greater number of vessels engaged in coast-navigation, while the saving of life can hardly be attributed to anything but an improvement in the measures adopted for that purpose. So far the conclusions are satisfactory, but yet it is almost certain that accident has a greater share than it should have in determining the results, and that the protection derivable from science is but imperfectly employed. Even if gales have been prevalent, meteorology has made such advances that a tempest seldom takes us unawares. We publish daily forecasts of the coming weather, and storm-signals are hoisted at the chief ports of the kingdom as occasion demands.

The record of the weather for the last five years, in so far as it may be expressed in the annual returns of shipwrecks, is really very remarkable. The severity, duration, and frequency of storms seem to be discernible in a constantly-increasing number of casualties, and it must be remembered that the first year of the series, 1859, was itself distinguished by some dreadful tempests, in one of which the *Royal Charter* was lost. Yet, though the wrecks in 1859 were 1,416, in 1863 they were no fewer than 2,001. Only in 1860 was there any symptom of abatement. In that year the figures did decline from 1,416 to 1,379, but in 1861 they had risen again to 1,494, and in 1862 to 1,827. Consequently there has been an increase of nearly 50 per cent. in the number of these casualties in the space of five years. Now, is it right to look at this increase as representing mainly an extraordinary succession of storms? To some extent, no doubt, we may so regard the matter, for particular gales are specified in the several years as bringing their quotas of wrecks, and we can actually connect a certain proportion of casualties with certain tempests on certain coasts. But if it could be surmised, for instance, that a larger proportion of ill-found or ill-manned vessels were engaged in navigation at the time, that would give some explanation of the returns. Then, as to loss of life, the statistics are effected by exactly the same chances which may govern the statistics of railway accidents. A disaster happening to a single large passenger-ship or an excursion-train may carry the returns to a height greatly above the average without really denoting much diminution of general security.

But there is another element in the question. Besides counting how many lives are lost, we must count how many are saved; and it is possible that the means organized for the salvation of life may outstrip or keep down the causes which operate to its destruction. On this hypothesis unusually bad weather might coincide with an unusually bad condition of shipping, and yet the loss of life would be less, though the catalogue of wrecks might be longer. And it is, we are proud to say, the fact that the Institution charged with the mission of saving life

under these circumstances is now very extensively and admirably organised. The NATIONAL LIFE-BEAT INSTITUTION expends upon its various establishments on our coasts a sum amounting to nearly 14,000*l.* a year, besides considerable disbursements in the shape of rewards and donations for the encouragement of individuals in the same good work. Altogether, there are no fewer than 239 stations on our coasts maintained and provided for the express purpose of relieving ships in distress and rescuing their crews. The other day, too, we informed our readers that the French Government had determined on establishing similar stations on the coasts of France, and of borrowing from us the principles and details of a system which had worked so well. Now, it is obvious that in future years the loss of life in French waters may be considerably diminished by the introduction of this system, and yet leave the conditions of weather and navigation altogether untouched.

There would appear, therefore, to be only one thing of which we are quite certain—namely, that we are making progress in the measures devised for saving life in actual peril. But we also adopt measures for saving life from exposure to peril, and how are we to suppose that these measures have operated? How many lives have been saved through the warnings which kept boats from putting to sea? Or how is it that, notwithstanding this organized system of admonitions and forecasts, the number of actual shipwrecks so increases? We may suppose either that the number of vessels engaged in coast-navigation has been increasing or that tempests have been more frequent, but we can hardly suppose that the warnings have been wholly disregarded. Fishermen, we are told, are gradually becoming attentive to the signs of the barometer, and acquainting themselves with the probabilities of the weather; but if this good habit has obtained any considerable footing among them, we must put the general proposition in fresh terms. Instead of saying that shipwrecks are on the increase, but loss of life on the decline, we must say that shipwrecks are on the increase although many ships are constantly saved from exposure to wreck.

These remarks will show in what a variety of aspects the question may be viewed, but we should probably be right in concluding that the severity of the weather has really of late years exceeded the average standard, and that this has materially influenced the returns of the *Wreck Register*. There is still, however, abundant evidence of mischief for which the weather is accountable only remotely, if at all. We have observed on previous occasions that the classification of the casualties recorded tells a very plain story. Small, ill-found, and undermanned ships are the vessels which suffer wreck, and often, indeed, without the least stress of weather to account for the disaster. Weather has its share in the production of collisions, but a greater share belongs to defective equipment or professional negligence. The sea appears so wide a place that we hardly think enough of the risk of collisions. In fact, it is not very great on the broad ocean, but in our own waters, where a great number of vessels are on the same track between the same ports, it amounts to a very serious danger indeed. SIR DAVID BREWSTER ingeniously compares a ship to a floating reef, and describes one vessel as thus constituting a greater source of danger to another than any reef or rock, since the rock would be stationary, whereas the vessel is in motion. With good charts and good management the captain of a vessel may take effectual precautions against striking on a rock, but he could hardly guard against a floating mass coming towards him without light or warning in a dark night or thick weather. The average of casualties of this class seems to be singularly constant, and yet a good light and a good look-out would almost extinguish the risk. Such, however, was the actual state of things up to the close of last year. Let us hope for the future that warnings and wisdom may enable us to reduce these casualties and losses, even though the cycle of tempests should still continue.









